Brentwood
Fire & Rescue Department

Community Risk Assessment
Standards of Cover
2024

Brentwood Fire and Rescue Department

Community Risk Assessment

Standards of Cover

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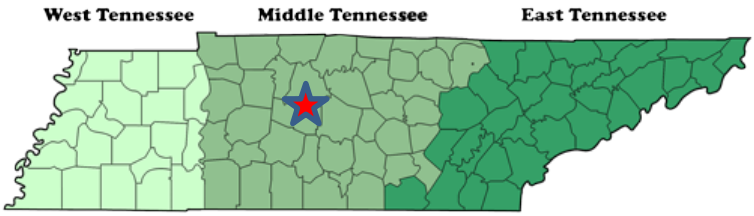
Introduction

The City of Brentwood (city) is located in Williamson County in the mid-state region of Tennessee, commonly referred to as "Middle Tennessee". Brentwood shares its northern border with Nashville which also delineates the line between Williamson and Davidson Counties. Downtown Nashville proper is located eleven miles to the north of Brentwood. The City of Franklin, the county seat and Williamson County's largest municipality by population, borders Brentwood to the south.

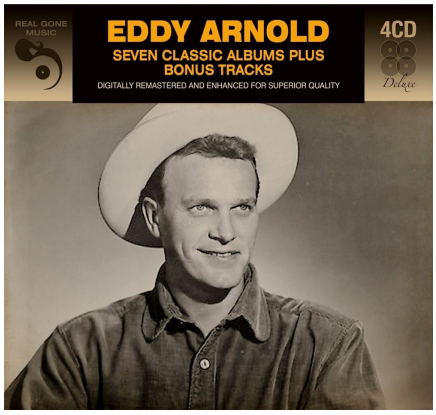


Brentwood was incorporated as a city in 1969, but its documented history dates to the 15th century when it was occupied by Native Americans of the Mississippian culture. They inhabited the area until sometime in the 16th century with settlements at the current locations of Meadowlake subdivision, the Brentwood Library, and the Boiling Springs Academy. By 1795 white settlements had become prevalent as land grants were provided to North Carolina militia members to encourage settlement in the far western side of the state, in what is now Tennessee. John Frost came in 1810 and purchased the old Mayfield Station property. His home, Cottonport, became the center of business activity in the area and still exists today on Old Smyrna Road. Great plantations and small farms spread across the surrounding countryside. Churches and schools were founded, and community life expanded. One of only a few remaining buildings from these years, other than private homes, is the Boiling Spring Academy which opened in 1834 on what is now Moore's Lane.

Boiling Spring Academy

Brentwood's significance during the Civil War is well documented. By 1862 the community held two Confederate training camps. Many skirmishes broke out between the Federal army occupying Nashville and the Confederate contingencies to the south, and at various times Brentwood boasted encampments from both sides. In late 1863 the Union soldiers pushed the Confederates further south, and by the end of 1864 the Confederacy had been all but defeated. As the Union army continued southward the final remnants of the Tennessee Army departed Brentwood and Williamson County.

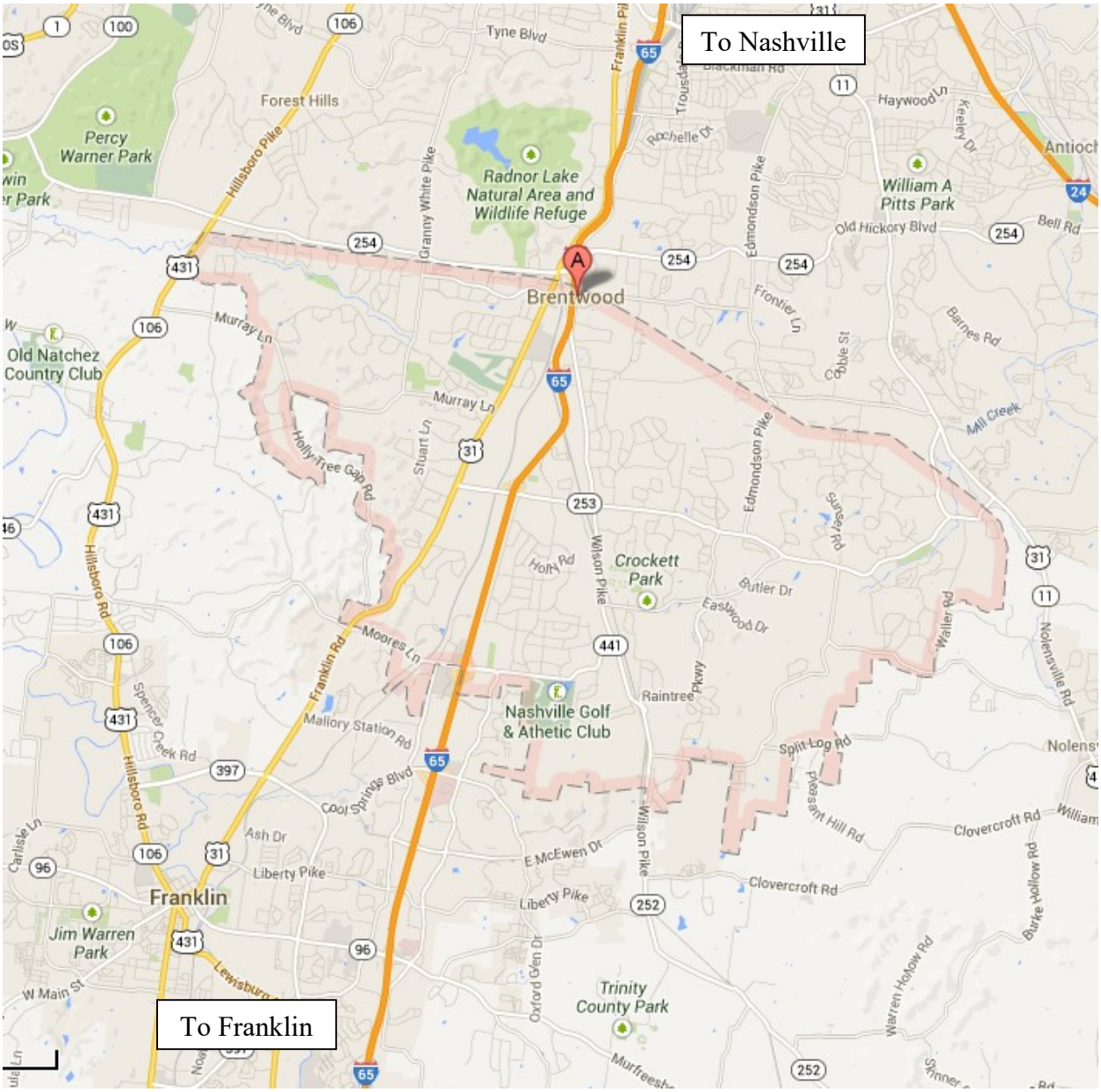
For the next century Brentwood would remain primarily agricultural with its lush rolling hills and fabled horse farms. In 1960, with a population of 1,065, Brentwood Estates became the first organized residential subdivision with water provided by wells. Country singer Eddy Arnold, a Brentwood resident, started the privately-owned Brentwood Water Company using water from the springs at Meadowlake. Eventually water would be obtained from the Harpeth Valley Utility District. This new water source spurred growth throughout the 1960's. The construction of I-65 through the center of town in 1966-67 further accelerated development.



To help manage growth, improve infrastructure and maintain autonomy, Brentwood was incorporated as a city in 1969 with a population of just 3,378 residents in 958 households. By the early 1970's the new city had created a police force and began planning its first commercial development in Maryland Farms. Still primarily a residential community, the City passed the R-2 zoning ordinance providing for minimum one-acre density (one home per acre); a rule which remains to this day. By 1980 the city had grown in population to 9,431. This decade would be marked by dramatic infrastructure improvement including new and expanded road, water, and sewer systems in addition to commercial growth and the establishment of schools, a library and municipal facilities.

Dramatic growth would continue as the population reached 16,392 by 1990. The city continued to focus on quality-of-life projects through the ongoing expansion of a substantial park system in addition to continued residential development. By the time Brentwood celebrated its 25th anniversary in 1994, the population had swollen to 19,317. This growth was accommodated through an aggressive urban growth boundary plan, which culminated with an eight-phase annexation program in 1996 to include 3,300 acres to the east of the former city limits as well as additional parcels to the south and west. The dramatic changes of the previous 30 years, however, would pale in comparison to the most recent decade. From 2000 to 2010 the city's population grew 58.07% from 23,445 to 37,060 and land mass expand from 35.4 to the current 41.2 square miles. 2004 saw the greatest boon in residential dwelling growth with 633 new single-family housing starts. Today, Brentwood is home to 45,373 residents and a daytime population of 67,731.

Despite the enormity of growth experienced in a relatively short period of time, the City of Brentwood has remained true to its original design. Developed as a bedroom community to the music industry and corporate elite of metropolitan Nashville, Brentwood maintains its one-home-per-acre density requirement and remains approximately 90% residential per existing zoning. The remaining 10% is divided equally between light retail and commercial office space and service institutions including churches, parks, schools, and municipal.



City of Brentwood Map (courtesy: Google Maps)
Pink shaded area indicates Brentwood City limits.

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Executive Summary

The Brentwood Fire and Rescue Department (BFRD) is composed of dedicated, service-oriented professionals willing and able to meet the needs and expectations of the community. Since the agency was formed in 1986, Brentwood Fire and Rescue has provided emergency response for the citizens and visitors of Brentwood with a focus on innovative, efficient, and effective service. This continues today as the agency pursues excellence through the accreditation process.

International fire department accreditation is conducted through the Commission of Fire Accreditation International and promotes the idea of continuous improvement throughout the fire service. The process includes the completion of three core documents: The Strategic Plan, Self-Assessment Manual, and Standards of Cover (SOC). The result is a thorough analysis and examination of all areas within the organization resulting in the identification of both organizational strengths and weaknesses. The standards of cover includes a community description, department history, climate data, community risk assessment, performance data, baseline and benchmark objectives, compliance methodology, and recommendations for improvement.

The City of Brentwood is located in Williamson County, Tennessee and was incorporated in 1969. It shares its northern border with the City of Nashville, and its southern border is shared with the City of Franklin. In 1969, the city boasted a population of 3,378 and today is home to a population of nearly 45,373 with a land area of 41.2 square miles. The first organized fire suppression unit began serving the area in 1954 as a paid subscription service. As the city continued to grow, city leaders recognized the need for a municipal fire department which began in 1986 as the Brentwood Fire Department. The department's first year resulted in 166 calls for service; today the agency responds to a wide range of emergencies totaling approximately 4,200 calls per year. The Brentwood Fire and Rescue Department provides fire, EMS, hazardous materials, and technical rescue response through four stations located strategically throughout the city.

As part of the SOC, a community risk assessment was completed using a three-dimensional model including community consequence, incident probability, and agency impact. Risks were classified in each response category (fire, EMS, hazmat, and technical rescue) with this model resulting in a risk classification of low, moderate, high, or special/maximum risk. At the conclusion of the risk assessment, it was determined that there were no maximum risks within the city; however, all other categories were utilized. In addition, the agency developed critical task models for each risk level. Critical tasks are those that must be completed by the effective response force to stop the escalation of an incident. The connection of the risk classification and critical task analysis allows the agency to determine the effective response force for each risk and provide response protocols matching the risk type. The risk assessment portion of the document provides additional details of both risk classification and critical tasks.

The SOC also requires a performance evaluation to measure the department's ability to respond to emergencies. A summary of response data for call processing, turnout time, travel time, and total response time during 2019–2023 is provided in the document. As part of the performance measurement, the agency established baseline and benchmark objectives. The baseline objective is the agency's current performance developed as an aggregate of 2019-2023 data. The benchmark objective is the agency's goal based upon national standards and industry best

practices. The performance analysis has established baseline service objectives and has provided an opportunity to compare our performance to benchmark goals. Data indicates that the agency continues to improve in total response time, but also shows challenges to response performance that are the result of a growing community. The agency has taken steps, and continues to pursue, avenues of continuous improvement throughout all the response time components. The remainder of the standards of cover document will describe in detail both performance capabilities and challenges faced by the organization.

The accreditation process is focused on continuous improvement and must be viewed as a process rather than a project. As a result, the agency has developed a compliance strategy geared towards ensuring that the department seeks continuous improvement and strives to achieve the adopted benchmark objectives. The compliance method includes an annual appraisal of risks, critical tasks, department resources, and performance measurements for each of the major response categories. Additionally, the compliance team will make certain that all recommendations for improvement developed during the SOC review process will be carefully assessed and evaluated.

The pursuit of excellence is a noble ambition for any profession and as a participant within the accreditation process, the Brentwood Fire and Rescue Department has made a commitment to continuously improve with service excellence as the goal. The citizens and community leaders can be assured that the members of BFRD will strive to provide a highly efficient, effective, and innovative response force ready to meet the challenges both today and in the future. The accreditation process has empowered the organization with the data and knowledge necessary to make critical choices for providing the service level expected by the community. The Brentwood Fire and Rescue Department is proud to serve the citizens of Brentwood and will continue to lead the way in the pursuit of excellence.

Description of Community Served

Legal Basis

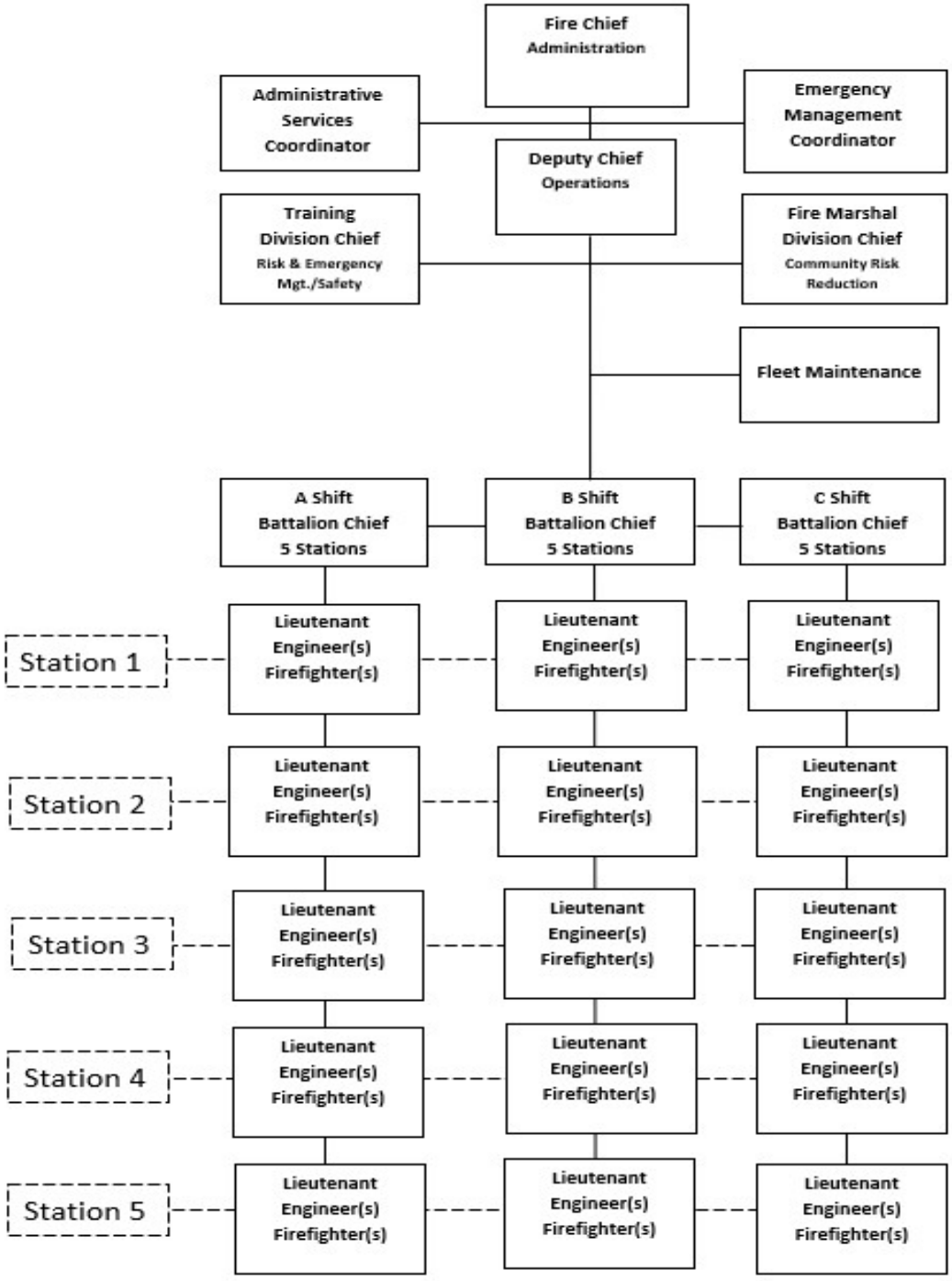
Brentwood was incorporated in 1969 under the Commission-Manager form of municipal government. Under this system, the political responsibilities are divided between an elected city commission and a hired full-time city manager. Part-time commissioners are elected at-large to staggered four-year terms. The commissioners, at the first regular meeting after each biennial election, shall elect one (1) of their number mayor and one (1) of their number vice mayor for a term of two (2) years. The mayor serves as chair of the commission with a vote equal to that of a commissioner.

The City of Brentwood established the Brentwood Fire and Rescue Department (herein referred to as "BFRD," "department" or "agency") on September 26, 1985 via Ordinance 85-51 by the authority granted in Part I, Chapter 21, Part 3 of the Municipal Code. Part I, Chapter 21, Part 3, 6-21-301 of the city's Municipal Code establishes a department of public safety and Part 3, 6-21-303 grants to the city manager the responsibility of supervising and controlling all departments. Part 1, 6-21-102 grants to the city manager the authority to appoint or promote the heads of all organizational units, including that of the fire & rescue department, and Part 7, 6-21-701 specifically authorizes the city manager to appoint a chief of the fire department. Chapter 26. Article II, Section 26-26 establishes the "fire department" as the department responsible for fire prevention and suppression and establishes the "fire chief" as the administrative head of the fire department with the responsibility for developing programs and creating an organizational structure to achieve the agreed upon goals and objectives of the organization while maintaining compliance with local, state, and federal regulations.

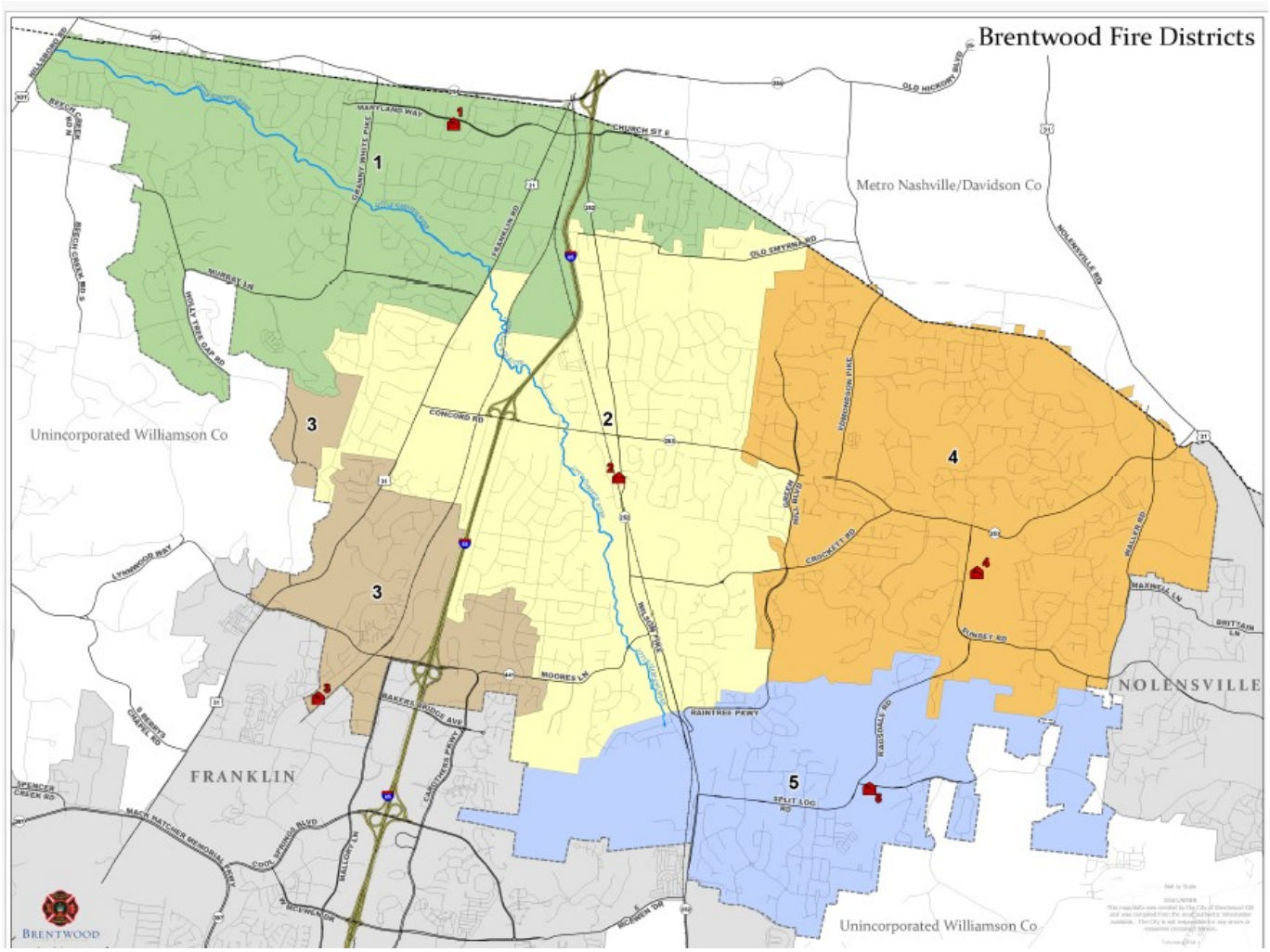
The department began delivering service on September 1, 1986, and received recognition by the Tennessee Commission on Fire Fighting as having met the commission's requirements as a "State Certified Fire Department" on December 8, 1986. Subsequently the Brentwood Fire Department was designated as a Duly Recognized Fire Department by the State of Tennessee Department of Commerce & Insurance in 2003 with the establishment of the Fire Department Recognition Act, Tennessee Code Annotated Title 68, Chapter 102-304.

The department currently operates under a "total authorized strength" model of 80 uniformed employees and one civilian employee. The fire chief oversees the staff of one deputy chief, a division chief of training, a division chief-fire marshal, and three battalion chiefs. The chief supervises three primary branches of the organization; Administration, Operations, and Community Risk Reduction which includes prevention, inspections, and investigation. A support services position, responsible for apparatus and equipment, was established in 2014 and a part-time emergency management coordinator positon was created in September 2018. This model provides an adequate *minimum* daily staffing level of 5 staff and 21 suppression personnel operating four pumpers, one quint, one medium rescue, and one ladder truck out of five fire stations. The department is presently an ISO class II; one of 36 in the State of Tennessee.

Organizational Structure by Rank



Organizational Structure



Brentwood Fire and Rescue Department Response Districts

History of the Agency

The first organized fire company began serving the Brentwood area in 1954. The Thompson Lane Fire Department was a private subscription department owned and operated by Chief Jack Burke that served most of Davidson and parts of northern Williamson Counties. Early Brentwood residents subscribed to the fire protection through door-to-door solicitation. The corporation served the residents well and in 1961, recognizing the need for more broad-based organized fire protection, the Brentwood Chamber of Commerce formally contracted with Chief Burke to provide fire protection community wide. This was at about the same time that Nashville Fire went county-wide through the formation of the Nashville Metropolitan Government, essentially moving the private subscription service out of Davidson County. This enabled Chief Burke to focus his resources in Williamson County, and Brentwood specifically. Construction of a station on Pewitt Drive began in 1964 and the newly reorganized BFD, Inc. began responding out of this facility in 1965. Operating under the expanded name Brentwood Fire & Security, BFD, Inc. functioned with two engines, two tankers and a command vehicle along with ten paid firefighters protecting approximately 1,200 Brentwood residents as well as other contracted areas within Williamson County. The name Brentwood Fire & Security came from a unique arrangement for the organization to provide basic police/security services for the community as well as fire protection (a precursor to the PSO concept). This remained in place until the creation of a formal police department in 1971, although the Fire & Security name remained in use until 1980.

Brentwood Fire and Security, circa 1965

To address a growing population and rapidly expanding infrastructure, the Brentwood City Commission employed Gage-Babcock & Associates, Inc., a fire protection consulting firm, in 1985 to evaluate the city and make recommendations on fire protection needs. In August of that year the final report was presented that recommended that the city assume full fire protection responsibility for Brentwood. On September 23, 1985, the city approved the plan and the municipal fire department was created per ordinance 85-51. The first full-time fire chief, Dean Filer of Prescott, Arizona, was hired two months later and arrived in Brentwood on November 25, 1985. He began building the fire department from scratch developing everything from standard operating guidelines to job descriptions to uniform and apparatus specifications. The spring and summer months of 1986 were spent interviewing and hiring staff, and by September 1st Brentwood had a working municipal fire department. The first fire station built under municipal authority was constructed on Wilson Pike and opened on September 1st, 1986. This facility remains in service as Station 2. In anticipation of a second station opening soon, the department formed with three engines and 25 personnel working revolving 8-hour shifts. This provided five people on duty at any given time.


Fire Station #2, 1301 Wilson Pike

An interesting story of this era involves the purchase of Brentwood's first two fire apparatus: twin 1986 Peter Pirsch pumpers. As the new fire department was awaiting delivery, word leaked that Pirsch would soon be filing bankruptcy. Fearful of not receiving its apparatus as promised, Chief Filer and another firefighter flew up to Wisconsin to lay claim to their pumpers. Rumor has it they drove them off the line and back to Brentwood with the paint still sticky. This was apparently a wise move, as Pirsch cut their deliveries short that year and many orders went unfulfilled. Pirsch officially ceased all operations in early 1987.

In January of 1987 construction began on the Brentwood Municipal Building which would, and currently does, house Station 1 and the administrative offices. Personnel and apparatus moved into that building in August of that year. With the establishment of a full-time fire department and further infrastructure development, the city was able to improve its ISO rating from a split 6/9 to a 5 in 1988. This was due in part to a new 95' aerial ladder that had recently been purchased and placed at Station 1. Prior to this time the BFD did not possess an aerial device. However, with the rapid development of the Maryland Farms Office Park and the construction of multi-story commercial structures, it soon became obvious that this valuable resource would be needed. In response, several businessmen involved in developing the Maryland Farm complex pooled their resources and financed the ladder truck. It would be the first and only privately purchased apparatus in Brentwood's fleet.


Fire Station #1 and Municipal Center
5211 Maryland Way

After only three years, citing health issues, Dean Filer announced his retirement in August of 1989. Captain Kenny Lane was appointed as acting fire chief and remained in that role until January of 1990 when outgoing City Manager Frank Clifton selected Chief David Clark of Bowling Green, Kentucky as Brentwood's second fire chief. Shortly after Chief Clark joined the Department, City Manager Mike Walker was hired to replace Clifton as city manager; a position he would hold for the next 23 years.

One of Chief Clark's priorities was purchasing and implementing the department's first computer system which coincided with the implementation of a new computer aided dispatch (CAD) console in the Communications Center. By late 1990 fire reports were being entered electronically for the first time. Another of Chief Clark's accomplishments was the transition from 8 to 24-hour shifts which would take place in early 1991. In anticipation of the change, firefighters at Station 1 enlarged the office space and converted the open training room to living quarters. With the city further expanding to the south and development beginning to take hold in the Cool Springs area, plans for a third fire station on General George Patton Boulevard began to take shape. In preparation for the opening of Station 3, and with limited resources to purchase additional equipment, Brentwood's 95' aerial device was traded in for two straight stick apparatus; a 55' and a 75' KME "tele-boom". Station 3 opened in March of 1992 and eleven additional firefighters were hired bringing the total number of staff to 37. A study was conducted that year to determine the feasibility of utilizing a public safety officer (PSO) system in Brentwood which would result in the cross-training of police officers and firefighters. Ultimately it would be concluded that the PSO model was not a good fit for the city. The city also created the fire marshal position this year and Captain Lane was placed in that role.

Fire Station #3 and the Service Center
1750 General George Patton Drive

1993 began with the sudden resignation of Chief Clark in January. Kenny Lane was once again tapped as the interim chief as the search for Clark's replacement began. During this time, ISO conducted another evaluation of the department which resulted in a PPC improvement from 5 to 4. After an exhaustive search for Brentwood's third fire chief, Kenny Lane was officially appointed in July of 1993. A greater spirit of cooperation was developed with neighboring agencies during Chief Lane's early tenure, and Brentwood entered into mutual aid agreements with several area departments including Metro Nashville and the Williamson County Rescue Squad. In a move that would change the course and focus of the department, the city signed a memorandum of understanding (MOU) with the Williamson Medical Center Emergency Medical Services that enabled the department to begin providing first responder medical care under the licensure and medical control of the hospital. Prior to this time, members of the department were simply trained in basic first aid skills. With this MOU in place, defibrillators were purchased, and training was scheduled between the Brentwood Fire Department and Williamson Emergency Medical Service (WEMS). WEMS was, and remains to this day, the transporting agency within Williamson County.

By 1995, several members of the department had trained to the EMT level as contemporary fire-based Emergency Medical Service (EMS) continued to take hold in Brentwood. By late 1996, two persons had been trained to the paramedic level and were authorized by WEMS to practice those advanced skills while on duty. This made Brentwood the first fire department in Williamson County to start providing advanced life support (ALS) services. These two paramedics were initially placed on a "squad" to respond to medical calls all over the city along with the assigned

engine company in that district. As more paramedics were hired and/or trained, individual engine companies were equipped, staffed, and authorized to respond as ALS companies.

Over the next several years more emphasis would be placed on fire prevention and education as the community grew and school enrollment increased. Chief Lane appointed David Fox as Brentwood's second fire marshal after having acted in that position since Lane's own promotion. A new "fire safety house" was purchased as a tool to instruct students at local elementary and middle schools and a smoke detector campaign was undertaken to encourage every homeowner to have at least one in place. The first fire safety poster contest was conducted which garnered much participation from the local school children.

With the expanding responsibilities being undertaken by the fire department in addition to new, more comprehensive state standards, David Windrow was hired in 1996 as Brentwood's first full-time training officer; a position that would be elevated to the level of captain a year later. His appointment would result in a more structured training program including computerized training records, the development of training props, a video library, structured lesson plans and training objectives, and the use of live burns for fire training. Personnel also began training in technical rescue, and in 1997 several members were certified in trench rescue. To enable these firefighters to perform their newly acquired skills, rope rescue equipment was purchased and placed on the apparatus. This would mark the beginning of Brentwood's formal technical rescue team.

Early 1998 saw Brentwood take delivery of a new Sutphen pumper which would replace one of the 1986 Pirsch's that were purchased when the department was formed. A van, formerly owned by the local ATF office, was purchased, and equipped as a technical rescue response unit designated as Support 1.

As the city continued to grow, so did the department. Twenty-five (25) members responding to 665 incidents during their first year in existence had grown to forty-two (42) dedicated personnel answering over 1,842 calls for service by the year 2000. Formed when the city boasted a population of approximately 12,000, the department served 23,445 residents by the turn of the century.

Service Milestones

The Brentwood Fire Department entered the new millennium with a total of 42 personnel operating out of three fire stations. A year later, in early 2001, the city's footprint grew by more than 15% as land within the urban growth boundary was annexed in the southeast quadrant increasing Brentwood's land mass from 35.4 to 40.8 square miles. As plans for development surged in that area, the need for additional fire protection and medical service coverage was recognized. In late 2001 Brentwood purchased 15 acres of land for the construction of a facility to include a fourth fire station and training room/drill ground, police department substation, and joint Williamson EMS facility.

Fire Station #4 and the Safety Center East
1300 Sunset Road

The Brentwood Safety Center East, which includes Fire Station #4, a training and drill ground, police substation, Williamson County ambulance, and a community meeting room, opened in April of 2002. A fourth engine company was placed at this facility (Engine 54) and 16 additional firefighters were hired to bring the Department's total authorized strength to 58.

As the city grew, so did the workload. Code enforcement, fire investigation, and plans review had been conducted as a joint effort between on-shift fire personnel and the codes department. Recognizing the need for greater accountability and to meet workload demands, these duties were assigned to the full-time fire marshal.

In early 2003, a new residential zoning category, OSRD-IP, was approved which allowed for a variation to one-acre density. This ordinance was designed to encourage open space preservation and provide a wider range of housing options without compromising the spirit of low-density housing. Under OSRD-IP a developer may build residential homes more closely, i.e. more than one home per acre, provided they preserve an equivalent acre of green space within the development to maintain an "average" one-acre density. This allowed for more flexibility on behalf of the developer but created an increased potential for fire exposure between residential dwellings which did not exist previously. For this reason, a residential sprinkler requirement was added to OSRD-IP for homes with fifteen feet or less separation at the eves.

Another significant CAD system upgrade in 2004 enhanced the communication between fire apparatus and the Emergency Communications Center (ECC). Upgrades included a status reporting system using wireless air-cards and laptop computers. This replaced a radio-based digital status unit which had existed previously.

A year later Brentwood opened its Traffic Operations Center (TOC) and upgraded signalization to include a traffic signal synchronization system and traffic preemption devices. These siren activated devices were designed to assist responding apparatus in navigating through intersections as traffic volumes continued to increase. Also in 2005, a Pierce quint apparatus (Engine 53) was purchased to replace the 55' KME straight stick that had been in service since 1992. The apparatus was designed to aid in protecting commercial properties in the Cool Springs area as well as the high-density housing in the Franklin/Brentwood corridor.

A referendum was passed in 2006 authorizing expansion of the city commission from five members to seven as the fire department celebrated its 20th Anniversary. The city expanded water service to the Split Log Road/Ragsdale Road area through an agreement with the Nolensville/College Grove Utility District. This agreement would begin the process of providing hydrant protection to approximately 98% of the buildable areas within the city limits.

The fire department also organized its first hazardous materials (HAZMAT) team that year. Several members of the Department "loosely" participated in a county-wide team, but the city's capabilities were extremely limited. The decision was made to go to Technician level given the potential risks associated with the interstate highway and CSX railroad. Initially the team started with 25 technicians, which quickly grew to 30: ten per shift. Shortly after the team was formed, a HAZMAT trailer and equipment was purchased and placed in service.

A boundary adjustment between the cities of Brentwood and Franklin in 2007 would add over 300 acres, or approximately ½ square mile, to Brentwood. Smaller acquisitions over the next few years, primarily along the interstate, would add an additional ½ square mile to reach the current footprint of just over 41 square miles.

In early 2008, specifications were drawn, and bids solicited for a 100' aerial ladder truck. The Sutphen Corporation was granted the bid and construction began soon after. Given the increased call volume, number of personnel, and the need for succession planning, Chief Lane made the request to create the position of assistant fire chief of operations. The new position was approved in the FY-2008 annual budget in July and the process of searching for candidates began. Following a nationwide search, Brian Goss from the Grand Rapids, Michigan Fire Department was selected to fill the new assistant fire chief position in February of 2008. Chief Goss immediately began the process of reviewing and updating the department's general operating guidelines (GOGs) and setting the stage to begin the accreditation process.

The fire department took delivery of its new 100' Sutphen aerial at a cost of $790,000. Prior to receiving this apparatus, the department operated a service company with a 75' "straight stick" out of Station 1. Shortly after placing the new apparatus in service Brentwood applied for, and received, a federal SAFER grant to increase manning on the ladder truck. This increased daily staffing by one position and added a second daily crew member to the aerial.

Enhancements to the Service Center facility occurred in early 2009 including the addition of a third bay at Station 3. This space was created to provide additional storage for HAZMAT response equipment as well as space to accommodate a reserve apparatus.

An official U.S. Census count in 2010 indicated a population of 37,060, and as the department grew and evolved so too did its mission and purpose. A recommendation was made by the administrative staff to change the name from The Brentwood Fire Department to The Brentwood Fire & Rescue Department to better reflect the broad-based mission of the organization. On February 22, 2010, The Brentwood City Commission passed Ordinance 2010-02 officially changing the name to the Brentwood Fire & Rescue Department (BFRD). This change is now documented in Part II, Chapter 26, Article II, Division 1, Section 26-26 of the Municipal Code.

By far one of the most significant response-related events ever experienced in Brentwood occurred on May 1st and 2nd of 2010 as the city received an unprecedented 17 inches of rain in less than 30 hours. This experience proved to be the costliest natural disaster in the city's history resulting in the flooding of 264 homes and damage to roads, bridges, and parks. BFRD averaged between 7 and 8 calls per day in 2010 but responded to 86 incidents during this 48-hour period. As a direct result of this event, the department enhanced its water rescue capabilities by acquiring two watercrafts: an inflatable raft and flat-bottom boat. Additionally, a core group of personnel were trained and certified in swiftwater rescue.

Also in May, the department contracted with the Center for Public Safety Excellence (CPSE) for a facilitated Community-Driven Strategic Plan. The process took place that summer with final approval and implementation of the plan by the fire chief via Memorandum 10-25 on September 23, 2010.

2011 proved to be another eventful year for the fire & rescue department. January marked the beginning of a year-long 25th Anniversary celebration of the municipal fire department which had been formed in 1986. Apparatus sported special decals proclaiming the silver anniversary and public contact events were planned which included fire station open houses. A day-long public celebration including educational opportunities, an apparatus showcase, and games and other activities for the kids was staged at the Brentwood Place Shopping Center. This event has since morphed from an anniversary celebration into what is now known as "Public Safety Day"; a

day set aside each fall to engage the public, share information, and provide public education in a festival like atmosphere.

Also in early January, the department took delivery of a new Pierce rescue pumper. This dual-purpose apparatus marked a new design for Brentwood that incorporated the characteristics of a pumper including a 1,500 GPM pump, 500-gallon water tank, and nearly 3,000 feet of hose with the capabilities of a rescue truck to include extrication, confined space, and high-angle rescue equipment. This apparatus is housed in Station 1 at the Municipal Center.

On July 1st Fire Chief Kenny Lane retired, and Assistant Chief Brian Goss was named by City Manager Mike Walker as Brentwood's fourth fire chief. This transition resulted in the promotion of David Windrow from training captain to assistant chief and Russell Peterson from company lieutenant to training captain. A job task analysis was conducted at this time which resulted in a significant revision to the department's Administrative Policies and Procedures Manual. This update included revised job descriptions, minimum training requirements, the establishment of programs and program managers, and the realignment of certain key staff positions.

Over the course of the year, the Municipal Center and Fire Station 1 underwent its first extensive renovation since opening in 1987. The $2.2 million enhancement included a new state-of-the-art communications center, upgrades to new high-efficiency HVAC and lighting systems, the addition and reallocation of office and storage space for the police and fire departments, and a fire & rescue department conference room. The footprint of the department's administrative space nearly doubled because of this process.

Another significant change in structure and culture took place in January of 2012. At the request of several members of the department, and after nearly eighteen months of research and fact finding, the administrative staff implemented a pilot program for a new work shift consisting of 48 hours on duty followed by 96 hours off duty (48/96). Members approved a trial of this new schedule with an 89% approval rating. This grew to 94% approval at the end of the pilot program and 48/96 was sanctioned by the city manager and human resources as the new regular work schedule.

In mid-2012, BFRD was contacted by ISO to schedule a new PPC site visit. This process took place later that fall and resulted in Brentwood maintaining an ISO Class 4 rating which retained our place in the top 30th percentile in the State of Tennessee.

Specifications were developed for the purchase of two new fire apparatus. Through interaction between the administrative staff and an ad hoc apparatus committee, these apparatus were designed to meet identified needs within the community. With significant improvements in Brentwood's water & sewer infrastructure over the past decade and the expansion of the hydrant system to nearly 98% of buildable areas, it was determined that BFRD's 1,600-gallon tanker truck, in service since 1986, was no longer practical. To replace an aging pumper and still augment the water supply when needed, a new engine with a 1,000-gallon capacity water tank was ordered.

The second piece of apparatus, a mini pumper, was also designed and approved for purchase. A new concept to Brentwood, this mini-pumper has been equipped with a 1,250 GPM pump and enough hose and equipment to attack car, brush, and other types of outdoor fires while possessing quick-attack capabilities at structure fires. This apparatus also enhanced the department's ability to gain access to areas within the jurisdiction that presented unique

challenges including weight limited or low clearance access points, steep grades, and narrow driveways. The addition of a compressed air foam system (CAFS) system enables crews to maximize the suppression capabilities of this apparatus while taking advantage of its limited size.

2013 ushered in significant change to the administrative structure of the City. Mike Walker, Brentwood's long-standing city manager, retired after 23 years of service and Assistant City Manager Kirk Bednar was tapped as his replacement. Following a nationwide search, Mr. Jay Evans from Leesburg, FL was appointed as the new assistant city manager.

In early spring, BFRD took delivery of the mini pumper, then designated as Engine 11, which had been ordered the previous year. Engine 11 was placed in service on June 2nd and immediately began responding to calls. Just two weeks later the CAFS was employed for the first time to fight a fire in a CSX train locomotive. The new Engine 52 was delivered and placed in service four months later.

In April, the department took its next step toward international accreditation by signing an agreement with the Center for Public Safety Excellence's Technical Advisor Program for a facilitated Standard of Cover Process. Members of the SOC Committee met with the technical advisors for the first time in early June and the process would be completed by fall.

On June 21st, 2013, the department received notification that it had been selected to receive a FEMA Fire Prevention Grant in the amount of $45,000. This grant had been sought to replace Brentwood's aging fire safety house; a trailer used extensively each year for teaching school children about fire safety and prevention in addition to exit drill strategies. It is estimated that the current fire safety house, purchased in 1995, has been used to conduct over 500 educational events serving nearly 30,000 children and adults. The new resource was delivered in the spring of 2014 and placed in service shortly thereafter.

Our primary organizational focus 2014 was the arrival of the CFAI peer team for our first accreditation site visit scheduled to take place in June. After a successful site visit, attention was directed toward finalizing all documentation and preparing for our hearing at FRI in August where Brentwood Fire & Rescue was awarded Accredited Agency status for the first time. At about this same time, BFRD incorporated the Blue Card Command program as the department's model ICS training program and all promoted officers would be Blue Card certified by year-end.

The following year, Brentwood Fire undertook the process of updating its five-year strategic plan. After having used the Technical Advisory Program for its first formal strategic plan in 2010, the agency identified experienced participants to utilize the CFAI template to guide the 2015-2020 process in-house. The SP process, undertaken in September and involving nearly one hundred community members and over 40 BFR personnel, was completed in approximately sixty days and formally adopted by the fire chief on November 20, 2015. Also in 2015, a new Pierce fire apparatus was placed in service at Station 4 to protect the southeast quadrant of the city.

2016 saw several advancements in technology and Community Risk Reduction (CRR). A new electronic fire/code inspection reporting system was implemented as well as new computer aided dispatch (CAD), records management (RMS) and station alerting systems. Special operations capabilities were enhanced through repurposing and refurbishing the department's medium rescue truck and the purchase of a special operations equipment trailer. A city-wide

full-scale exercise was conducted in June to evaluate the effectiveness of the Brentwood's emergency management team, the emergency management center, and the emergency operations plan against a simulated graded scenario. Finally, the city updated to the 2012 Edition of the NFPA 1 fire code and three additional personnel were added to the roster through the annual budget process to raise the agency's total authorized strength from 63 to 66.

Division Chief Nancy Jones, the Fire Marshal and first female member of the department, retired in 2017 after thirty-years on the job. This resulted in the promotion of Lt. Jeff Pender to the rank of Division Chief-Fire Marshal. An ISO evaluation in November resulted in Brentwood Fire & Rescue achieving a PPC rating of 2, which would become effective in March of 2018. This was an improvement from an ISO 4, which the department had held for well over 20 years, and placed Brentwood Fire & Rescue among the top 3% of departments nationwide.

2018 would prove to be an extremely eventful year for the department from a capital investment perspective. Specifications were prepared and a new Pierce 75' Quint apparatus was ordered for Station 3 to replace a 2005 Pierce 61' aerial. Early implementation of a $21million+ county-wide 700/800 MHz radio system occurred with final testing to be performed in the spring of 2019. An unmanned aerial system (UAS) program was developed after nearly 18 months of research and equipment was purchased using funds allocated in the FY-2019 Annual Operating Budget. Additionally, upgrades were made to the training grounds and drill tower as part of the first phase of improvements identified in the 2017 Training Ground Strategic Plan. Without question, however, the most significant purchase involved the acquisition of just over two acres of land for a future fire station. The need for this property, located in the rapidly growing southeastern quadrant of the City, was realized based upon extended response times identified through the Standard of Cover process. While current call volumes may not justify placing a resource here in the next 1-3 years, limited availability of land in this area necessitated the purchase at this time. Another milestone in the life of the department occurred with the retirement of thirty-year veteran Russ Peterson who served as Division Chief of Training and Emergency Management. Chief Peterson, however, did not retire for long and was brought back part-time as the City's Emergency Management Coordinator; a position that was approved in the FY-2019 budget process. Lt, Nick Adams was selected to replace Peterson as the Division Chief of Training. Finally, a special census was conducted this year and by the end of 2018 Brentwood had grown to a certified population of 43,889.

In 2019, the department completed the steps necessary to earn reaccreditation status from the Commission of Fire Accreditation International. The recommendations from the accreditation process further expanded the agency's ability to pursue continuous improvement.

In November 2020, Deputy Chief David Windrow retired to be fire chief in Nolensville. This retirement resulted in the promotion of Brian Collins from battalion chief to deputy chief, effective December 2020. Additional promotions occurred within the department because of this change.

Due to the Covid-19 pandemic, the strategic planning process was delayed until the spring of 2021. The strategic plan was successfully developed in 2021 and identified five strategic goals. In August of 2021, Brentwood signed an auto-aid agreement with the city of Nolensville. The agreement provides auto-aid in the city's eastern section for structure fire responses. This is the second auto-aid agreement signed by the city and enhances response capabilities.

After significant research and planning, the city broke ground on Station 5 on September 11, 2021. Planning and research for the project included city staff and a Station 5 planning committee, which included members from all ranks within the department. A grand opening ceremony was conducted on December 17, 2022, and the station officially opened on January 2, 2023. After opening Station 5, the minimum staffing increased from 17 to 20 personnel. Additionally, two new engines were purchased in 2022—a new engine for Station 5 and a replacement for Engine 51. Due to extended delays in apparatus build times across the industry, the city authorized the preorder of a new engine, tower, and rescue at the cost of $4.7 million. This represents the largest single order of apparatus in the department's history. In July of 2023, the city authorized the addition of three new positions, improving the staffing of Tower 51 to 3 personnel and increasing the minimum staffing to 21 personnel. Today, the minimum staffing remains at 21 personnel.

Financial Basis

The City of Brentwood takes pride in its strong financial position, maintaining the highest bond ratings possible—AAA from Moody's Investors Service and AAA from Standard and Poor's. Additionally, the city has received the Government Finance Officers Association (GFOA) Distinguished Budget Award for thirty-one consecutive years. As described in the standards, Brentwood has earned this award by publishing a budget document that meets program criteria as a policy document, as an operations guide, as a financial plan, and as a communications device.

Funding for the fire & rescue department is allocated from the city's General Fund. The department's operating budget in FY 2024 totaled $11,236,190, or 21.68% of the city's $51,834,100 annual operating budget. This General Fund budget was balanced with the city's projected revenue collection of $51,832,900. The primary sources of revenue for the city are local sales taxes projected at $23.4 million and real and personal property taxes projected at $13.025 million in FY-2024. Business Tax, Hotel/Motel Tax, and Wholesale Beer Tax round out the top five revenue sources.

By policy the city must maintain minimum unassigned reserves in excess of 40% of the General Fund operating budget, but far exceeded this amount with $53.4 million (103%) in reserve as of the FY-2024 budget year. Additionally, the department funds long-term projects through the city's FY 2024 – 2029 Capital Improvements Plan

All department heads are required to submit a preliminary budget draft in the month of February for the coming fiscal year. The personnel schedule, including requests for additional staffing and funding for special projects, is also submitted at that time. The city uses a combination line-item and program-based budgeting system. Within the fire & rescue department there are several established programs with an assigned program manager. Beginning in 2020, the department began using annual program appraisals as the primary budgeting tool for each program. Each program manager meets with the fire and deputy chiefs to discuss budget requests and program performance. Priorities are then vetted with recommendations from the city manager and/or city commission to develop a conceptual departmental business plan for the new fiscal year from which the budget draft is developed.

The fire chief then participates in a series of budget meetings with the city manager, human resources director, and the finance director to develop and review the final proposed budget request. Once the budget is approved internally, it must go to the city commission for final approval by ordinance. After the budget is finalized and adopted, the funding plan is implemented and monitored throughout the budget cycle by both the fire chief and finance department.

Several expenditure controls exist to ensure fiduciary responsibility. The city does not have a formal purchasing department, so the responsibility for acquiring goods and services is a joint effort between the individual department head and the finance department. There are several processes in place and levels of authorization required to make purchases.

Area Description

Topography

Brentwood is located in northern Williamson County in Middle Tennessee. The city borders Nashville/Davidson County to the north and Franklin to the south. With a land mass of 41.2 square miles, Brentwood's corporate limits are approximately equal in size to Franklin. Franklin and Brentwood represent the two largest cities in Williamson County, and Brentwood is the 20th largest city in Tennessee.

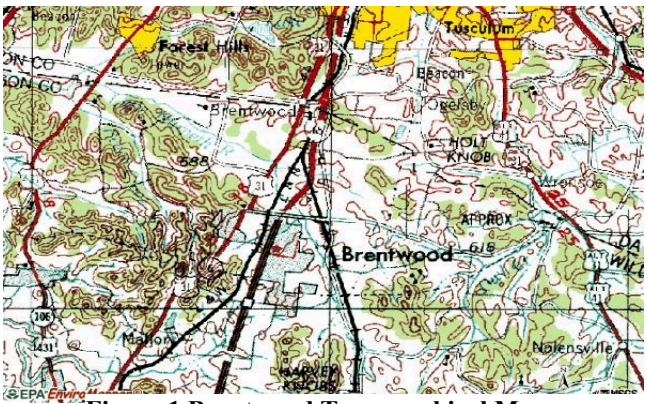


Figure 1 Brentwood Topographical Map

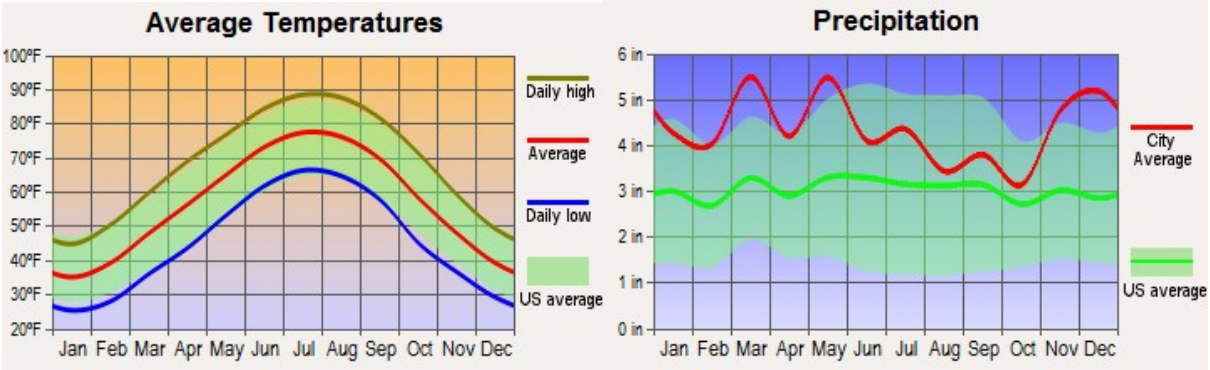
Like much of middle Tennessee, Brentwood is comprised of rolling hills separated by meadows with an altitude varying between 540 and 1180 feet above sea level. The northern section of Brentwood is relatively flat and was historically utilized for farming, horse breeding and training. Much of the south and southwestern areas are hilly and rocky.

While Brentwood lies within the Harpeth River Basin, there is little open water within the city limits. Small tributaries including the Little Harpeth River, Owl Creek, and Mill Creek in addition to natural and man-made inland ponds comprise less than one tenth of one percent of the city's land mass. For this reason, it is rare for the fire & rescue department to respond to a water-related incident. An exception to this took place in May of 2010 when middle Tennessee experienced a record storm event. The Harpeth River Watershed saw more rain over a 2-day period than anywhere else in the Middle Tennessee region, reaching nearly 18 inches in some areas. This event caused record flooding and unprecedented damage throughout the basin. Although the recurrence frequency of the May 2010 event is extremely low, the Harpeth River Watershed has a long history of significant flooding events every few decades with previous major flooding occurring in March of 1975. With recent population and development growth in the basin in the last few decades, the recurrence frequency of significant flood events, as well as damage associated with them, are expected to increase.

Climate

Brentwood's climate can be considered typical for the mid-south. The mean annual temperature is 59.0 degrees Fahrenheit. The mean summertime temperature is 79.0 degrees while the mean

wintertime temperature is 39.0. The warmest month is July with an average high temperature of 95 degrees and a record of 112. The coolest month on average is January with a normal high of 46 degrees and a low of 26 degrees. The record low temperature is -25 degrees. Routine daily temperatures between April and October range from the low 70's to the mid 90's.

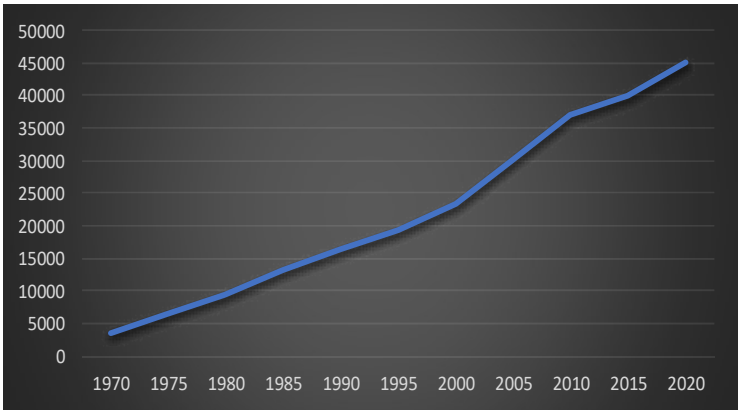


Climate Trends

Brentwood receives a slightly higher-than-average 4 inches of rainfall per month or 48 inches per year while experiencing just 4-5 inches of snowfall annually. Humidity runs high in the summer months routinely reaching 90% during the morning and early afternoon hours but dropping below 60% in the afternoon and evening.

The city enjoys an average number of sunny days when compared nationally, and slightly higher than average precipitation. Wind speeds are far below national averages, likely due to the protection provided by the hilly terrain.

Population



Population from 1969- 2020

Brentwood was incorporated in 1969 with a population of approximately 3,300. That number would nearly triple over the next decade to 9,431 as additional I-65 interchanges were constructed, roadways were improved, and several subdivisions were developed. The 1980's saw even more infrastructure improvements including the formation of the municipal fire department and construction of two fire stations, water, and sewer system expansion, and the addition of a high school and Brentwood City Library. By 1990 Brentwood boasted 16,392 residents occupying 5,289 households. Further expansion would take place through an aggressive urban growth plan which culminated with the completion of an eight-phase annexation program in 1996 to include 3,300 acres to the east of the former city limits, as well as additional annexations to the south and west. Brentwood would continue to experience unprecedented growth over the next two decades, nearly 60% between 2000 and 2010 alone, and the 2010 Census documented a population of 37,060. A 2012 US Census estimate indicated that numbers had increased 5.3% to 39,012 in just over two years. 2004 saw the greatest boon in residential dwelling growth with 633 single-family housing starts. The current rate of new home construction has slowed somewhat over the past five fiscal years to an average of approximately 120 new single-family

home permits issued annually from 2019-2022, a special census conducted in 2015 indicated that the city had grown to a population of 40,401. Another special census in 2018 saw that number expand to a population of 43,889; a 12.5% increase in just six years. The 2020 census certified a population of 45,373.

Brentwood is zoned approximately 90% Residential with the remaining 10% split even between Commercial (office, retail, financial) and Service Institutional (schools, churches, and health care facilities). The Commercial areas are concentrated at the northern and southern fringe of the city with a few exceptions scattered throughout. The Service Institutional areas are located throughout the city primarily along major arterial routes. Residential zoning in the city mandates a housing density of one home per acre which results in a very low population density of just over 1,000 people per square mile. By the definition provided by the United States Census Bureau, the areas zoned residential are considered within the rural population density classification. Only three multi-family residential developments exist within the city limits. Two of these are owner-occupied condominium complexes, and are adjacent to the denser commercial regions, Maryland Farms to the north and Cool Springs to the south. The Tapestry is located near Maryland Farms and provides an apartment style living community. In addition to the condominiums, these commercial areas consist primarily of office and retail space and can be considered urban density. Exhibit A City of Brentwood Zoning Map depicts current zoning designations in the city. Areas shaded in green and yellow/gold depict residential zoning, pink/red depicts Commercial land use, and shades of purple designate Service Institutional.

There are two public high schools in Brentwood serving nearly 3,636 students in 2023. These schools are part of the Williamson County School District and, as such, are operated and regulated by the county. Additionally, there is one private high school accommodating approximately 750 students. Three public middle schools serve 2,800 students while approximately 4,400 students attend seven elementary schools. No colleges or universities currently exist in Brentwood.

Brentwood is also home to a substantial senior living community. The Heritage at Brentwood, located near the center of the city, covers 50 acres and houses over 415 residents as of 2023. The Heritage is a multi-tiered, multi-unit senior community providing various levels of living services including independent and assisted living, Alzheimer's care, skilled nursing, and respite care-short term stay. The facility includes town houses, apartments, and dependent care living. Just two miles south of The Heritage, and in the same response district, is the Morning Point of Brentwood assisted living

The Heritage of Brentwood (courtesy: AerialInnovations)

& Alzheimer's care facility. The $10 million, 55,000-square-foot facility situated on eight acres features 73 private apartments, including 20 apartments dedicated to Alzheimer's memory care. Located to the north in Maryland Farms within Station 1's response district is Brighton Gardens. This three story, 125 bed facility specializes in senior and Alzheimer's care. In 2019, The Harmony of Brentwood of Brentwood opened near Maryland Farms. This 198,000 square-foot, 191-unit facility offers independent and assisted living as well as memory care on a 10-acre site on North Church Street. All assisted living centers are sprinklered facilities.

Brentwood Baptist Church

Brentwood is home to many churches and houses of worship, the most expansive of which is Brentwood Baptist Church located on Concord Road. At more than 275,000 square feet under roof, an annual budget of $15 million, and a weekly attendance of 5,800, Brentwood Baptist serves one of the largest congregations in the region. Unique to this ministry is the largest deaf church congregation in the country averaging more than 100 hearing impaired attendees weekly and more than 1,000 additional through 25 satellite locations. Recognized in 2007 as "America's Church of the Week" by the 700 Club, their unique work has been featured in numerous newspapers and national publications.

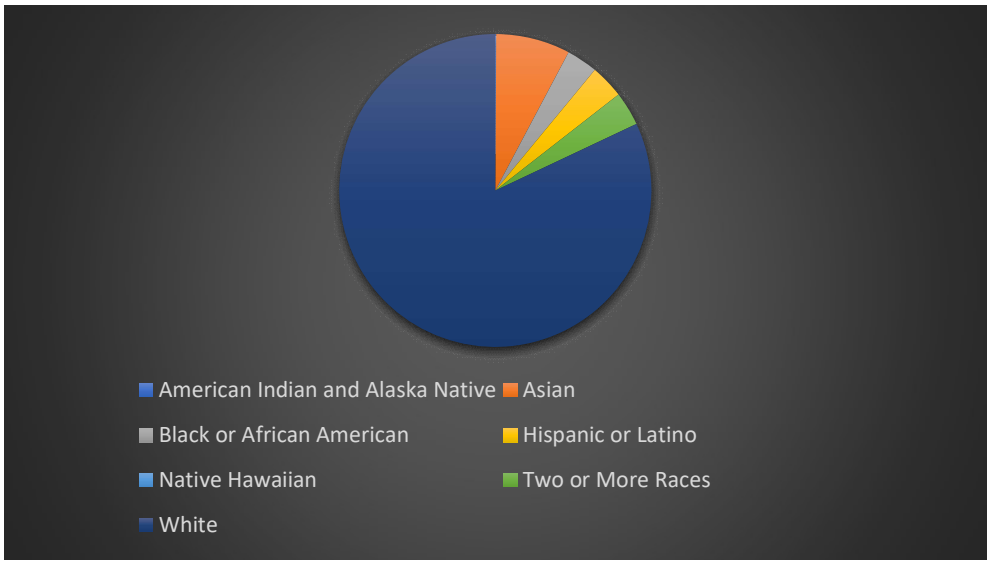
Demographically, Brentwood is considered "affluent". This affluence is reflected by a median home sales price of $1,400,000 in 2023. Brentwood is also widely known for the size of its homes. While older subdivisions developed primarily in the 1970's contain homes ranging from 2,000 to 3,000 square feet, those developed throughout the housing surge of the 1990's and up to the current time are much larger on average; 5,000 to 15,000 square feet. Brentwood's cost of living index has risen dramatically in recent years. The 2023 cost of living index was calculated at 161.3, which is significantly above the national average of 100. As of 2023, only 2.6% of the population was considered living below the poverty level compared to 12.3% nationally. The median resident age in Brentwood reflects the state average of 43.1 years old.

This home, located in the Annondale subdivision, is typical of those found in Brentwood

This affluence is reflected in Brentwood's demographics as well. As of 2023, the median household income of $186,700 was over three times the Tennessee state average of $58,516.

Part of this can be attributed to the number of dual-income households as 70.3% of the population 18 years and older is married. Another contributing factor is education. Statistics indicate that Brentwood is Tennessee's best educated city, proportionately, with a high school graduation rate of 97.9% and 80.3% of residents 25 and older holding a bachelor's degree or higher.

The racial makeup in the city as of 2023 was 88.5% White, 8.5% Asian, 3.8% African American, 1.6% multi-race. The city had a foreign-born population of 6.6%.



Racial Demographics 2023

Disaster Potentials

Historically the number of natural disasters experienced in the Brentwood area reflect national averages, with some higher and some slightly below. Potentials include floods, storms, tornadoes, high winds, flash floods, winter and ice storms, and hurricanes.

The most significant tornado to impact Brentwood was an EF4 that struck just after midnight on Christmas Eve, December 24, 1988. This tornado cut a swath 150 yards wide and 6 miles long resulting in one death and seven injuries, causing nearly $8 million in damages.

The New Madrid Seismic Zone, also referred to as the New Madrid Fault, extends through the Memphis area just 200 miles to the west of Brentwood. Despite this fact, historical earthquake activity in the Brentwood area is significantly below the state average and 97% below the national average.

Snow and ice storms are not an uncommon occurrence in middle Tennessee and pose one of the greatest threats to timely emergency response. Hilly terrain, the narrow characteristics of rural roadways, and limited resources on hand to deal with these winter weather events can create challenges. In preparation for these events, the fire & rescue department has developed a close relationship with the Brentwood Public Works Department to assist with plows and salt trucks as needed. Brentwood also recently took delivery of a mini-pumper equipped with four-wheel drive with this type of weather event in mind.


Flooding Example (2010)

Minor short-term flooding is not uncommon with spring rains, but as was discovered in the spring of 2010, the possibility for major flooding does exist. In what is considered 1000-year floods, May 1st and 2nd brought an unprecedented 17+ inches of rain to Brentwood in less than 30 hours. A stalled frontal boundary coupled with very moist air streaming northward from the gulf set the stage for repeated rounds of heavy rainfall. Many locations along the I-40 corridor across western and middle Tennessee reported more than 10 to 15 inches, with some locations receiving up to 20 inches according to Doppler radar estimates. This event proved the costliest natural disaster in the city's history resulting in the flooding of 264 homes and damage to roads, bridges, and parks. At least 30 counties in Tennessee were declared major disaster areas by the federal government, with 52 applying to receive this status. This translates to about 31% of Tennessee being designated a major disaster area.

Area Development

Following the Civil War and well into the 20th century, Brentwood would remain primarily agricultural with its lush rolling hills and fabled horse farms. In 1960, with a population of 1,065, Brentwood Estates became the first developed subdivision with water provided by wells. As water demand increased, Brentwood would begin to purchase additional supplies from the Harpeth Valley Utility District. This new water source spurred growth and accelerated development throughout the 1960's. This was further accelerated by the construction of I-65 through the center of town in 1966-67. To help manage growth, improve infrastructure and maintain autonomy, Brentwood was incorporated as a city in 1969 with a population of just

3,378. By the early 1970's the new City had created a police force and began planning its first commercial development in Maryland Farms near the northern fringe of the city.

Beginning with incorporation in 1969 and continuing into the 1970's the character of the community was shifting from agricultural toward an upscale business setting. J. Truman Ward originally bought 100 acres of land just south of Old Hickory Boulevard in 1937 and quickly added 300 more. He named the homestead after his wife Maryland, and the farm quickly became one of the South's finest equine showplaces and training facilities. Movie stars and country music legends, including Gene Autry and Barbara Stanwick, brought their horses to Ward and his trainers. The Wards would successfully train horses for sixteen years before turning to raising cattle in 1953. Brentwood's love of horses did not die, however, and an annual horse race entitled "The Brentwood Derby" would return to the property annually until 1971. In the 1970's a partnership was formed between Mr. Ward and developers Jack Massey, John Neff, and Albert Johnson to spearhead the development of the Maryland Farms Office Park on the property. The Maryland Manor, the Ward residence built in 1941-42, was initially slated for demolition as the office park expanded. A last-ditch effort by preservationists proved successful, however, and the mansion was preserved and now serves as home to the upscale restaurant Me're Bulles. The fine stables were also preserved and now function as the Maryland Farms YMCA. The Maryland Farms Office Park encompasses 452 acres providing 5,000,000 square feet of office space with an additional 500,000 currently under construction. It is home to the headquarters of Tractor Supply Company, and EMI Christian Music Group. Commercial buildings in Brentwood must meet strict standards for construction and appearance. Buildings in the Maryland Farms development must be of brick construction and no buildings in Brentwood may be more than four (4) stories in height. Structures within the Maryland Farms Office Park vary from one story, 2,500 square foot stand-alone buildings to the newly constructed Tractor Supply Company Headquarters boasting four stories containing 250,000 square feet of office space. Maryland Farms is zoned primarily Commercial-Office (C1) and Commercial-Retail (C2) whereas the zoning in Cool Springs is predominately Commercial-Service/Warehouse (C3) with some C2 Retail. See Exhibit A City of Brentwood Zoning Map for greater detail.

Maryland Farms in the 1950's (left) and in 2011 (right).
Photos courtesy of the Brentwood Historic Commission.

C-4 Commercial Town Center

Brentwood's remaining primary commercial center lies near the southern border of the city in an area known as Cool Springs. Cool Springs has grown so rapidly that some residents and visitors consider it a city in itself. This business and retail district, however, actually lies within two cities: the majority of the complex occupying land within the City of Franklin and a smaller portion lying within the Brentwood city limits. The upscale development grew around the Cool Springs Galleria shopping mall, which first opened to the public in August of 1991. The area has since expanded to encompass land on both sides of Interstate 65 and includes several luxury hotels, strip malls, business parks, office buildings, big box retailers, low-rise apartments, condominiums, restaurants, and car dealerships. The Cool Springs area is home to many major companies including Healthways, Nissan North America, MedSolutions, Community Health Systems and Tasti D-Lite. There are more than 200 restaurants in Cool Springs. While the brick construction standard that exists in Maryland Farms doesn't apply here, there are conformance standards for appearance which are strictly enforced.

Brentwood does not possess a "downtown" per se. To create a commercial town center district, the Brentwood City Commission created the C-4 Commercial Town Center Zoning designation in 2004. The intent of C-4, also referred to simply as "Town Center", was to incorporate a wide variety of uses including retail, professional office, service-oriented business, restaurants, hotels and residential and/or combinations of these features in a pedestrian friendly setting not possible under traditional commercial zoning. C-4 was also designed to encourage redevelopment of the original commercial areas to the city that were substantially developed prior to 1985. Geographically defined by Old Hickory Boulevard to the north, Interstate 65 to the east, Church Street to the south and Franklin Road to the west, Town Center now has more than 100 retail stores, restaurants and businesses serving the community. C-4 zoning dictates that "building height will be a minimum of two stories and maximum of four stories, with an overall limitation of 60 feet, excluding mechanical and elevator penthouse enclosures, provided, however, that mean sea level elevation of the apparent roofline may not exceed 824 feet." The construction in this area remains diverse, however, as some older existing structures within the Town Center footprint were grandfathered in when the C-4 zoning designation was created. These structures include older masonry and wood-framed commercial buildings as small as 900 square feet.

While commercial development continues to grow, Brentwood's rich heritage is best represented by its residential architecture. Former plantation homes of the antebellum era now often serve as the centerpieces for modern neighborhoods. Within Crockett Park, currently Brentwood's second largest park at 164 acres, is the historic Cool Springs House. Built in the 1830's and relocated to Crockett Park in 1993, the fully restored house is now available to rent for a variety of events and activities. The house was originally slated for demolition to make way for development in Cool Springs but was acquired by the city through a partnership with the

Historic Commission. Well over sixty historic structures exist in the city dating back to the pre-Civil War era; some are public while others remain under private ownership. Examples of these include the Boiling Spring Academy, Boxwood Hall, Cottonport, Forge Seat, Oak Hall, and Liberty Church.

The natural terrain can present challenges for access and egress as many subdivisions are nestled in the flats between hillsides which limit connectivity to primary arterial and collector streets. Designed connectivity within subdivisions is always an issue when plans are presented for approval, and something that the fire & rescue department has worked diligently to encourage and support. Many of the rural roadways follow horse and wagon paths which meander through the lowlands, rarely forming a straight stretch. Building on the hillsides themselves has also presented unique challenges regarding access to emergency vehicles and availability of an adequate water source. The city has attempted to address this issue, however, with the designation of Hillside Protection Districts, or HP Zoning. Under Brentwood's Code of Ordinances, any structure built within the HP overlay district requires the installation of residential sprinkler systems. For a lot or development to be designated as HP it must meet certain criteria including an elevation of 850 feet or greater with grades of 15% or more. This "fire protection by ordinance" exists in several areas throughout the city as indicated by the light green hash marked areas in Exhibit B City of Brentwood Water Mains, Surface Water, and Hillside Protection.

Thoughtful zoning, in addition to a vastly expanded hydrant system covering nearly 98% of buildable areas within the city, has contributed significantly toward improving fire protection. This improvement in Brentwood's water system from a fire suppression perspective was recognized during the most recent ISO Property Protection Classification process in 2017 which credited 100% for fire hydrant infrastructure.

Brentwood does not possess facilities to generate, treat, and/or dispose of its needed water supply and therefore purchases water and sewer services from neighboring utility districts. Those purveyors include Metro Nashville, Harpeth Valley, Mallory Valley, and Nolensville/College Grove Utility District. While Brentwood Water and Sewer forms the largest utility district in the city, it provides infrastructure only to transport water or waste to and from the various purveyors as represented in Exhibit C City of Brentwood Utility Districts. Regardless of ownership, all infrastructures inside the city limits are serviced and maintained by the City of Brentwood.

Electricity is provided via the Nashville Electric Service (NES) and Middle Tennessee Electric (MTEC), which is a membership cooperative. Distributers are divided geographically based upon service areas. Electric, communication, and fiber optic utilities run above ground in older neighborhoods and along the right-of-ways of major arterial roads while most of the commercial areas and residential subdivisions developed since the mid 1970's maintain underground services.

Two additional features exist which can affect ingress and egress are not natural, but rather man-made: Interstate 65 and the CSX Railroad. These transportation routes essentially run parallel and bisect the city north to south separating the western one-third of the municipality from the eastern two-thirds. Three east-west primary arteries direct traffic over the interstate and railroad in the north, middle, and south regions of the city. Moving south the railroad splits

into a southeast and southwest spur and is crossed by additional feeder routes. While train traffic is heavy, only one at-grade crossing exists so traffic impediment is minimized.

There are no airports, bus stations, or other mass transportation hubs within the city limits of Brentwood. Recognizing the need for more energy efficient modes transportation and reduced traffic congestion, however, has led the Nashville Area Metropolitan Planning Organization to facilitate the development of a 10-county vision for regional transit. Brentwood is represented in these discussions which are in the very early stages.

The city places a high priority on natural preservation and recreation, with over a dozen parks and numerous greenways covering 1027acres. Meandering through the city is a paved bike trail system covering nearly 50 miles with additional segments currently under construction. These amenities, in addition to a county recreation complex and two YMCA facilities, have contributed to Williamson County's designation as the healthiest of Tennessee's 95 counties eight years in a row in a report released by the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute in 2017.

Demographic Features

Designated as the most affluent county in Tennessee and the seventh (7th) wealthiest in the United States according to the United States Census Bureau. The median income of a Williamson County resident in 2021 was $116,492.

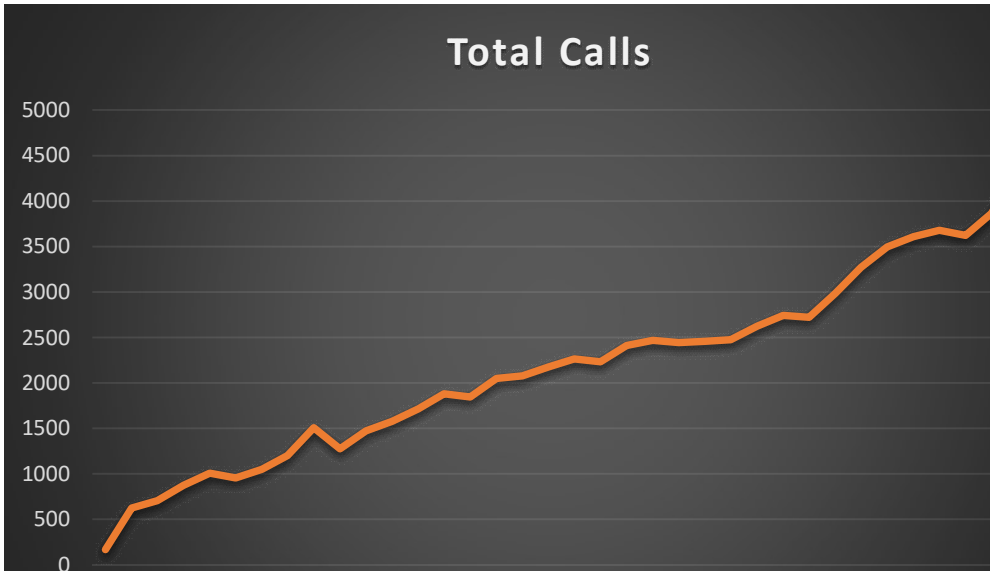
Brentwood's strong economy and high quality of life has been recognized nationally. Over the past five years alone, the community has received the following distinctions:

- #5, Top Cities To Live and Learn — Greatschools.com
- Top 100 Places to Live — CNN Money Magazine
- Top 100 Best Cities — Travel & Lifestyle Magazine
- Best Cities to Live and Learn, 2017 — Forbes
- Most Business Friendly City in Tennessee, 2017 — Beacon Center
- #30, Top 100 Cities With Biggest Houses — City-Data
- Ten Best Places for Wealthiest Retirees — US News
- #7, Forbes Richest Counties (Williamson County) — Forbes
- Wealthiest City in Tennessee; Population Over 5,000 — US Census
- #7. Top Booming Suburbs in America — Coldwell Banker

Much of the city maintains a rural population density by definition. The 2020 U.S. census indicated a population of 45,373. This equates to a population density of just over 1,000 persons per square mile and a housing density of 329 per square mile, well below the-one-home-per-acre average density required by ordinance.

Response History

Beginning with the formation of the municipal fire department in 1986 and extending through 2023, total annual call volume has consistently increased. From 2019 to 2023 the annual call volume increased by 15%. The following chart illustrates the total number of responses from calendar year 1986 through 2023.



Annual Response Totals 1986-2023

Five Year Response History

NFIRS Code	2019	2020	2021	2022	2023
100 – Fire	94	65	71	99	66
200 – Rupture, Overheat, Explosion	27	2	9	11	4
300 – Rescue/EMS	2151	2142	2342	2596	2645
400 – Hazardous Condition	129	144	101	133	129
500 – Service Call	284	231	321	352	326
600 – Good Intent	353	350	405	443	400
700 – False Call	633	648	613	681	639
800 – Severe Weather	6	11	1	3	5
900 – Special Type	1	29	0	24	18
TOTAL	3678	3622	3863	4341	4232
% Change From Previous Year	1.9%	-1.5%	6.6%	12.3%	-2.5%

B. Services Provided

The Brentwood Fire Department began providing services as a municipal department in 1986. Recognizing the evolution of its mission from a suppression agency to a broad-based risk management organization, the department changed its name in 2010 to the Brentwood Fire & Rescue Department. The primary response services currently provided by the department include fire suppression, non-transport first responder and advanced life support (ALS) emergency medical services (EMS), hazardous materials mitigation, and technical rescue services including vehicle extrication, confined space, rope, structural collapse, and swift water rescue.

The city's 41.2 square miles are currently served by five fire stations. Using FEMA's resource typing definitions, front-line apparatus operating out of these stations include four Type I Pumpers, one Type II Mini-Pumper, one Type I Aerial Ladder, one Type II Aerial Ladder, one Type II Medium Rescue, and a Command vehicle. Additional resources within the city that are available but not staffed include a HAZMAT trailer, special operations trailer, air supply trailer, and a water rescue trailer. These additional resources are either brought to the scene by on-duty personnel or staffed by call-back people as needed.

Less than 3% of the department's annual incidents are fire related. About half of those represent structure fires while the remainder includes cars, brush, trash, and other outdoor fires.

As the annual call volume continues to increase at a steady pace, EMS related incidents have remained relatively constant at approximately 60% of total call volume. This statistic includes calls requiring both BLS and ALS care. BF&R provides basic level first responder care and strives to provide ALS level care with transport services provided by Williamson Emergency Medical Services

Most of the technical rescues performed in the city are related to vehicle lockouts and are in the low-risk category. The department also has the capability to perform high-angle, confined space, structural collapse, swift water, and rope rescues, but those incidents are extremely rare.

Following the 2010 flood, BFRD enhanced its water rescue capabilities with the training of twelve personnel to Swift Water Operations and the purchase of two watercraft. The need for these services is recognized but must be balanced from a budgetary and manpower perspective against the probability of an incident actually occurring in the city. Less than 1% of the jurisdiction's area is comprised of water and this consists mostly of small streams and man-made ponds. The water rescue program has grown substantially since 2010 to include better equipment and training. The water rescue team has been deployed on multiple mutual-aid requests since 2015 and is part of the county water rescue team. In November of 2022, Brentwood in conjunction with the Franklin Fire Department and Williamson County Sherriff's Office, were accredited by the Tennessee Emergency Management Agency as a Type II swift water rescue team.

Brentwood contains no major manufacturing, storage, or mixing facilities, so the potential for hazardous materials incidents exists primarily in the realm of transportation. With I-65 and the CSX railroad traversing the center of the city, tens of thousands of pounds of hazardous and potentially hazardous materials are transported through the community daily.

Service Delivery Programs

Fire Suppression

The BFRD operates out of five fire stations serving a population of approximately 45,000 residents in a geographical area of 41.2 square miles. Brentwood is designated by ISO as a Class 2 fire department. Daily minimum staffing is 21-line personnel. Each engine and ladder company are staffed with three and Rescue 51 with a minimum of two. One command vehicle, Battalion 51, is staffed at Station 1.

All line personnel are required to achieve State Firefighter I certification within 18 months and Firefighter II (FF II) certification within thirty months of hire. As of January 2024, 100% of personnel are certified to the FF II level.

While Brentwood does not possess a large-scale wildland urban interface (WUI) in the traditional sense, our urban character and preserved open space land has created a set of conditions meeting NFPA's definition of WUI. To help mitigate incidents of fire involving WUI, Brentwood has furnished all apparatus with equipment designed to fight brush, grass, and field fires. A four-wheel drive vehicle designated as Brush 51 has also been designed and equipped specifically for these types of incidents. When requested, Brush 54 is staffed by on-duty personnel and responds wherever it may be needed in the city. Fire personnel are required to complete the S-130 and S-190 Introduction to Wildland Fire Behavior.

Rescue

BFRD provides technical rescue services to the citizens and visitors of Brentwood through a variety of means and disciplines. The primary rescue response unit, Rescue 52, is a medium rescue equipped with hydraulic extrication equipment and gear for stabilizing, shoring, and anchoring. This vehicle responds to all vehicle extrications and calls involving technical rescue.

Brentwood Fire & Rescue acquired a new special operations trailer in 2016. This resource carries hydraulic and mechanical jacks, plywood, timbers, and various other tools and materials needed for support and shoring in collapse and trench rescue applications. This trailer is housed at Station 4 and brought to the scene by on-duty personnel as required.

Swift water rescue equipment includes two swift water boats with motors, two swift water rafts, and 12 complete swift water PPE sets. These resources are maintained in a state of readiness at Station 4 and, like the special operations trailer, are brought to the scene by on-duty personnel upon request. In November of 2022, Brentwood in conjunction with the Franklin Fire Department and Williamson County Sherriff's Office, were accredited by the Tennessee Emergency Management Agency as a Type II swift water rescue team.

Ongoing education, training, and equipment acquired both through the budget process and via grant monies have enabled the department to expand its special operations capabilities. The following graphic illustrates the status of various technical rescue disciplines as of 2023.

Technical Rescue Personnel Certification Levels

Technical Rescue Service	Certification		
	Awareness	Operations	Technician
Rope Rescue	All	27	14
Confined Space	75	5	5
Trench Rescue	55	1	1
Structural Collapse	45	37	6
Swiftwater	All	15	15

Medical

All personnel in the BFRD are required to maintain a minimum of EMT-Basic. While Brentwood is designated as a Medical First Responder agency, the department has been authorized under an MOU with Williamson County Emergency Medical Services (WCEMS) to practice as an ALS provider when a paramedic is on board. Through a concerted effort to train and hire additional paramedics, Brentwood now equips all five front-line engines as ALS companies with a goal of staffing them with paramedics 100% of the time. Medical control oversight is also provided by WCEMS who provide patient transport within Williamson County.

Emergency Medical Services (EMS) Certification Levels

EMS Certification Level	# of Personnel
EMT – Basic	11
Advanced EMT	32
Paramedic	28
Critical Care Paramedic	4

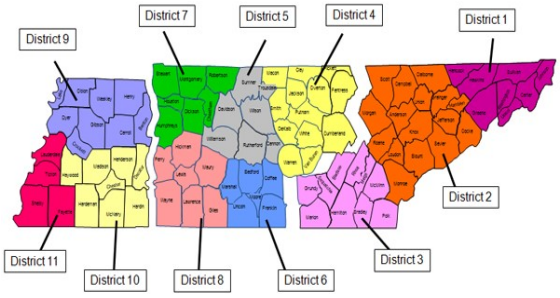
Includes both staff and line personnel.

Hazardous Materials

Brentwood has provided Technician level hazardous materials response since 2006. A fully equipped fifth wheel trailer, designated as HAZMAT 1, is housed at Station 3 and staffed as needed to respond. HAZMAT 1 contains an integrated lab/science office equipped with state-of-the-art equipment and technology for the confinement and containment of hazardous materials.

Personnel training levels for hazardous materials response as follows:

- Hazmat Awareness: 0
- Hazmat Operations: 34
- Hazmat Technician: 28
- Hazmat Specialist: 7



TN Homeland Security Districts

The Hazardous Materials Response Team (HMRT) plans and trains occasionally with the Franklin Special Operations Response Team (SORT) and is involved at a collaboration level with Homeland Security District Five out of Nashville.

Specialized Services

Specialized services provided by BFRD are included in the previous sections. Based upon the risk factors identified in the city and inherent limitations in human and physical resources, Brentwood does not provide large scale specialized response services beyond what is described. Significant events, whether natural or manmade, would require activation of local, regional, and/or statewide mutual aid.

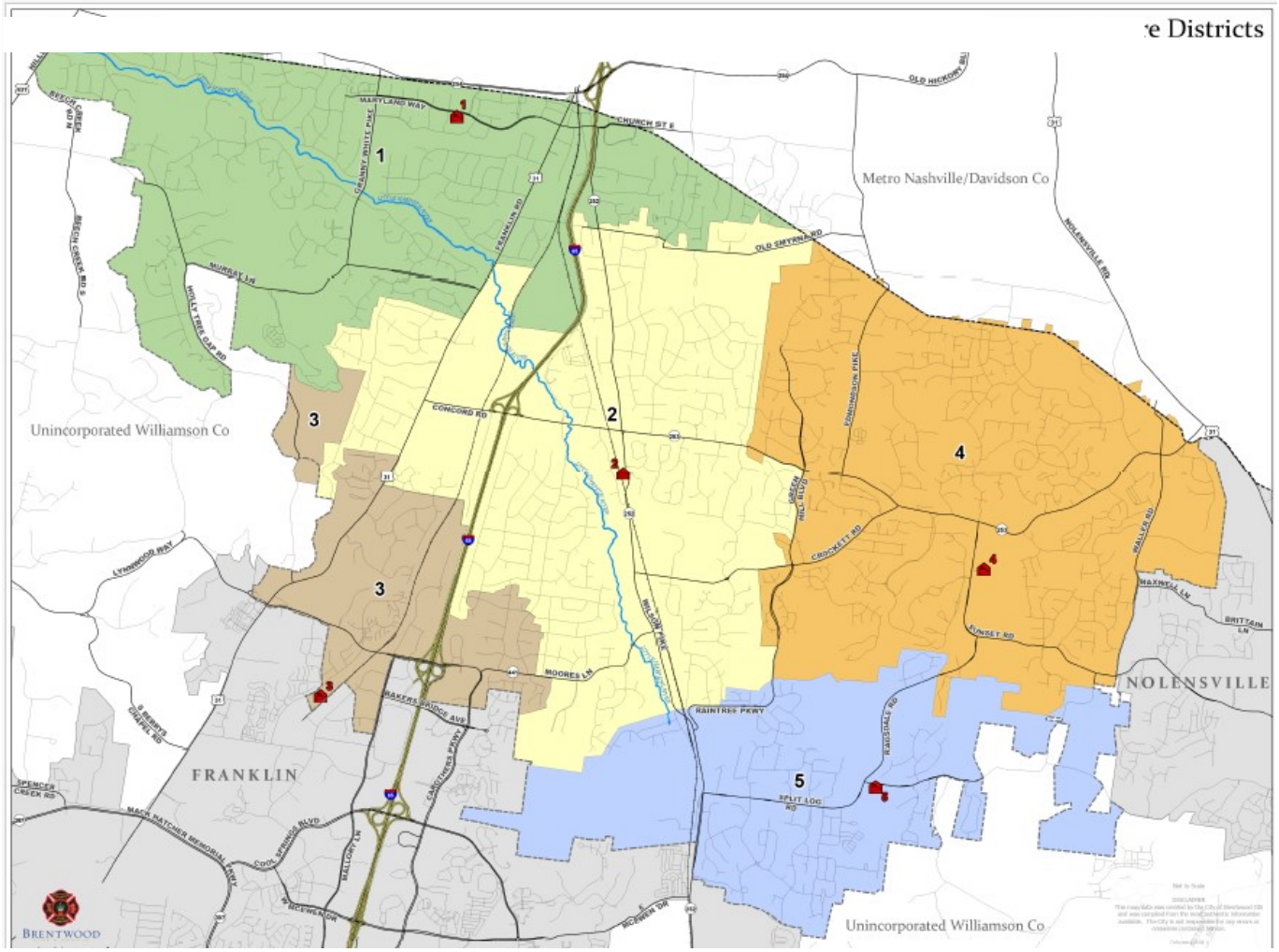
Current Deployment

Points of Service Delivery

BFRD currently operates out of five fire stations geographically located to optimize response capabilities. Each station is staffed with full-time personnel distributed as indicated in the resources section that follows. Station 2, the first fire station built in the city, is in the geographical center of what was then the city limits in 1986. Station 1 opened in Maryland Farms one year later to provide service and protection to the commercial hub of the city which continued to experience rapid growth and development. In 1991, the need for a new and expanded public works, water, and parks facility was recognized and a large plot of land was purchased in the Cool Springs area near the border between Brentwood and Franklin. Forecasting significant commercial development in this area, it was determined that a third fire station would also be included within this complex. The location of Station 3 is not ideal due to the proximity to the southern border. It is apparent that the decision to locate a station there was made based upon politics, budget, and convenience rather than a comprehensive station location plan, and it is likely that this station would be located elsewhere if that process were to take place today. It does reside inside the highly dense southern commercial district and near what the data shows is one of the most concentrated fire and EMS risk areas (by call volume) in the city.

Fire Station 4 was built as the city continued to expand eastward into the urban growth boundary. Opened in 2002, this facility was constructed on 15 acres of land centered within a rapidly developing residential district. Designated as the Safety Center East, the facility lies on a naturally sloping piece of land that permitted the construction of the fire station, police substation, EMS quarters, and a community meeting room on the upper level and a 1.6-acre training ground, four story drill tower, and drafting/pump testing prop on the lower slope.

Recognizing the need to improve response times along the Splitlog/Ragsdale corridor, as well as address the rapid growth in that part of the city, land was purchased in 2018 to accommodate a fifth fire station at the intersection of Splitlog and Ragsdale Roads. Station 5 was completed in 2022 and officially opened in January 2023. As a result, minimum staffing has increased to 21 personnel per shift.



As of FY-2024, the BFRD operates with a total authorized strength of seventy-seven and one half (77.5) personnel. Seventy-two (72) of those personnel are "line" employees working 48 hours on duty followed by 96 hours off duty, simply referred to as "48/96". The remaining five and one half (5.5) staff members are administrative employees who include the fire chief, deputy fire chief, division chief-fire marshal, division chief of training/risk management, a civilian administrative assistant, and a part-time emergency management coordinator. Minimum staffing is twenty-one (21) line personnel on duty per shift staffing four front-line engine companies, one ladder company, one tower company, one medium-rescue truck, and a command vehicle.

Brentwood Fire and Rescue Department Staffing by Station and Resource

Station	Personnel Assigned	Minimum Staffing	Apparatus	Apparatus	Unit
1	9	7	Engine 51	Tower 51	Battalion 51
2	6	5	Engine 52	Rescue 52	
3	3	3	Ladder 53		
4	3	3	Engine 54		
5	3	3	Engine 55		
Total	24	21			

Brentwood Fire and Rescue Department Administrative Support Staffing

Assignment	Title	Rank	Position
Car 51	Fire Chief	Chief Officer	Chief Administrator
Car 52	Deputy Fire Chief	Chief Officer	Operations
Car 54	Fire Marshal	Division Chief	Fire Prevention/Inspection/Investigation
Car 55	Training Officer	Division Chief	Training/Risk & Emergency Management

All apparatus are staffed with at least three (3) personnel, except Rescue 52, which is staffed with two (2) personnel.

In addition to staffed front line apparatus, Brentwood maintains a fleet of resources to be deployed on an as-needed basis. The methodologies for deploying these resources vary greatly depending upon the type of incident and circumstances involved. Requests for immediate needs such as the brush truck, HAZMAT trailer, or watercraft can be answered immediately by assigning a crew member from a responding engine company to secure these units. Requests for necessary but non-urgent resources such as the portable cascade (air) trailer or rehab equipment can be brought to the scene by mutual aid companies or personnel responding from off-duty in an emergency call-back situation.

Brentwood Fire and Rescue Department Auxiliary and Support Resources

Station	Resource	Resource	Resource
1	Mini-Pumper	N/A	N/A
2	Air Trailer	Scout	
3	Hazmat Trailer	L57 Reserve	
4	Brush 54	Engine 56 Reserve	Tech Rescue Trailer Water Rescue Trailer Various Trailers
5	N/A	N/A	N/A

A personnel roster, represented here, is used to document station and apparatus assignments. Each engine or ladder company is assigned a lieutenant and a crew consisting of one or more engineers (drivers) and firefighters. Brentwood does not limit the number of employees who can be promoted to engineer, so it is not uncommon to have more than one assigned to a company. On any given day that multiple engineers are on duty, the company officer will designate a driver for that shift. This is normally done on a rotating basis; a practice that provides equity and helps maintain the engineer's skill set. Any on-duty engineer not driving his or her apparatus on a given day will either assume the role of firefighter or may travel out to another station to fill a driver vacancy due to vacation, sickness, or other leave.

Brentwood Fire & Rescue Dept.

1/15/2024

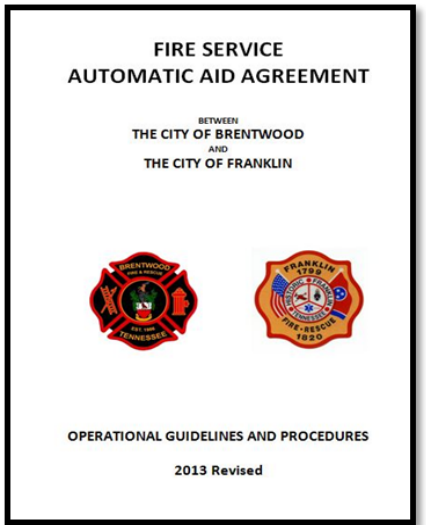
Station	A		B		C	
	Assigned - 24 / Staffed -24		Assigned - 24/ Staffed -24		Assigned - 24/ Staffed -24	
1	BC, AEMT	Hyde, D	BC, AEMT	Harber, D	BC, EMT-P	Johnson, C.
	Lt, EMT-P	Stine, P	Lt, AEMT	Newberry, B	Lt, EMT-P	Russ, J.
	Engr, AEMT	Shanti, K.	Engr, EMT-P	Barnes, S	Engr, AEMT	Bowen, C
	Engr, EMT-P	Rossano, J	Engr, AEMT	Piche, J	Engr, AEMT	Hawkins, J
	Engr, EMT-P	James, B	Engr, EMT-P	Thorpe, R	Engr, EMT-B	Dudas, J
	Engr, EMT-P	Lipscomb, W	FF, EMT-B	Lawson, B	FF, EMT-B	Helgren, R
	Engr, AEMT	Aldrich, R	Engr, EMT-B	White, S	FF, EMT-P	Massie, M
	FF, EMT-B	Armes, E	FF, EMT-B	Greve, P.	FF, EMT-B	Gehne, M.
	FF	Wilson, D.	FF-AEMT	Vaughn	FF, EMT-B	Wallenburg, A.
2	Lt, EMT-P	Menanno, N	Lt, AEMT	Giroux, J	Lt, EMT-P	Prather, R
	Engr, AEMT	King, R	Engr, AEMT	Hillis, D	Engr, AEMT	Parrick, K
	Engr, EMT-P	Marmol, T	FF, EMT-P	Marshall, B	Engr, AEMT	Mosley, C
	FF, AEMT	Garcia, G	FF, AEMT	Revell, C	Engr, EMT-P	Lovett, C
	FF, EMT-B	Call, A	Engr, AEMT	Sweeney, J	Engr, AEMT	Boehmke, N
	FF, EMT-B	Burt, S	FF-EMT-P	Centolo	Engr, EMT-P	Pierce, J
3	Lt, EMT-P	LoSchiavo, T	Lt, EMT-P	Lampley, J	Lt, AEMT	LoPiccolo, J
	Engr, AEMT	George, D	Engr, AEMT	Nelson, T	Engr, EMT-P	North, J
	Engr, EMT-B	Ashworth, C	FF-EMTB	Pomierski	Engr, EMT-B	Wright, C
4	Lt, EMT-P	Sykes, J	Lt, EMT-P	McCutcheon, M.	Lt, AEMT	Keopf, J
	Engr, EMT-B	Baird, J	Engr, EMT-B	Walker, J	Engr, EMT-P	Hershner, D
	FF, AEMT	Carter, J	FF, EMT-P	Aiello, B.	FF-EMT-P	Sims, A
5	Engr, EMT-P	Denault, T	Lt, EMT-P	Dixon, T	Lt. AEMT	Scheitel, Z.
	Engr, EMT-P	Crouse, R	Engr, AEMT	Bass, D	Engr, EMT-P	Call, T
	FF, EMT-B	Pattan, T	FF, EMT-B	Brigance, L.	Engr, EMT-B	Sealey, R

Sample Duty Roster

In addition to a lieutenant, engineer(s), and firefighter(s), every company is also assigned a minimum of one paramedic. Brentwood currently has 28 paramedics on staff and strives to maintain one paramedic on each apparatus.

For incidents requiring an expanded ERF or long-term commitment of resources, Brentwood has a process in place to recall off duty personnel. This system, activated by the dispatchers upon request of the incident commander or a chief officer, utilizes email, phone, and text messaging technology to alert off duty personnel. The message will contain the nature of the request as well as further responder instructions. The process has proven an effective and efficient method for recalling personnel in a timely fashion when additional resources are needed. The need for recalling personnel has diminished over the last five years due to increased minimum staffing and enhanced auto-aide agreements.

To augment staffing as required in an emergency, BFRD pursues positive working relationships with surrounding jurisdictions. Contractual automatic and mutual aid agreements are in place to supplement the staffing and resources needed to meet the necessary ERF as well as to provide additional coverage to the city when resources are committed to a significant incident. Statewide mutual aid is governed under the Mutual Aid and Emergency and Disaster Assistance Agreement Act of 2004 (2004 Public Act 743) which establishes a state-wide mutual aid agreement for all Tennessee local governments. This law provides that entities can have a mutual aid relationship with every governmental entity in the State of Tennessee without the need for cumbersome and complicated contractual agreements. It does not require anyone to provide mutual aid but establishes statutes to govern reimbursement should an entity choose to do so. The Act also does not preclude jurisdictions from establishing additional contractual agreements which Brentwood has made with the City of Franklin Fire Department and the town of Nolensville.



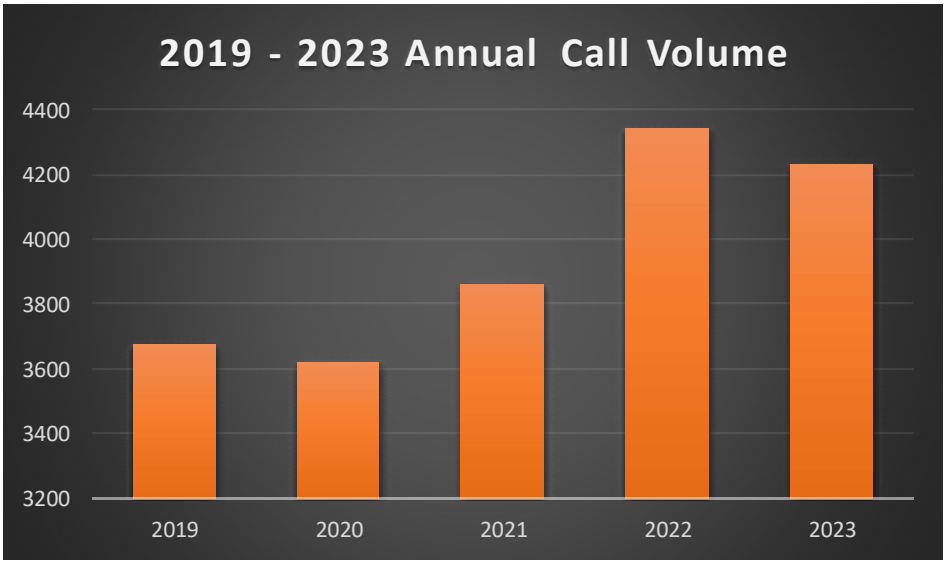
Fire Service Automatic Aid Agreement (cover)

Under the Department's Automatic Aid Agreement with Franklin and Nolensville, each Department is simultaneously dispatched to incidents in the neighboring jurisdiction within pre-defined geographical areas. These areas were determined based upon property use, population density, and various other risk factors.

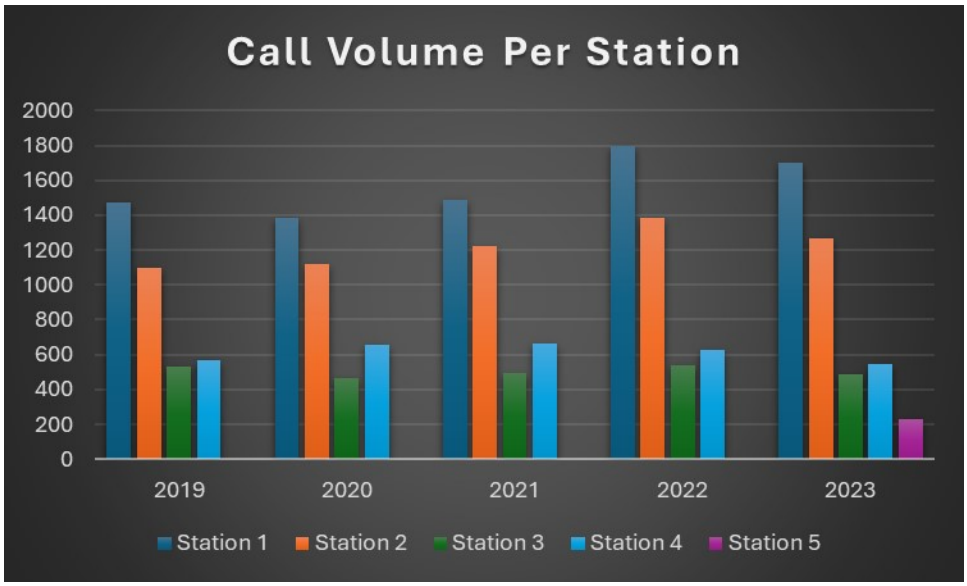
Automatic aid response areas within each city are graphically represented in Exhibit D City of Brentwood Automatic Aid Zones Map.

Response Areas

Brentwood is divided geographically into five response districts as illustrated in the map above. These districts were developed using multiple factors including geography, topography, existing barriers (both natural and man-made), surface street connectivity, access to primary arteries, population density, drive or response time, and political will. As a result, the size of each response district varies dramatically. The following graphs illustrate the five-year call volume and call volume percentage by station.



Total Annual Call Volume



Percentage of Total Call Volume by Station

Prior to 2017, resources were selected and dispatched by district based upon incident location. New technology, made available through a CAD update in 2017, enabled dispatchers to rely upon closest unit dispatch utilizing the apparatus' on-board automatic vehicle location (AVL) system. Since that time, the CAD system has automatically selected which resource(s) to send based upon capability and current location rather than by assigned district.

Communications

The City of Brentwood Emergency Communications Center (ECC) is staffed twenty-four hours daily and is the nerve center for all activity that occurs within the city. The ECC is operated under the authority of the Brentwood Police Department (BPD) and public safety dispatchers are civilian employees who report to the Brentwood Emergency Communications Supervisor (ECS).

The ECC is the public safety answering point (PSAP) for the City of Brentwood. All emergency calls originating in the city are routed to the ECC. To maintain Brentwood's commitment to providing quality services to residents and visitors, the ECC is equipped with the latest technology including Enhanced 9-1-1, Computer Aided Dispatch (CAD), traffic operation cameras, language interpretation, and a Telecommunications Device for the Deaf (TDD).

Emergency communications personnel are responsible for dispatching the Brentwood Police and Fire & Rescue Departments. All calls requiring medical assistance are transferred to the Williamson County Emergency Operations Center (EOC). Williamson EOC provides life-saving over-the-phone medical instructions and is responsible for sending EMS transport units.

Prior to 2013, the dispatchers were supervised by an administrative police lieutenant. This individual's responsibilities included CALEA accreditation and various other assignments in addition to supervision of the ECC. Consequently, the lieutenant was unable to focus the required attention on dispatcher training, performance, and systems improvement. Recognizing the need for a dedicated administrator, the position of ECS was established in the FY-2014 Annual Budget. Supervisor Kathleen Watkins currently serves in that role.

Call processing times are provided for all risk levels for each service type (fire, EMS, hazmat, and technical rescue). Since initial accreditation in 2014, call processing times continue to decrease helping to reduce total response time. This can be attributed to substantial upgrades in computer-aided dispatch software, improvements in training, and added layers of supervision.

Community Risk Reduction

Community risk reduction (CRR) is a critical component of the services provided by Brentwood Fire and Rescue. This document reviews both the risk categories and response protocols for incidents when they occur. However, the agency understands the importance of taking proactive steps to prevent these incidents before they occur. These proactive steps range from code enforcement to public education and should be considered mission critical for protecting the community and meeting the expectations of the citizens and visitors in Brentwood. Below are a few examples of the community risk reduction efforts conducted by the agency.

CRR Programs

Annual Fire Inspections

All commercial occupancies receive an annual fire inspection by a state certified fire inspector. These inspections ensure code compliance, and that proper testing and service is provided for fire protection systems. All company officers are required to maintain a state certification which includes the completion of 36 hours of continuing education units every 3 years. The fire marshal oversees the inspection program and is responsible for ensuring violations are corrected within the allotted timeline.

In addition, the fire marshal is responsible for completing plans reviews for all new construction and buildings that undergo significant remodeling. This is a proactive measure to ensure construction methods meet the intent of the code and provide a safe environment for occupants.

Fire Safety House

The department was the first agency in the county to provide the benefits of a fire safety house (FSH) utilized to teach young children the importance of fire safety. The fire safety house has provided safety education to thousands of children over the years and continues to be a valuable educational resource for the community. Department members that participated in the FSH program receive training for the proper operation and teaching methodologies necessary to deliver high quality educational opportunities for the community. The FSH will continue to be a fundamental tool for delivering the message of fire safety.

Car Seat Safety Checks

The agency provides car safety checks free of charge to members of the community. This program has developed into one of the most valuable outreach tools the department offers. From 2019 – 2023 the department has completed 574 car seat checks. This program provides an educational opportunity for parents and reduces the risk of serious injury from an improperly installed car seat.

Public Safety Day
Since 2012, Public Safety Day has provided an excellent opportunity to engage with the public and educate them in what we do and how they can better protect themselves from many of the accidents that occur within the community. This program includes station tours, car seat checks, children's activities, public education information, demonstrations for fire sprinkler systems and vehicle extrication. Each year approximately 800 members of the community participate.

Community CPR Courses
CPR courses are offered free of charge to the community throughout the month of February. The classes are taught by certified instructors and are designed to teach the public the steps necessary to link the chain of survival to the bystander and provide better patient outcomes. Data from the American Heart Association confirms that rapid initiation of CPR is a fundamental component to survivability. The agency also provides CPR instruction to middle schools throughout the year.

Fire and Burn Prevention
The department has developed a fire and burn prevention course that is taught to middle school children. This program is designed to revisit many of the fire safety rules that are taught during kindergarten through second grade. Students are provided with real world scenarios that are applicable to their age group and learn the dangers and precautions that should be taken to prevent burn injuries.

C. Community Risk Assessment and Risk Levels

Risk Assessment Methodology

Methodology

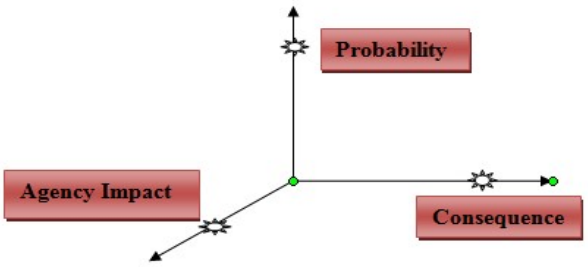
A risk assessment for the city of Brentwood has been completed using a consistent standard for assessing the risks in the community and the associated hazards. To complete the standards of cover, a *risk* has been defined as a place, location, area, or physical asset. This definition is fundamental to establishing a foundation for each response category when assessing the risks and the response needed to mitigate incidents that occur at one of the identified risks. By using a standard methodology for each response category, the agency is better able to understand the threats for each risk and how these threats may impact the various responses. The community has made it clear that an efficient and effective response is expected from the agency. Understanding the risks is the first step in ensuring that the agency will provide appropriate levels of response when needed.

After identifying community risks, the agency placed each risk in a category utilizing the probability and consequence model. Probability represents the likelihood that an event will occur, while consequence represents the impact an event will have on the community. As the probability of an event increases, the frequency of emergency response will also increase. The importance of identifying the frequency of response is that the agency can evaluate the reliability of responding units to additional emergencies that may occur simultaneously. The goal is to have units available to respond to areas with a historically high probability of incidents while maintaining a continuous state of readiness. The consequence component is evaluated by

identifying the impact an incident at a specific risk may have upon the community. Risks that pose a low consequence to the community require fewer resources, while risks that pose a significant consequence to the community will require many resources to mitigate an incident. The agency used this model for each response category and rated each risk as low, moderate, high, or special.

All these components specifically affect the distribution and concentration of resources. *Distribution* is where department resources are located throughout the community. The location of resources directly impacts response times and the agency's ability to efficiently respond to high probability calls for service. *Concentration* of resources is the number of units and personnel need to respond to an incident to meet all the critical tasking needs. As the consequences of an incident increase, the concentration of resources will also increase. The purpose of the increased concentration is to limit or mitigate an incident; therefore, limiting the impact to the community. Understanding the methodology used to complete the community risk analysis hinges on establishing a clear relationship between probability and consequence, as well as the effects that changes in this relationship will have upon the distribution and concentration of resources.

Another factor to consider when categorizing risk and the appropriate response is the impact upon the responding agency. When responding to emergencies, the agency utilizes resources that can no longer respond to incidents that may occur simultaneously. This, of course, can increase response times and reduce available staffing needed to mitigate other emergencies. Through the community risk assessment, the department recognizes this element and uses this factor when developing the risk levels and the appropriate response. One important consideration was to ensure that not only did the agency provide enough staff and resources to meet the critical tasks of large events, but also to ensure that an appropriate risk response was established. If the agency "over responded" to events and utilized unneeded resources, this would decrease the reliability of units and potentially impact the agency's ability to meet additional service demands. Every effort has been made to ensure the department is capable of responding appropriately to all levels of risk.



The methodology used for risk analysis included: determining risk categories, identifying risks in each response category (i.e. fire, EMS, HAZMAT, Technical Rescue), population density data, consequences to the community, probability of an incident, and the impact on the agency.

Risk Categories

The agency has adopted four risk categories which are based specifically on the probability and consequence model. These categories are in each response discipline to distinguish risks and allow the agency to identify response needs and critical tasks for each response.

Probability – Consequence – Agency Impact

Maximum Risk: A risk in this category has a high probability of occurring and high consequence. An event involving this risk category would require substantial resources

exceeding those available from the BFRD. The likelihood of loss of life and property is very high with substantial impact to the community. Brentwood does not have any risks in this category.

Special/High Risk: A Special/High risk area is one which would require a substantial deployment of resources due to potential loss of life or property. The consequences for an event in this risk category would be high; however, the probability of an event is low. This risk category would have a high potential for loss of life, property, economic, historic, or cultural significance. High Risk events of long duration would require assistance from resources outside of the organization in the form of automatic or mutual aid. These areas have been identified and critical tasking needs examined.

Moderate Risk: This category has a higher probability of occurrence with a lower consequence for the community. A response by the department for a risk in the moderate category would require significant resources but may not require automatic or mutual aid.

Low Risk: This category has minimal risk of loss of life and/or property and is low in both probability and consequence. Incidents in this category can typically be handled by one engine company.

Response Services

BFRD is responsible for providing fire, EMS, technical rescue, and hazardous materials response. All four service areas were included in the community risk/hazard analysis and are detailed throughout the remainder of the document. A summary for each response category is provided here to allow a better understanding of the methodology used to identify the risks and appropriate response the department plans to provide.

The table below is a summary of the calls for service during each of the past five years. The trend continues to indicate an increase in call volume as the city grows. The agency will continue to monitor call volume trends and specifically the response services that are driving changes in the annual call volume.

Incident Call Types

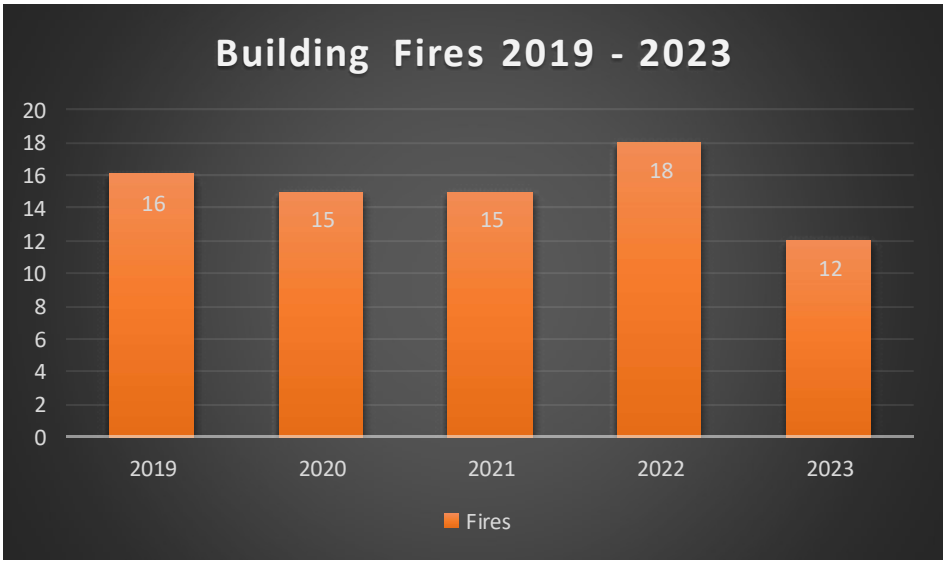
Summary of Calls, by Type, within the Last Five Years

NFIRS Code	2019	2020	2021	2022	2023
100 – Fire	94	65	71	99	66
200 – Rupture, Overheat, Explosion	27	2	9	11	4
300 – Rescue/EMS	2151	2142	2342	2596	2645
400 – Hazardous Condition	129	144	101	133	129
500 – Service Call	284	231	321	352	326
600 – Good Intent	353	350	405	443	400
700 – False Call	633	648	613	681	639
800 – Severe Weather	6	11	1	3	5
900 – Special Type	1	29	0	24	18
TOTAL	3678	3622	3863	4341	4232
% Change From Previous Year	1.9%	-1.5%	6.6%	12.3%	-2.5%

Fire Risk Methodology

The fire risks were identified using pre-plans, fire inspections, personnel input, and previous experience. Each risk was placed in a category according to the probability that a fire may occur and the consequence that a fire at that risk may impose upon the community. The department used statistical data to assist with determining the probability of fire occurrence for each risk type. Response data indicates that the number of structure fires has remained stable over the last 5 years. The figure here illustrates all structure fires. The agency continuously monitors this data to identify trends that may indicate the need for additional public education or fire prevention activities.

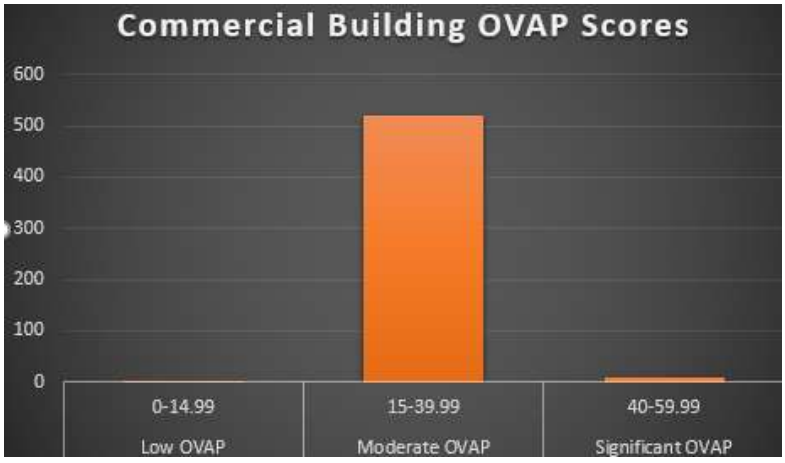
The consequence component was determined by examining which elements of the community may be impacted by a fire at a particular risk. Some impact areas may include loss of life, financial loss, loss of tax revenue, employment loss, negative publicity, and loss of historical assets. The combination of these factors made it possible to place each fire risk in the appropriate category and develop a response protocol to meet the challenges of that risk. One consequence that is easily measured is the annual fire loss which is shown in the figure below.



Number of Structure Fires, 2019-2023

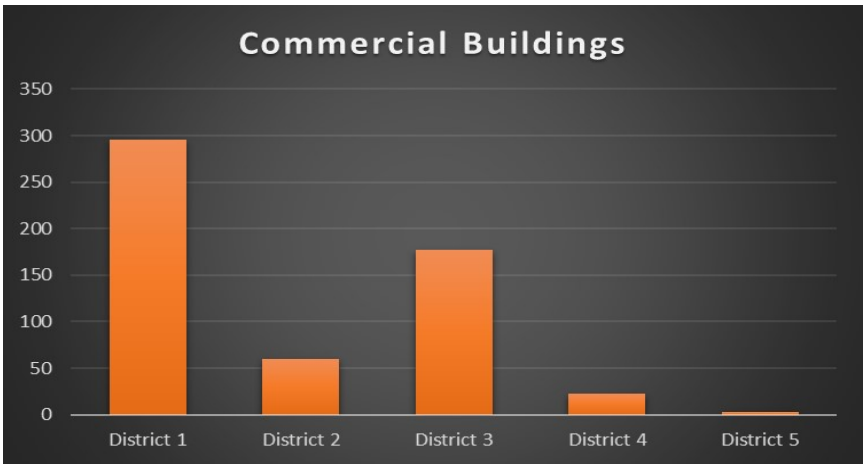
This chart shows the property saved vs. total loss as the result of fire during 2019-2023

As part of the risk assessment process the agency utilized a risk assessment tool provided by Emergency Reporting®. This tool provides a numeric value for determining risk based on a variety of factors which include: number of employees, exposure separation, square footage, occupancy load, alarm system, sprinkler system, water flow requirements and availability, exits, construction type, fire load and additional factors. After data is entered into each required section, an Occupancy Vulnerability Assessment Profile (OVAP) score is provided. Approximately 98% of the commercial buildings in Brentwood fall into the moderate risk score.



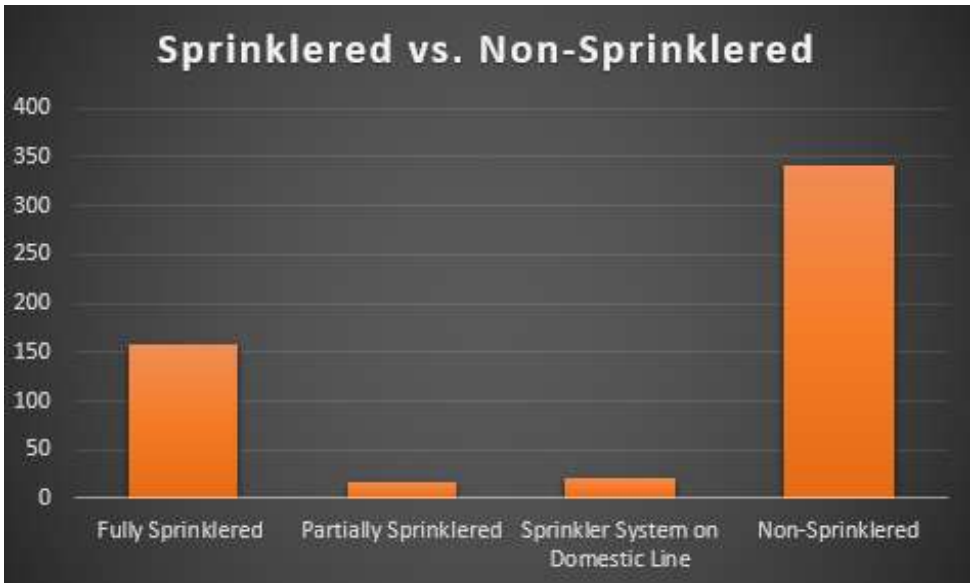
Commercial Fire Risk

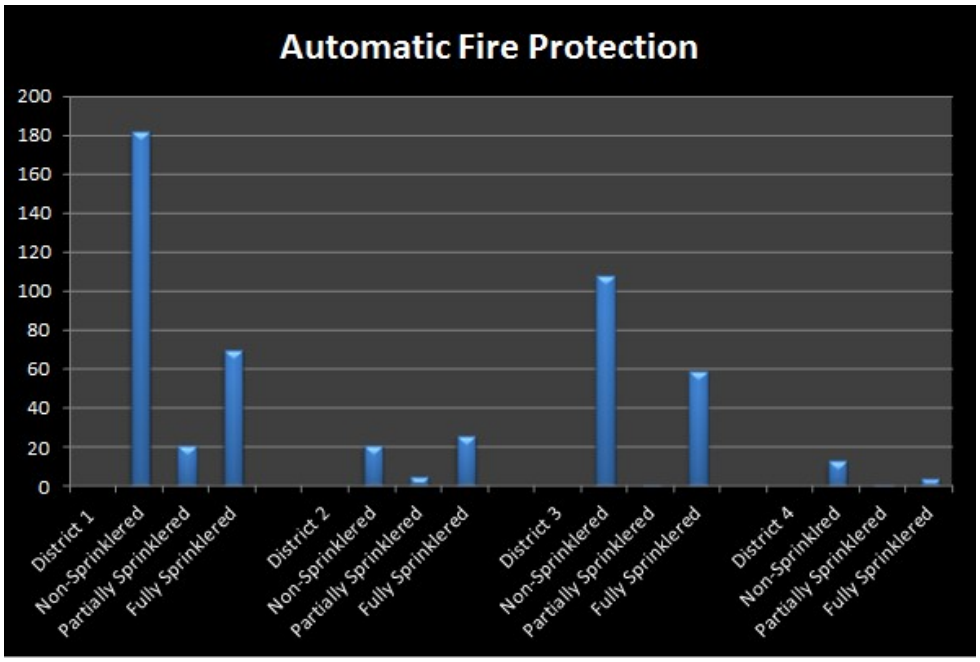
Approximately 10% of the city is zoned for commercial development. This presents a wide variety of occupancy, construction, and population density issues in the areas designated primarily for commercial use. The two primary commercial areas are the Maryland Farms Office Park in District 1 and the Cool Springs area in District 3.



Number of Commercial Buildings, by District

Historical data indicates that fires of significance in commercial occupancies have a lower probability of occurrence. This can be attributed to several factors including: human activity, automatic suppression systems, automatic fire alarm systems, annual fire inspections, and building construction types. It should be noted, however, that when a fire occurs in a commercial building the consequences to the community can be much greater when compared to a vehicle or residential structure fire. Some consequences of a commercial fire loss may include the potential for a higher loss of life, loss of employment, loss of significant tax revenue, and the potential for high publicity and media attention. In addition, agency impact was also considered when classifying commercial fire risks. This component allows for a broader understanding of the risks and overall response needed to mitigate an incident. An example would include sprinklered versus non-sprinklered structures. National statistics indicate that structures with fire sprinkler systems are much less likely to grow into a large fire, therefore, protecting both life-safety and property and reducing the demand for fire department resources. As a result, the agency has moved most commercial occupancies that are fully sprinklered to a lower risk category. Furthermore, agency impact was also considered when risks such as assisted-living facilities and educational occupancies were classified. These occupancies are sprinklered; however, the populations that occupy these facilities would require significant resources to assist with evacuation and other unique critical tasks. To accurately categorize all the commercial buildings, the probability/consequence/agency impact formula was used to the fullest extent.

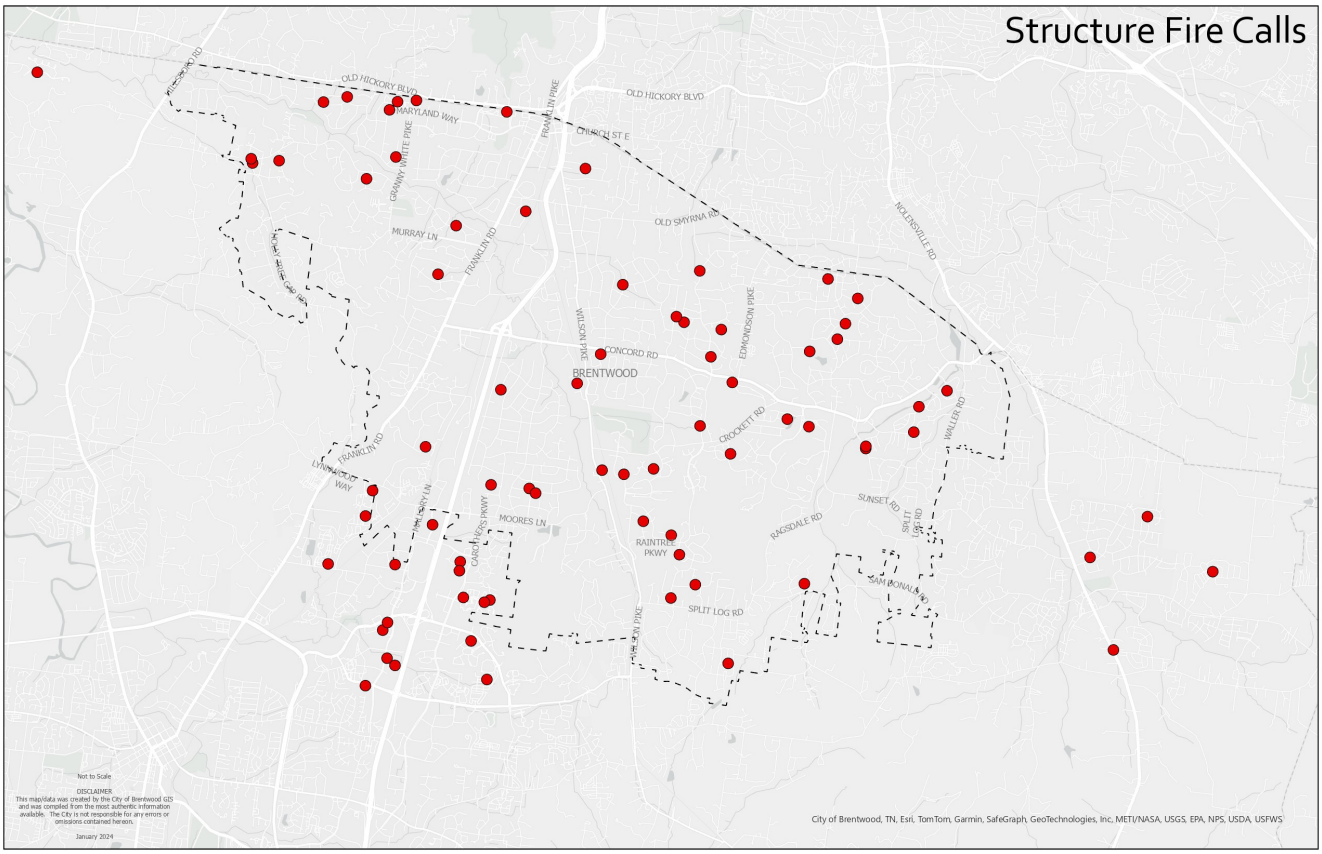




Non-Sprinklered, Partially Sprinklered, and Fully Sprinklered Buildings by District

Residential Fire Risks

Approximately 90% of the city of Brentwood is zoned residential. While it would be uncomplicated to examine residential fire risks as a single group, the result would be a misrepresentation of the various threats inherent to the residential housing stock contained in the city. Brentwood is unique among many of the surrounding communities due to an abundance of very large residential structures. Some residences can exceed 15,000 square feet and present a daunting task when engaged in fire suppression activities using the same number of personnel and resources employed to attack a fire in a 2000 square foot home. The department placed residential structures in the appropriate risk category by examining the probability that a fire may occur at a residential structure and the consequence that a fire at that structure may have upon the community. Next, the agency impact component was used to better understand how a fire in different size structures would change the designated risk level. While the probability of a fire in a large residential structure is statistically no different than a smaller home, the impact upon the agency due to the size of the structure is much higher. A large residence with heavy fire involvement requires a substantial increase in resources and personnel. For this reason, subdivisions with homes consistently greater than 5000 square feet were placed in the high/special risk category, while homes with less than 5000 square feet were placed in the moderate category. Critical tasking has also been expanded for large homes to include the use of automatic/mutual aid personnel to fulfill the expanded workload. This is discussed in more detail in the critical tasking section of this document.



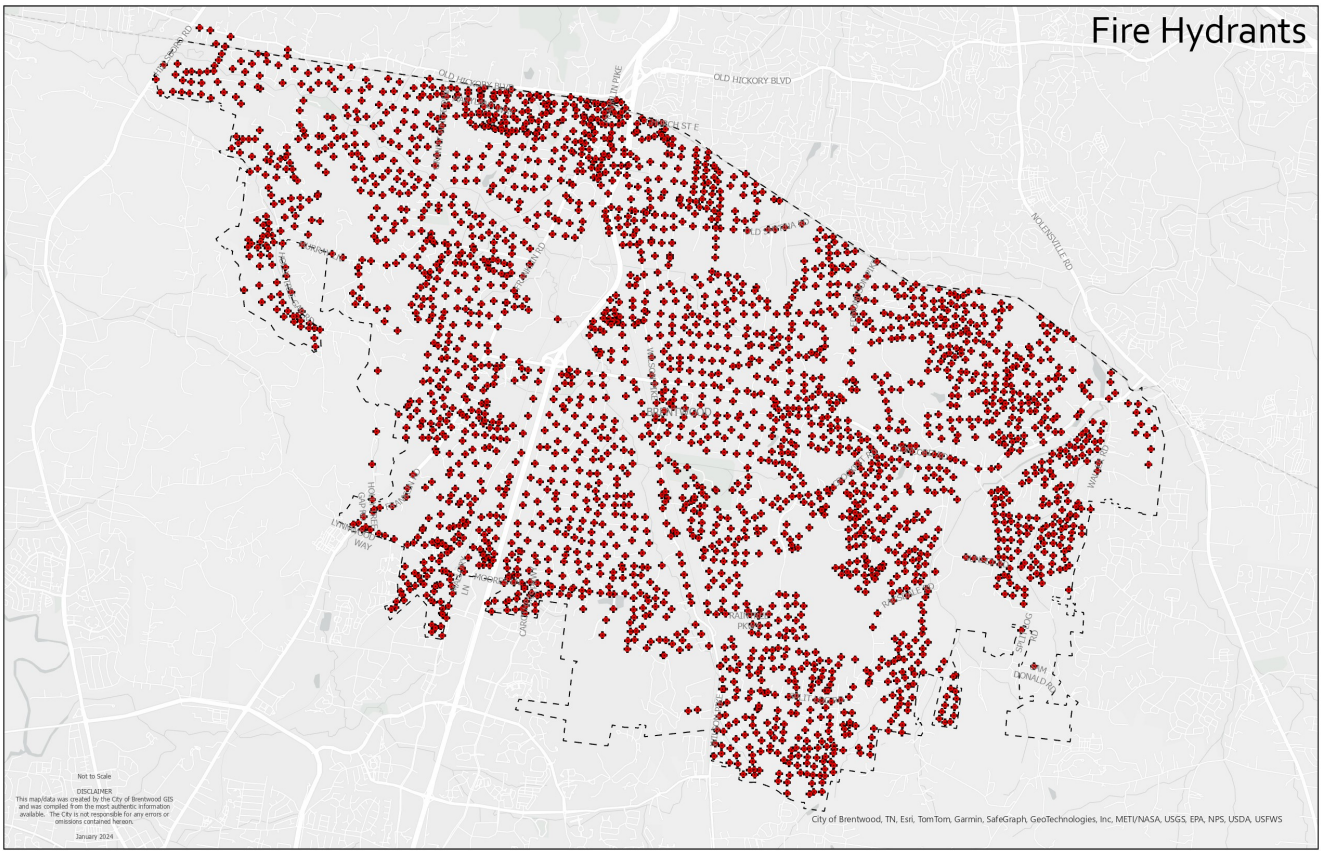
2019-2023 Structure Fire Incident Locations

The below chart further illustrates where the fire risk levels were placed using the probability/consequence model.

Fire Risk Levels

Risk Category	Call Type	Effective Response Force
1 Unit Response Package		
Low Risk Fires	**Single Engine/Ladder/Tower** • Commercial and Residential Fire Alarms • Outside Investigation • Passenger Vehicle Fires • Wires Down • Fire Department Assistance • Road Hazard • Fireworks	1 Unit = 3 Personnel
2 Unit Response Package		
Moderate Risk 1 Fire (Interstate 65)	• Passenger Vehicle Fire on Interstate 65 *1 unit used as blocker	2 Units = 5
3 Unit Response Package		
Moderate Risk 2 Fire	• Small Sheds/Outbuildings • Commercial Vehicle Fires (buses, semi-trucks, box trucks) • Aircraft Emergency • Inside Investigation	2 Engines = 6 1 Battalion Chief = 1 Total = 7
7 Unit Response Package		
High Risk Fire	• Residential Structure Fires < 5000 ft^2 • Aircraft Crash	7 Units = 18 Personnel All BFRD Units Total = 18
Aided Response Package		
Special Risk Fire	• Large Home Subdivisions • (> 5000 ft^2) Auto-Aid Subdivisions • Assisted Living Facilities • High Density Residential	7 Units from BFRD = 18 Personnel Auto/Mutual Aid 1 - Battalion Chief 1 - Engine 1 - Ladder Total = 25

Moderate Risk • Sheds and Outbuildings • Commercial Vehicle Fires • Passenger Vehicle Fires on Interstate 65 • Aircraft Emergency • Inside Ivestigation	**Special Risk** • Residential Structure (> than 5000 sq. ft.) • Commercial Buildings • Hotel Occupancies
Low Risk • Commercial and Residential Fire Alarms • Outside Investigation • Wires Down • Other Fire • Passenger Vehicle Fires • Fire Department Assistance • Road Hazard	**High Risk** • Residential Structure (< 5000 sq. ft.)

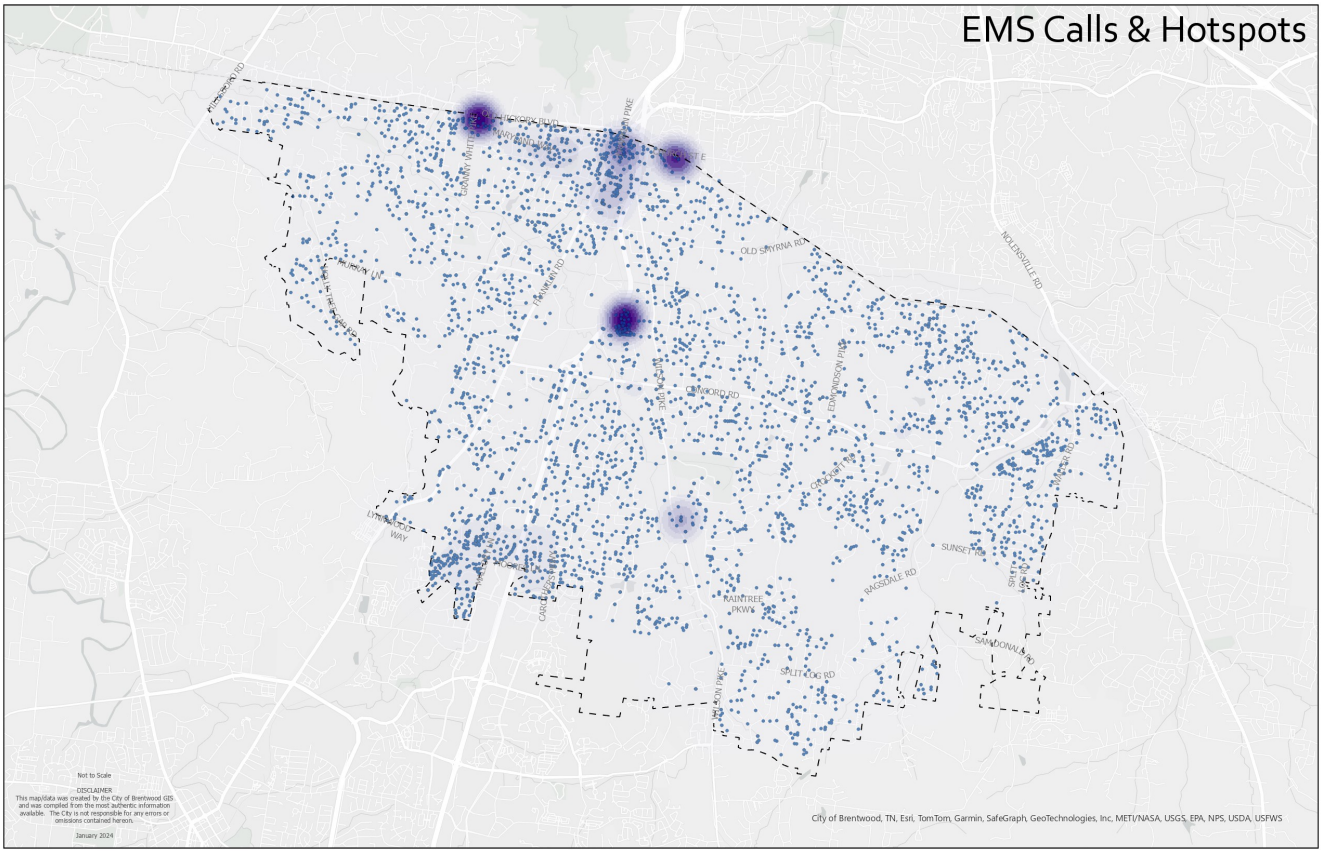


Map of Fire Hydrant Locations

EMS Risk Methodology

The process for determining risk for EMS response utilized the same methodology of probability, consequence, and agency impact to determine risk categories. The most common EMS call for service is the standard medical call, which can include a wide variety of medical emergencies. During a review in 2017, the agency adjusted some of the effective response force requirements to ensure appropriate resources were deployed to calls of higher consequence such as CPR in progress incidents. The department reviewed historical run data, and evaluated critical tasks during training and determined that an increase in staffing would be needed on CPR in progress incidents to ensure high-quality service delivery. This is an example of how the review process can utilize a standard risk analysis approach to implement changes that will impact service delivery. The agency used the findings of the risk analysis and coupled them with critical tasking to ensure the effective response force matched the tasks that need to be completed.

In addition, the agency has identified areas within the city that have a higher service demand for EMS response and have placed them in risk categories as well. This ensures the agency maintains an awareness of where calls for service are most likely to occur. The agency categorized locations according to the probability that an EMS event may occur at that location. As an example, medical calls at a residence are placed in a low-risk category because it is unlikely to have repetitive calls for service at a residence. However, medical calls at locations that have a high occupancy load, or a special population will likely demand frequent calls for service.



EMS Incident Heat Map, 2019-2023

This heat map illustrates the areas with the highest concentration of EMS responses over the last 5 years

EMS Risk Levels

The chart below further illustrates where the EMS risk levels were placed using the probability/consequence model.

Risk Category	Call Type	Effective Response Force
1 Unit Response Package		
Low Risk EMS	• Medical Call • Medical Alarm • Personal Injury Accident (PIA)	1 Unit = 2 Personnel Total = 2
2 Unit Response Package		
Moderate Risk (2-Unit) EMS (Interstate 65)	• PIA on Interstate (one unit utilized as blocker)	2 Units = 5 Personnel Total = 5
3 Unit Response Package		
Moderate Risk (3-Unit) EMS	• CPR in Progress • Officer Down	2 Units = 5 Personnel 1 Battalion Chief Total = 6
6 Unit Response Package		
High Risk EMS	• Active Shooter/Mass Casualty	6 Units = 14 Personnel 3 Engines 1 Tower 1 Rescue 1 Battalion Chief Total = 15
Special Risk EMS	• None	None

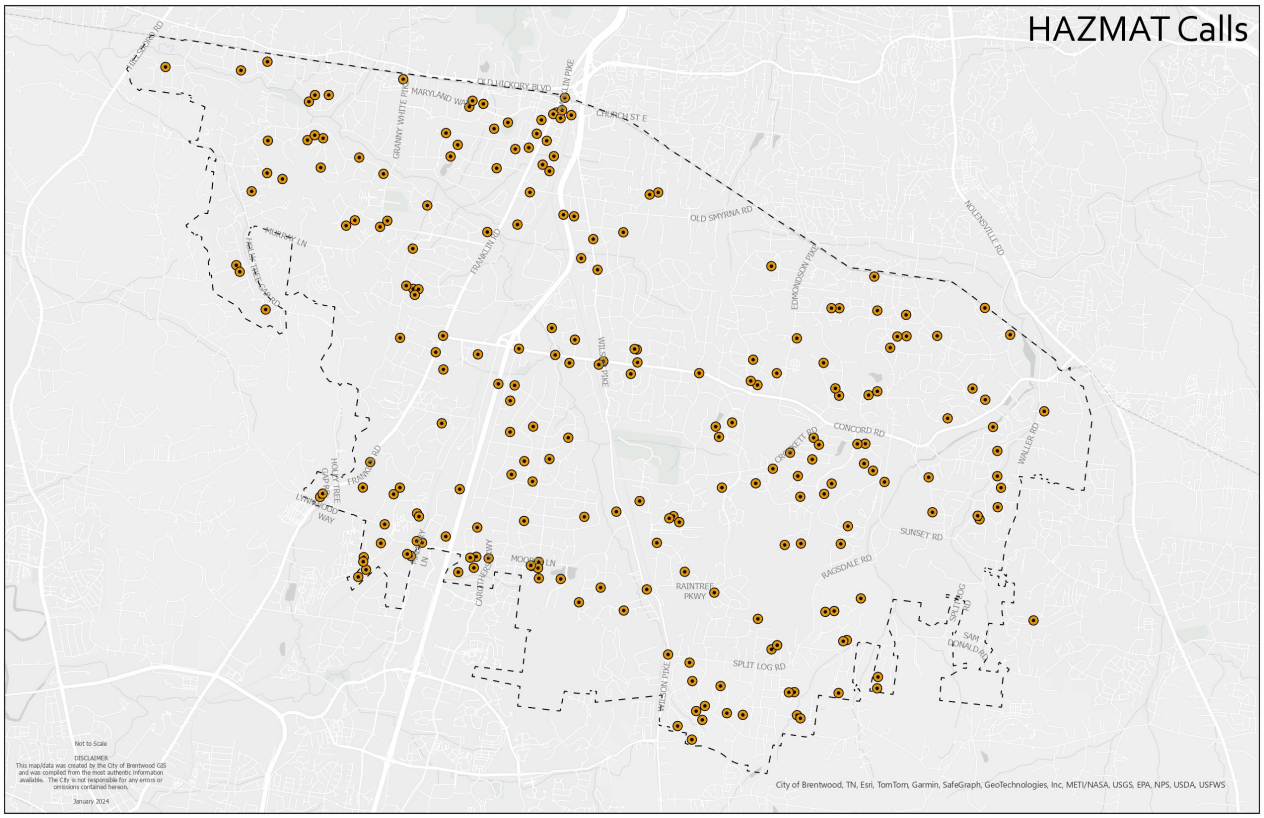
EMS Risk Locations

Moderate Risk • Interstate 65 • Major Arterial Roadways • Health Club Facilities • Assisted Living Facilities • Parks and Recreation Areas	**Special Risk** • None
Low Risk • Residential Occupancies	***High*** • Churches • Business Occupancies • Education Facilities

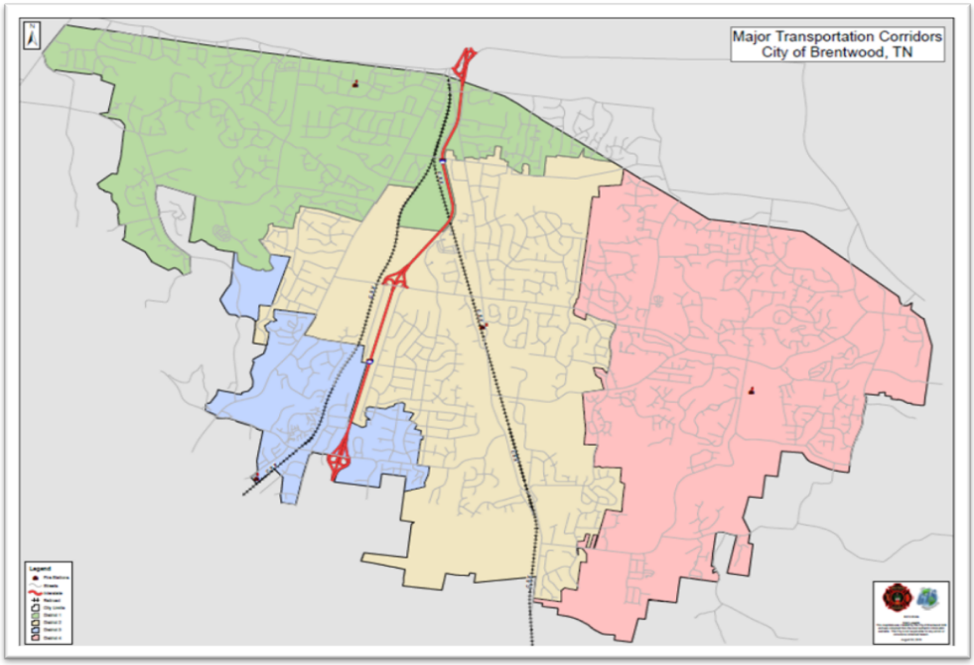
Hazardous Materials Risk Methodology

Determining the risks for hazardous materials (hazmat) response was done using the probability/consequence model and the impact a hazmat event would have on the community and agency. Various risks have been identified and are now categorized according to this concept. Risks in the low category represent a low consequence to the community. Conversely, maximum risks maintain a high probability of occurrence and may pose a tremendous consequence to the community should a hazmat incident occur involving that risk. Response levels which include critical tasks, staffing, and needed resources are based on the determined risks and the impact the risks pose to the community. The agency has developed a response plan for each risk category and trains for worst-case scenarios, also known as high/special risks. While the probability of occurrence remains low, the driving force behind hazmat response will continue to be the potential consequences that hazardous materials present to the community. The agency will continue to prepare for potential hazmat emergencies through training, resource allocation, and mutual-aid partnerships.

A risk assessment of hazardous materials indicates that the most critical area of concern involves the potential for transportation incidents along Interstate 65 and the two CSX railroads; both of which run north to south through the center of the city. With the high volume of road and rail traffic transporting multiple classes of hazardous materials daily, the potential for a hazardous materials incident is ever present. Other potential hazardous materials threats include: gas spills, pool businesses, limited chemical storage at mercantile occupancies, and small amounts of hazardous materials stored at businesses. There are no industrial, mixing, or manufacturing operations within the city limits. Occupancies that store or use hazardous materials are documented in the pre-plan area of the records management database. During annual inspections, company officers are required to update any changes to hazardous materials storage and this information is made available to personnel via mobile data units.



2019 – 2023 Hazardous Materials Incident Locations



Interstate 65 and CSX Rail Lines

This map shows the major transportation routes that dissect the city and present the most substantial hazmat risk.

Hazardous Materials Risk Levels

The chart below further illustrates where the HAZMAT risk levels were placed using the probability/consequence model.

Hazardous Materials Risk Categories

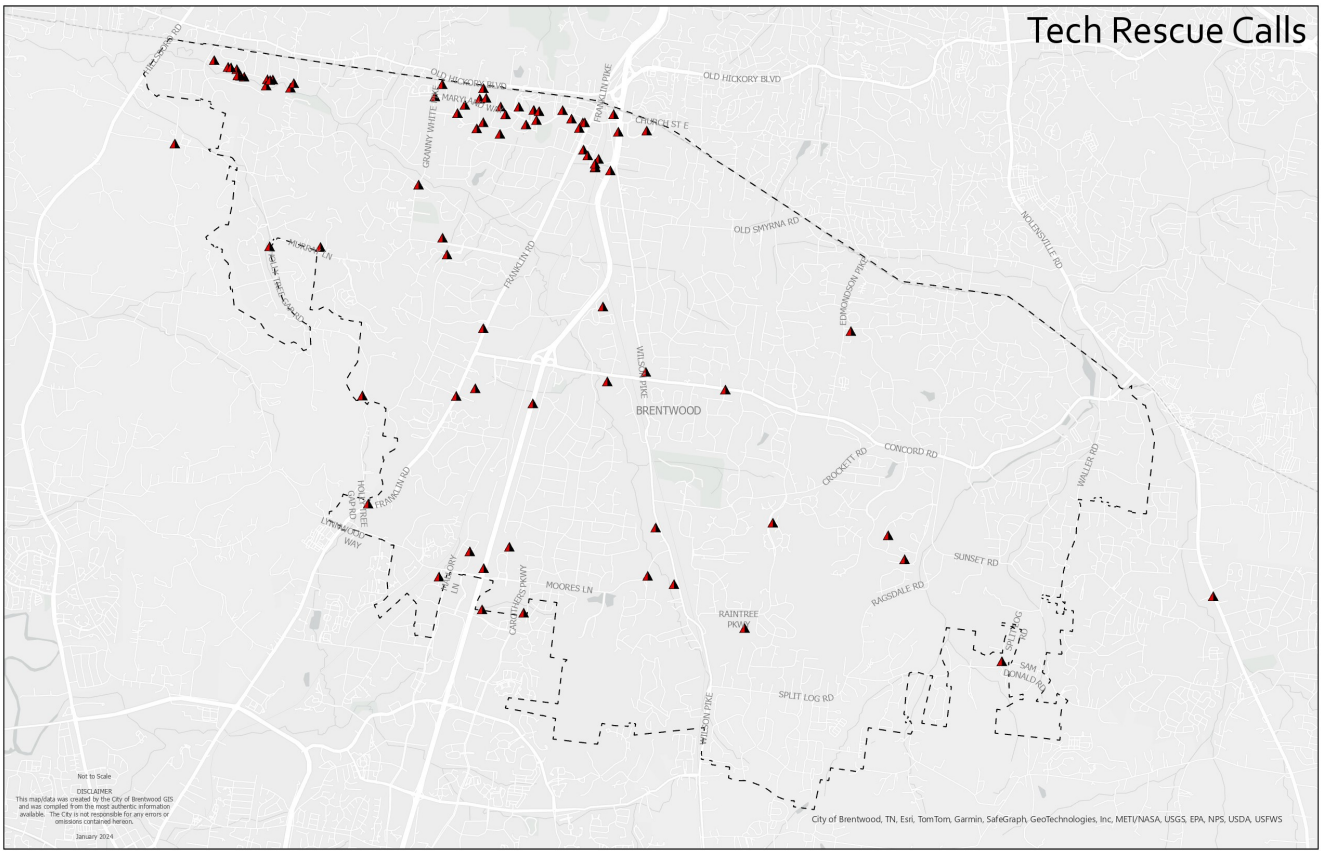
Risk Category 1 Unit Response Package	Call Type	Effective Response Force
Low Risk HAZMAT	• Small Spill < 10 gallons • Non-Symptomatic CO Alarm • Hazardous Package • Wash Down	1 Unit = 2 Personnel Total = 2
3 Unit Response Package		
Moderate Risk HAZMAT	• Symptomatic CO • Spills > 10 Gallons	2 Units = 5 Personnel 1 Battalion Chief = 1 Total = 6
6 Unit Response Package		
High Risk HAZMAT	• Large Spill or Leak > 100 Gallons	6 Units = 15 Personnel 3 Engines 1 Ladder 1 Rescue 1 Battalion Chief Total = 15
Aided Response Package		
Special Risk HAZMAT	• Train Derailment • Significant Spill or Leak at a fixed sight • Major HAZMAT	8 BFRD Units = 21 Personnel Mutual Aid 1 Battalion Chief 1 Hazardous Materials Response Unit 1 Williamson EMS unit Total = 27

Identified Risk Locations

Moderate Risk • Gas Service Stations • Swimming Pool Businesses • Collector Roadways • Occupancies listed with hazardous materials storage in pre-plan documentation (i.e., research facilities, doctors' offices, pesticide storage) • Storage Facilities	**Special Risk** • Interstate 65 • CSX Railroads
Low Risk • Residential Structures • Residential Streets • Rural and suburban roadways	**High Risk** • Interstate 65 • Arterial Roadways • Major Intersections • Home Depot

Technical Rescue Risk Methodology

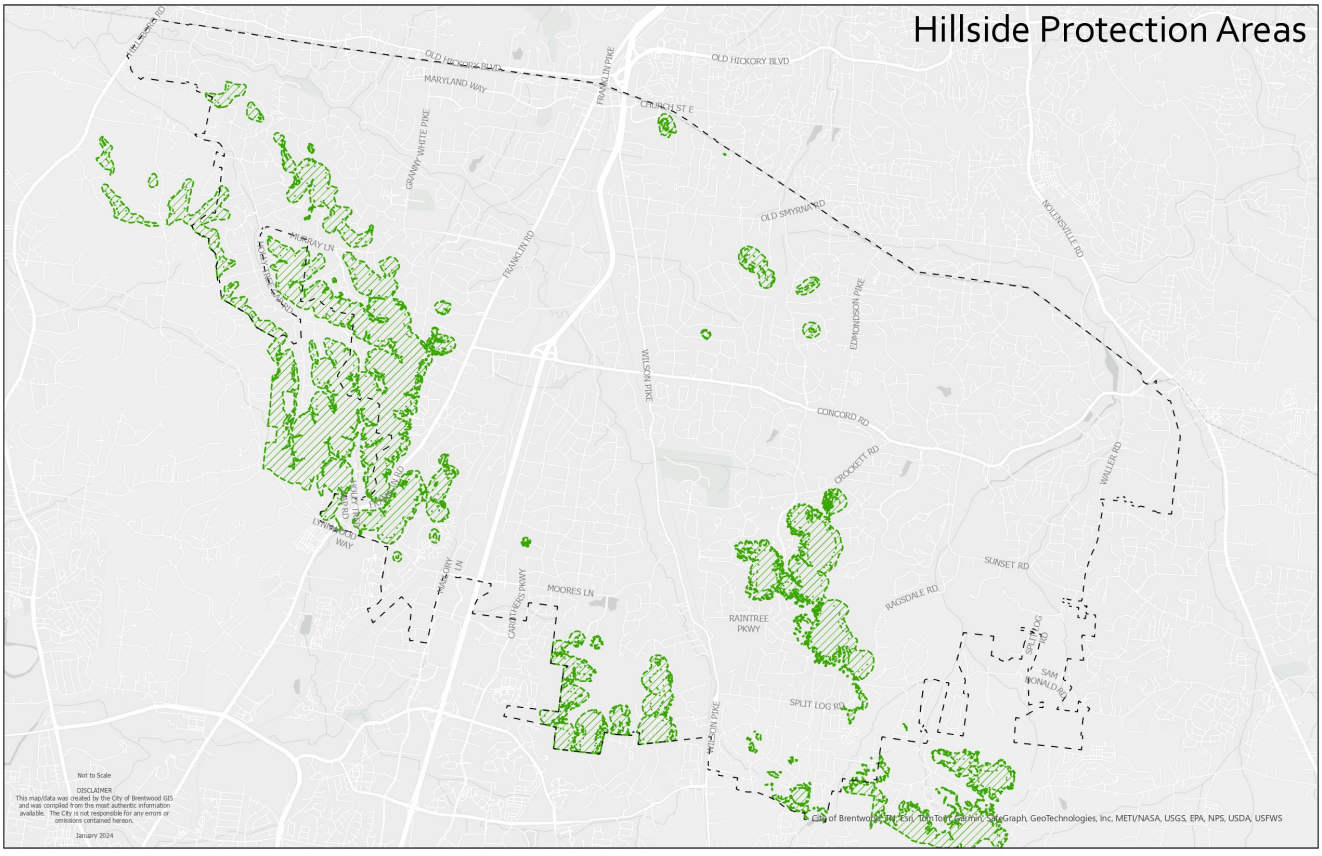
As with the other forms of emergency response, risk identification for technical rescue was completed using the probability/consequence model. For technical rescue, the risks have been placed in categories that represent the appropriate probability/consequence ratio. Response guidelines have been developed using this concept to establish an appropriate response to the various risks. The ***low-risk*** category includes vehicle lockouts or elevator rescues. These areas represent a minimal impact to the community when they do occur. The ***moderate risks*** are reserved for personal injury accidents with extrication required. These typically occur on major roadways such as I-65, arterial roads, and major intersections. Vehicle extrications represent a low consequence to the community because they typically involve one or two vehicles and are rapidly mitigated. The ***high/special risks*** were reserved for either a rope rescue, water rescue, trench rescue, or confined space. These incidents are very rare but may be widespread, occurring anywhere across the community. An example would be a flood event that impacts large areas of the city. Another component that moved some of these risks into the high/special category is the impact upon the agency. For example, a trench rescue alone may not have a heavy impact on the community, but the agency must utilize significant resources and time to complete the rescue. As a result, the agency is challenged to continue responding to additional emergencies while mitigating a long-term rescue.



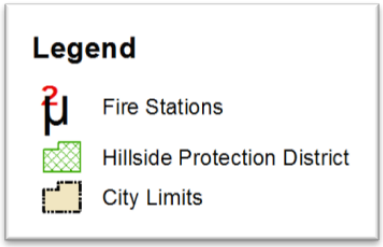
Technical Rescue Incidents, 2019-2023

Rope Rescue

Response to other technical rescue disciplines is guided by NFPA 1006: Standard for Technical Rescuer Professional Qualifications and NFPA 1670: Standard on Operations and Training for Technical Search and Rescue Incidents. Both standards place rope rescue proficiency at the core of all technical rescue disciplines. In the 37-year history of BFRD, the agency has responded to only two rope rescue incidents. However, the department does maintain a cache of rope rescue equipment on Rescue 52 should one occur. Department members' training includes 14 Technicians and 27 Operations personnel. Department members train annually on rope rescue operations to ensure competence and equipment familiarization. Areas that have the potential for rope rescue situations have been identified and include the hillside protection areas as well as the railroad overpass in Planning Zone 7.



Hillside Protection Areas



Confined Space

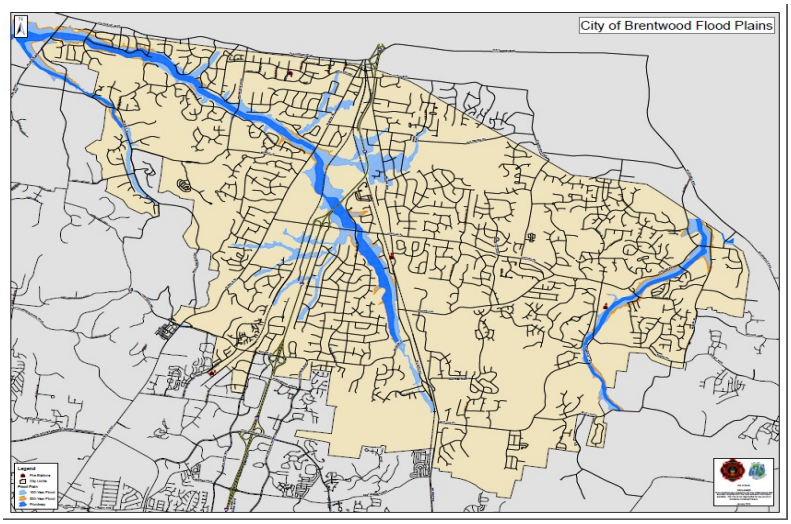
Confined space rescue would be limited to areas where underground utilities receive regular maintenance and some commercial spaces such as elevator shafts. The agency has provided confined space training for department personnel.

Trench Rescue

Trench Rescue incidents represent a very rare, but potentially life-threatening situation should one occur. BFRD has responded to one trench rescue incident in the department's history. The department can respond at the operations level and maintains equipment enabling responders to operate in trenches up to 10' in depth. The primary threat involving trench rescue situations would be the installation of utilities along the roadway. Currently the department maintains eight (8) trench panels, twenty (20) .75" sheets of plywood, eighty (80) 4x4's, and fifty (50) 2x6's. Substantial trench rescue scenarios would require a response from Nashville Fire Department's Technical Rescue Team and supplemental personnel from Franklin Fire Department.

Water Rescue

Perhaps the most significant technical rescue event in department history occurred with the flooding that took place on May 1st and 2nd of 2010. The flooding was the result of 15-17 inches of rain in less than 30 hours. This event was the costliest natural disaster in city history and resulted in flooding of 264 homes and damage to many roads, bridges, and parks. The department responded to 86 incidents during this 48-hour period, including multiple water rescues and two structure fires. This event fully taxed the resources of the agency and required a recall of personnel during the second structure fire. Mutual-aid resources were unavailable during most of the event due to flooding in their own jurisdictions. BFRD was able to respond to all calls for service during this time but recognized the need for additional water rescue resources should this event happen in the future. Since the May floods of 2010, the agency sent 15 personnel to training in swift water rescue and most personnel have been trained to the awareness level. The department maintains two swift water boats w/motors, two swift water boats for rowing and 12 complete sets of swift water PPE. Additional flood events have occurred since 2010 and the department's resources met the demands for service. Flooding resulting in water rescue is very rare but is a potential problem for the department for which it must be prepared.



Flood Plain Map

Structural Collapse

A structural collapse incident may be caused by a weather event or earthquake activity from the New Madrid Fault. The New Madrid Seismic Zone, also referred to as the New Madrid Fault, extends through the Memphis area just 200 miles to the west of Brentwood. Despite this fact, historical earthquake activity in the Brentwood area is significantly below the state average. This is, however, a consideration when discussing structural collapse potential. The most likely scenario for structural collapse would be attributed to high winds or tornadic activity.

An incident involving more than one structure would require a significant response and mutual aid would be requested. Nashville Fire Department can provide Tennessee Task Force 2 which would include significant staffing and a variety of resources outside the current capabilities of BFRD. In addition, mutual aid request would also include Franklin Fire Department, Williamson Emergency Management Agency, and Williamson County Rescue Squad.

The below chart further illustrates where the Technical Rescue risk levels were placed *using the probability/consequence model.*

Technical Rescue Risk Levels

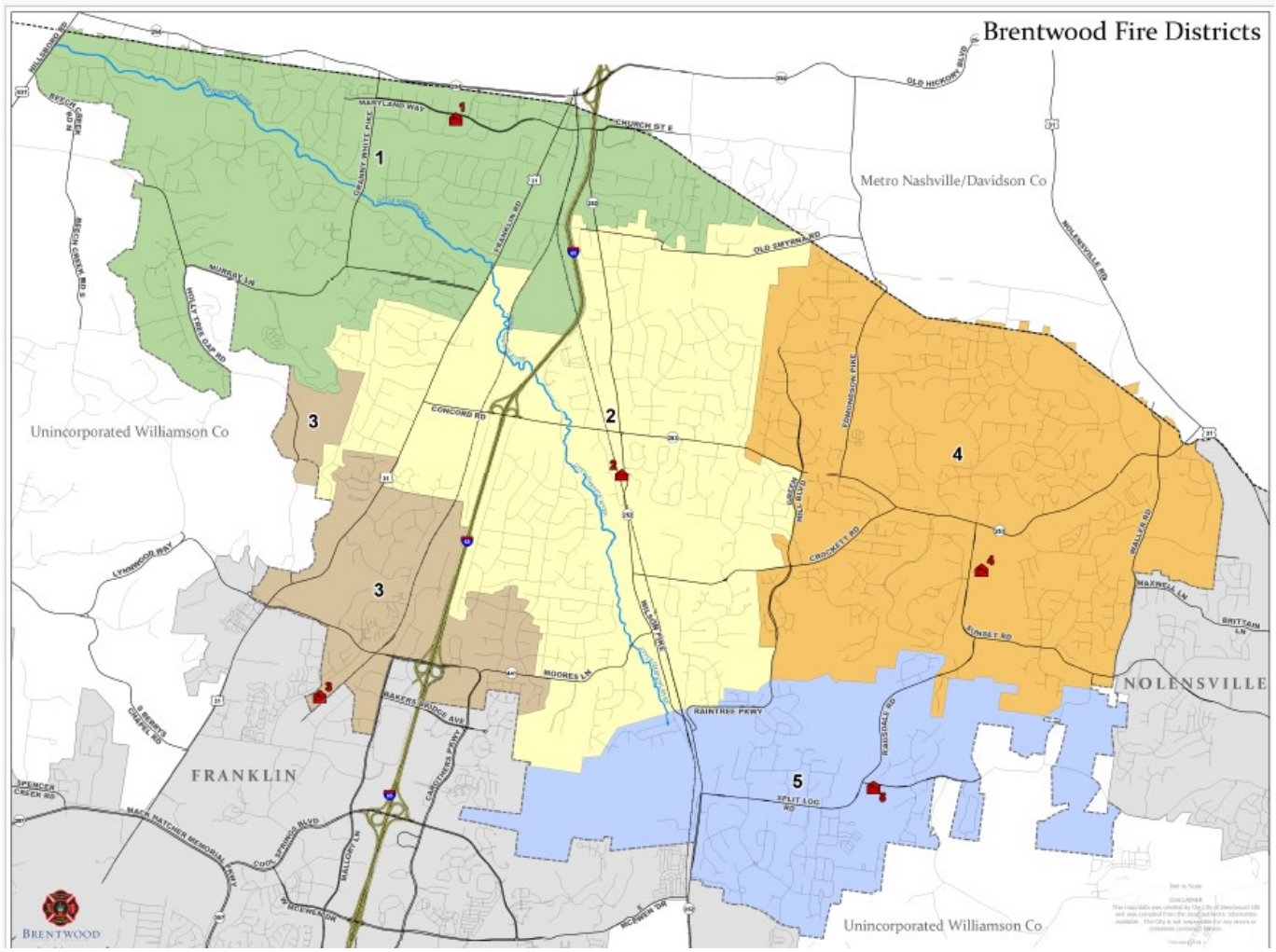
Risk Category	Call Type	Effective Response Force
1 Unit Response Package		
Low Risk Technical Rescue	• Elevator Rescue • Vehicle Lock-out	1 Unit = 2 Personnel Total = 2
3 Unit Response Package		
Moderate Risk Technical Rescue	• Personal Injury Accident w/Extrication • Search and Rescue	2 Units = 5 Personnel 1 Battalion Chief = 1 Total = 6
6 Unit Response Package		
High Risk Technical Rescue	• Confined Space Rescue • Rope Rescue • Water Rescue • Trench Rescue • Structural Collapse	6 Units = 15 Personnel 3 Engines 1 Rescue 1 Ladder/Tower 1 Battalion Chief Total = 15
Special Risk Technical Rescue	None	None

Technical Rescue Risk Locations

Moderate Risk • Interstate 65 • Arterial Roadways • Collector Roadways	**Special Risk** • None
Low Risk • Vehicle Parking Areas • Residential Roadways	**High Risk** • Hillside Protection Areas • Railroad overpass in District 1 • Flood Plains • Utility Maintenance Areas • Water Towers • Construction sites

Station Districts

The city of Brentwood is the second largest city in Williamson County covering 41.2 square miles. The topography in the city consists primarily of rolling hills and flat meadowland with small streams and man-made ponds interspersed throughout. Some portions of the city have areas with steep slopes making access to structures in these areas challenging. The agency has divided the city into eight planning zones and 4 response districts. The station locations were determined based on several factors including land availability, available funding, population density, population growth potential, response time, and the political climate at the time. While all station locations are not ideal, response time data suggests the agency is able to meet the established response time objectives adopted by the department.

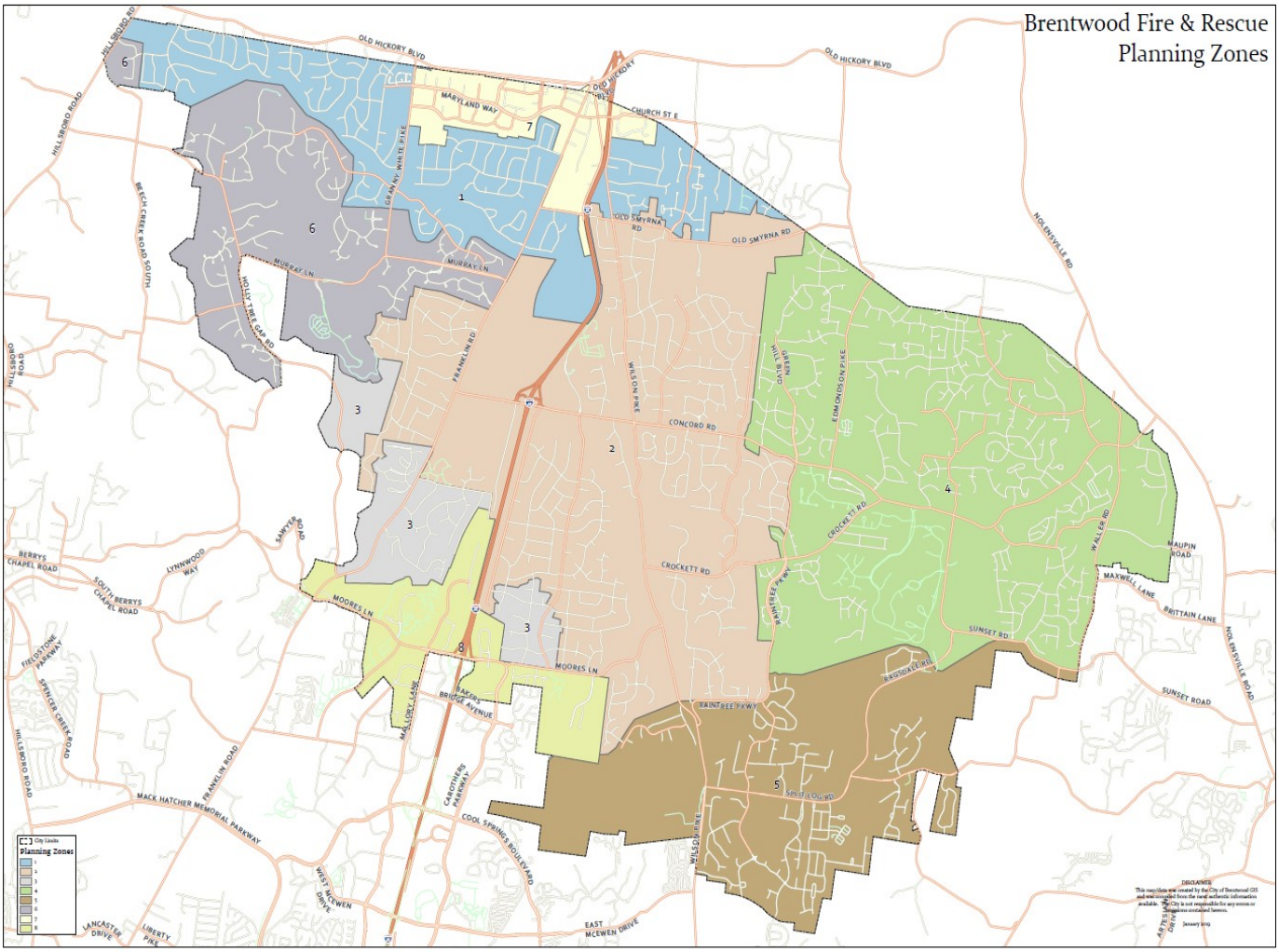


Station Locations and Districts

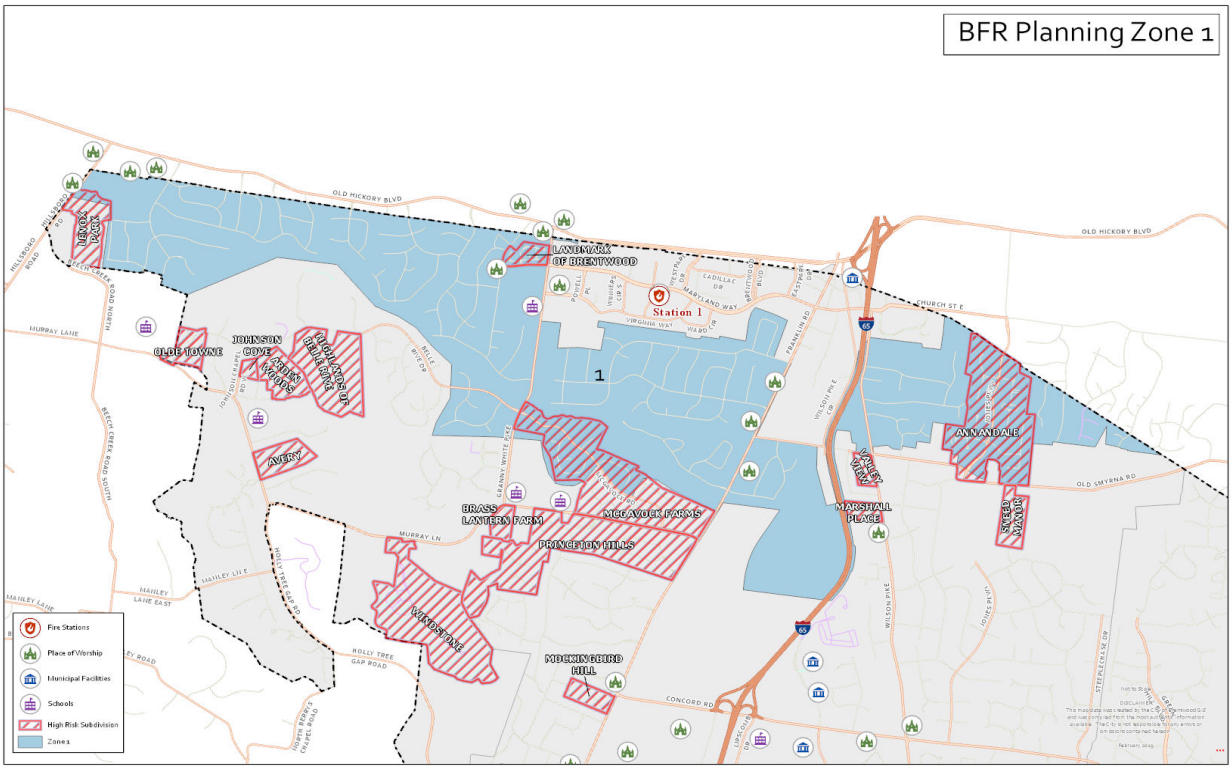
The above map displays response districts. Beginning in 2017, the agency changed CAD vendors which enabled automatic vehicle locator (AVL) resulting in a system for closest unit dispatch. While station districts are still used for data collection, the response system is now designed to select the closest most appropriate unit for response rather than relying solely on station districts for response selection.

Geographical Planning Zones

For data collection and analyzing response performance, the agency has divided the city into eight planning zones. Each of these zones was selected based upon several factors which include population density, projected growth, distance from the current station, and similar zoning characteristics. Response data that included both travel and total response time for both the first-due and effective response time have been included in the planning zone descriptions.



Planning Zone 1



Zone Description

Zone 1 is in the northernmost portion of the city and is bordered by the city of Nashville. The zone is characterized by a wide range of residential structures with a very limited number of commercial buildings. Major roadways in the zone include I-65, Franklin Road, Hillsboro Road, Old Hickory Boulevard, and Church Street. The total road miles for the zone are 41.72 miles and in a total land area is 4.48 square miles. The population for this zone is 5,235, a density of 1,168 per square mile. Total call volume 2019-2023 was 1928 incidents.

Fire Risks

The primary fire risks in Zone 1 are residential homes that range in size from 2500-4500 square feet. The zone does contain a few churches and schools, nearly all of which are protected by automatic fire sprinklers. There are 4 subdivisions that are included in the special fire risk category due to homes in these neighborhoods consistently exceeding 5000 square feet or causing exposure concerns.

Zone 1 Special Fire Risk Subdivisions

1. Annandale
2. Landmark
3. Lenox Park
4. McGavock Farms

Additional Special Fire Risk Considerations

1. Brentwood Academy
2. Brentwood United Methodist
3. Otter Creek Church of Christ
4. Brenthaven Cumberland Church

EMS Risks

The EMS risks in Zone 1 are primarily responses to medical calls for residents. This zone has a relatively evenly distributed representation of EMS call volume. In addition, Zone 1 has several major roadways and intersections including 2.08 miles of I-65 which can increase the likelihood of personal injury accidents where medical assistance is required.

Hazardous Materials Risks

The most prominent hazmat risks include the 2.08 miles of I-65. This transportation corridor represents many hazardous materials traveling by bulk through this area. The remainder of the district consists primarily of residential roads and residences which may have a small amount of hazardous materials storage.

Technical Rescue Risks

Major arterial roadways, intersections, and Interstate 65 are important risks to consider when evaluating the potential for motor vehicle accidents. This increases the probability that an MVA may occur, and that vehicle extrication may be required as the result. The district also has a large area for potential flooding in the Wildwood Valley and River Oaks subdivisions. This became evident during the 2010 floods as these areas were hit especially hard. The remainder of the district consists of residential roads which have a low probability of technical rescue needs.

Planning Zone 1 Response Data

Planning Zone 1
2019-2023

Low Risk EMS (n=741)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:07:04	09:21	0:07:29	0:09:45

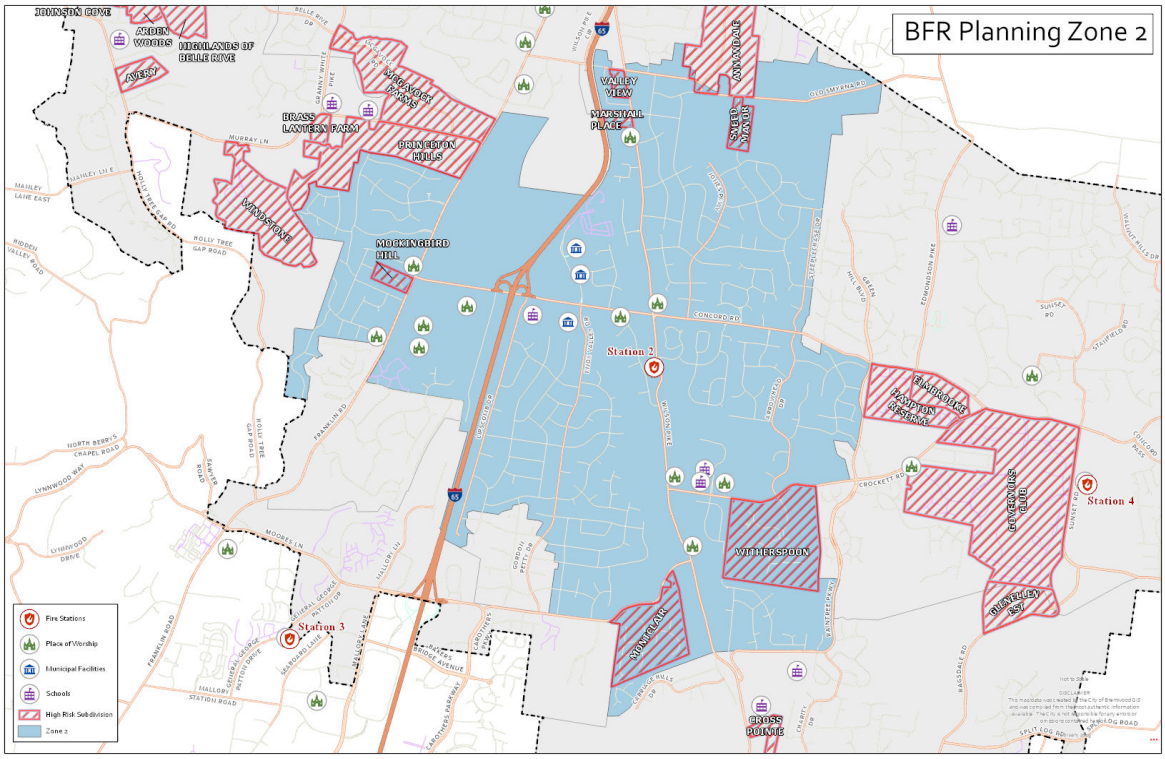
Moderate Risk (n=121)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:06:36	0:09:13	0:09:15	0:11:21

High Risk (n=21) (ERF =1)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:08:20	0:10:36	0:14:07	0:18:30

Planning Zone 2



Zone 2 Description

Zone 2 lies in the center of the city and contains several major roadways including: I-65, Franklin Road, Wilson Pike, Concord Road, Moore's Lane, and Crockett Road. The zone has a land area of 11.26 square miles and has a total road mileage of 91.97 which includes 4.06 miles of I-65. Zone 2 is predominately residential with single family dwellings making up 77% of the zone. The population for this zone is 11,538 which results in a population density of 1,024 per square mile. The zone also contains The Heritage, which is the largest assisted-living facility in the city. The Heritage property is comprised of 50 - acres and is home to more than 400 residents. The facility is designed with a variety of residential options including single family dwellings, apartments, and a skilled nursing facility. In addition, Morning Pointe Assisted- Living Facility opened in 2013 with 73 private apartments including 20 apartments dedicated to Alzheimer's care. Total call volume 2019-2023 was 4937 incidents.

Fire Risks

While Zone 2 does not have a central commercial area, several large commercial structures are scattered throughout in the form of churches, schools, health club facilities, and assisted living. The Heritage presents a fire threat with unique challenges particularly focused on the number of geriatric residents and the size of the facility. While this facility is fully sprinklered, which greatly reduces the likelihood of significant fire development, the agency has made special efforts to continuously preplan this facility should a fire occur. Service institutional facilities range in size from 6000 square feet to over 315,000 square feet at Brentwood Baptist Church. These assembly occupancies have gatherings from a few hundred to over 5,500 people who meet throughout the week. Three schools are in Zone 2 and are fully sprinklered with automatic fire

alarm protection. The remainder of the district is residential with five subdivisions considered high risk due to homes consistently over 5000 square feet.

Zone 2 Special Fire Risk Subdivisions

1. Crosspoint
2. Delfino
3. Marshall Place
4. Mockingbird Hill
5. Montclair
6. Oman
7. Sneed Manor
8. Valley View
9. Witherspoon

EMS Risks

One of the most important EMS risks to consider for this zone is The Heritage. Since opening in 2010, the agency has seen a higher concentration of medical calls for this facility than other parts of the district. This can be expected due to the concentrated population of geriatric residents. In addition, Zone 2 has several churches including Brentwood Baptist with a congregation more than 5,500 people meeting multiple times per week. Zone 2 also has three schools, a health club facility, Crockett Park, and a large portion of the city greenway system which meanders throughout Zones 2, 4, and 5. These unique risks play a role in evaluating the need for medical response. In addition, several major roads dissect the district including Concord Road and I-65. The remainder of the district is predominately residential.

Hazardous Materials Risks

Two unique risks for Zone 2 include I-65 and two actively traveled CSX railroads. While both I-65 and the railroads intersect Zones 1 and 3, Zone 2 has 4.06 miles of I-65 and 7.97 track miles, by far the most of any zone in the city. I-65 runs north and south through the zone increasing the possibility of motor vehicle accidents and hazardous material spills. Furthermore, The Heritage sits near I-65 representing a tremendous life safety concern should a large spill occur in this vicinity. CSX operates two very active railroads that also run north and south through the zone. With several tons of hazardous materials traveling by rail, there is an increased threat for a railroad incident involving hazardous materials for both the city and residents in this area. The department recognizes the risk that both I-65 and the railroads present and has established both response guidelines and critical tasking needs for incidents on both transportation outlets. Other hazmat risks for the district include residents which may store small amounts of hazardous materials.

Technical Rescue Risks

Interstate 65 and other major roads present the highest risk for MVAs and potential vehicle extrications. For water rescues, the flood plain extends south through the zone impacting Twin Springs, Carondelet, and portions of the Brenthaven subdivision, as well as the Brentwood YMCA

when significant flooding occurs. Confined Space rescue would be limited to utility maintenance areas throughout the district.

Planning Zone 2 Response Data

Planning Zone 2
2019-2023

Low Risk EMS (n=2711)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:06:17	0:08:30	0:06:18	0:08:30

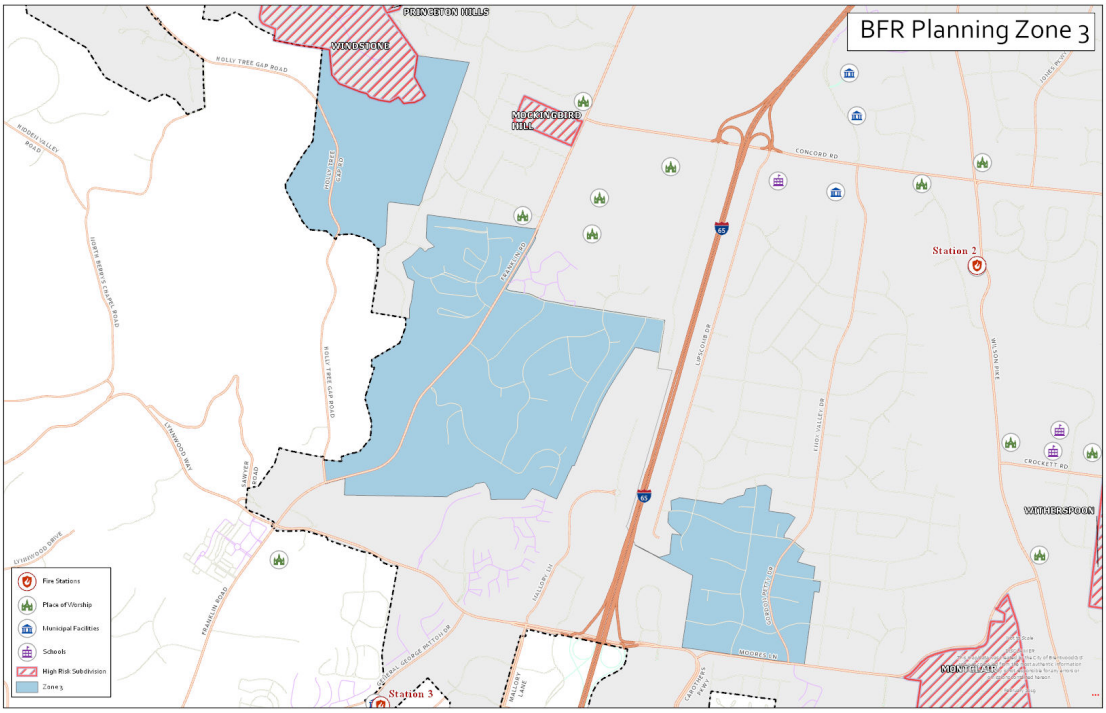
Moderate Risk – All (n=232)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:06:52	0:09:04	0:09:20	0:11:23

High Risk – All (n=16) (ERF=5)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:05:12	0:07:30	0:10:58	0:13:35

Planning Zone 3



Zone 3 Description

Zone 3 is in the southwest section of the city and is the second smallest zone by square miles 1.77. The population for zone 3 is 1,539 resulting in a population density of 869 per square mile. Major roadways include: Moore's Lane, Franklin Road, and Gordon Petty Drive with a road mile total of 13.71 for the zone. The annual call volume for Zone 3 is the lowest of the eight zones due to its size and residential makeup. Total call volume 2019-2023 was 547 incidents.

Fire Risks

Zone 3 is primarily residential with homes which typically range in size from 2500 – 4500 square feet.

EMS Risks

The zone is residential in nature and is considered a lower risk potential for medical emergencies. Data indicates that medical calls are spread throughout the district with no concentration of call volume.

Hazardous Materials Risks

Zone 3 consists of residential structures which may have a small amount of hazardous materials storage. There is also the potential for hazardous materials on roadways within the zone.

Technical Rescue Risks

The primary risk for technical rescue would be major roads; specifically Moore's Lane and Franklin Road. These corridors have a high volume of traffic, particularly during the week which increases the likelihood of MVAs potentially resulting in the need for vehicle extrication rescues.

There is also the potential for rope rescue incidents around Holly Tree Gap Road due to the steep terrain in this area.

Planning Zone 3 Response Data

Planning Zone 3
2019-2023

Low Risk EMS (n=236)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:07:35	0:09:44	0:07:35	0:09:45

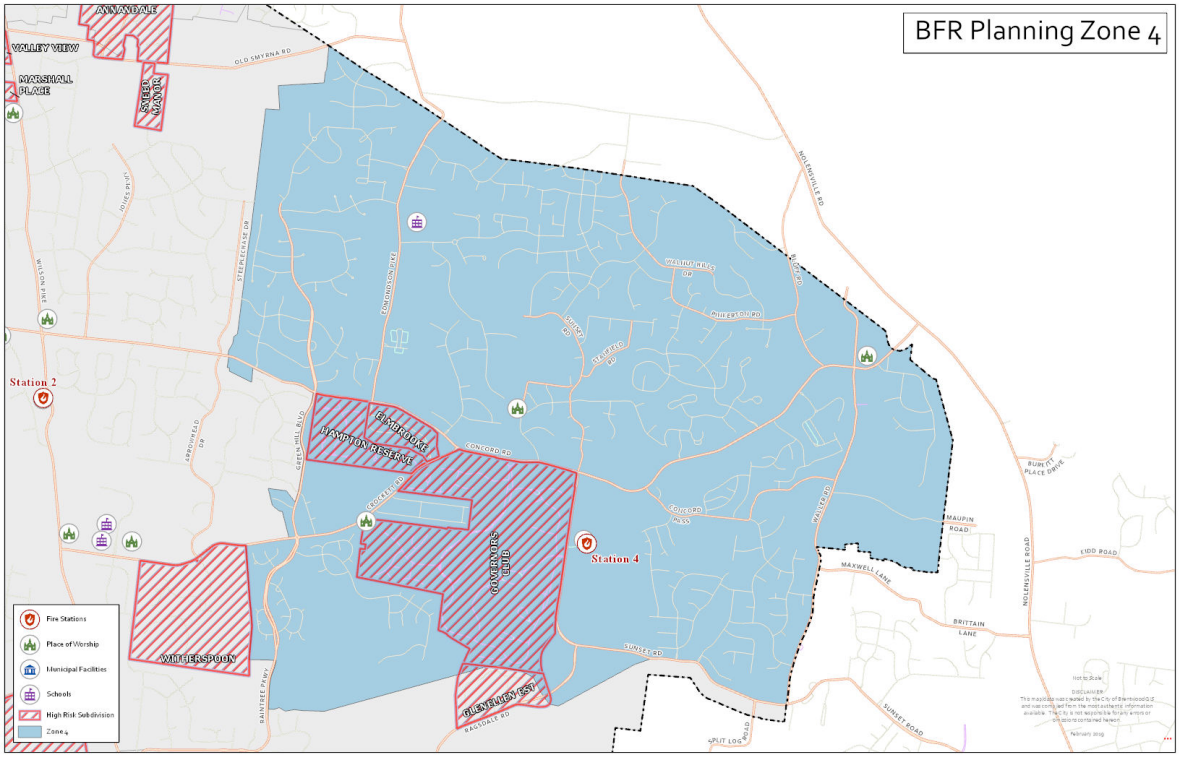
Moderate Risk – All (n=9)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:05:36	0:07:47	0:11:50	0:12:58

High Risk – All (n=1)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:04:35	0:05:51	0:12:53	0:14:45

Planning Zone 4



Zone 4 Description

Zone 4 is located on the east side of the city and represents the second largest zone. The zone is 10.43 square miles in area and has 92.05 road miles. The population for this area is 14,355 resulting in a population density of 1,376 per square mile. Major roads include: Concord Road, Edmondson Pike, Crockett Road, and Sunset Road. Zone 4 does not have any major thoroughfares with large volumes of traffic, except for Concord Road during morning rush hour. It is 93% residential with a very limited number of commercial buildings, one of which includes Edmondson Elementary. Development continues to thrive in the eastern part of the city and will likely continue to do so for the foreseeable future. Total call volume 2019-2023 was 3139 incidents.

Fire Risk

Zone 4 is predominantly residential; the risks are differentiated primarily by the size and accessibility to the structures. Three subdivisions have been placed in a separate fire risk category due to the consistently large homes throughout, some more than 15,000 square feet. The three subdivisions are: Elmbrooke, Hampton Reserve, and Governor's Club, and are designated to require a mutual/automatic aid response in the event of a confirmed structure fire. In 2021, the city signed an auto-aid agreement with Nolensville which includes a large portion of this planning zone. Another challenge for this district is the lack of connectivity and major thoroughfares which would provide more efficient routes for response. This component can delay response for both the first-due and additional responding units. Zone 4 has one

elementary school, Edmondson Elementary, located in the Northwest portion of the district allowing for easy access for E54, E52 and E51.

Special Risk Subdivisions

1. Echo
2. Elmbrooke
3. Hampton Reserve
4. Governor's Club

EMS Risks

Risks in this category are primarily residential. As a result, EMS responses are spread evenly throughout the zone. The EMS heat map helps illustrate the more random nature of EMS responses in Zone 4. The narrow and winding roads do pose an increased potential for motor vehicle accidents that may require medical attention. Zone 4 also has one elementary school, increasing the potential for EMS related emergencies due to the special population.

HAZMAT Risks

Hazardous materials risks for spills are highest on major roads such as Concord Road, collector streets, residential streets, and winding roadways. Homes throughout the district may also have the potential for small amounts of hazardous materials storage, but only in household quantities. A unique risk for this zone is a large natural gas 36" pipeline that runs through the eastern portion of the city. Product is moved through this pipeline via 9000 psi of pressure with shut-off valves located every 12 miles.

Technical Rescues

As with the other parts of the city, the primary technical rescue risks are roadways and intersections where MVAs may occur. With several long winding roads, there have been numerous MVAs that resulted in extrications. A flood plain also exists in the far eastern side of the district, which became a significant risk during the 2010 flooding. Subdivisions and homes near the flood plain experienced rapidly moving water resulting in multiple rescues in this area. Confined space or trench rescues would be limited to construction sites or utility maintenance areas.

Planning Zone 4 Response Data

Planning Zone 4
2019-2023

Low Risk – All (n=1570)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:07:25	0:09:47	0:07:26	0:09:47

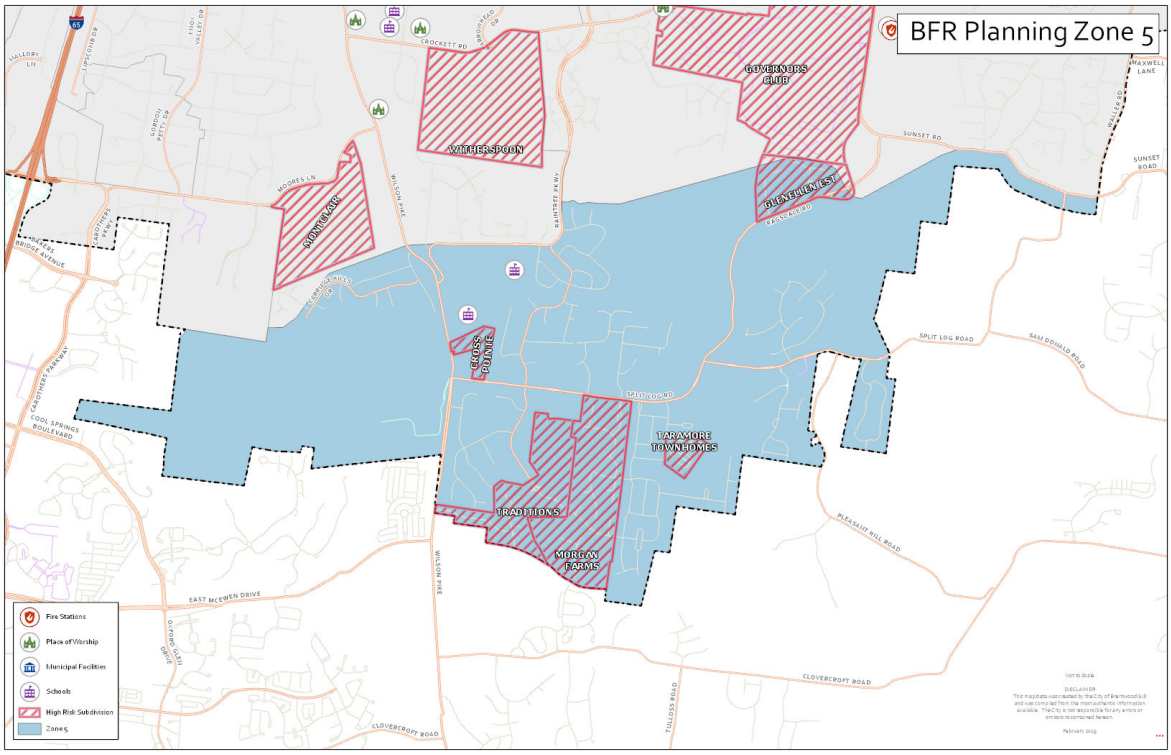
Moderate Risk – All (n=23)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:06:20	0:08:57	0:12:11	0:13:57

High Risk – All (n=18) (ERF = 7)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:06:02	0:08:46	0:15:00	0:17:15

Planning Zone 5



Zone 5 Description

Zone 5 is primarily residential and is in the southeast portion of the city. This section of the city represents one of the fastest areas of development and has the highest growth potential. Zone 5 is 6.46 square miles and has 30.44 road miles. The population for this zone is 4,162 resulting in a density of 644 per square mile. This portion of the city also has significant land area that may be annexed in the future. If annexation occurs and encompasses all the land within the urban growth boundary, this zone could expand to approximately 9 square miles. No plans or timelines have been made for annexation at this point. Zone 5 is home to 3 schools, Kenrose Elementary, Jordan Elementary, and Ravenwood High School. In addition, there are 6 subdivisions within the zone that have homes consistently exceeding 5000 square feet. In 2023, the department opened Station 5 to provide response coverage for this growing portion of the city. Total call volume 2019-2023 was 1033.

Fire Risks

Like Zone 4, this zone is primarily residential and has many winding roads that can impact travel time for both first-due and ERF responses. Unique fire risks include 3 schools: Kenrose Elementary, Jordan Elementary, and Ravenwood High School. Each of these schools are fully sprinklered, however, the special populations increase their risk level. Additionally, 5 subdivisions in Zone 5 have homes consistently over 5000 square feet. These neighborhoods are identified as special risk areas and require auto/mutual aid for confirmed structure fires.

Special Risk Subdivisions

1. Cross Pointe
2. Glenellen Estates
3. Morgan Farms
4. Taramore
5. Terrabrooke
6. Traditions

EMS Risks

EMS risks in Zone 5 are predominantly for medical calls at residences. The EMS heat map illustrates a relatively even distribution of medical calls throughout the district with a slight increase for calls at Ravenwood High School in comparison to the rest of the district. The winding roads can also increase the potential for personal injury accidents requiring medical attention.

Hazmat Risks

Hazardous materials risks in this zone include small amounts of hazmat substances at Ravenwood High School used for chemistry instruction. Other hazardous materials may be found in homes and can vary in nature but are typically going to be stored in small quantities. Hazmat spills resulting from motor vehicle accidents or train derailment are also a potential for this zone.

Technical Rescue Risks

Risks for technical rescue include the possibility of motor vehicle accidents with entrapment due to the winding roads in this zone. Additionally, there is a limited amount of flood potential in the event of a 100- or 500-year flood event. Other technical rescue risks are the result of severe weather which may cause structural collapse or other damage. Technical rescue risks beyond those listed are most likely low risk events.

Planning Zone 5 Response Data

Planning Zone 5
2019-2023

Low Risk EMS (n=446)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:08:02	0:10:10	0:08:04	0:10:11

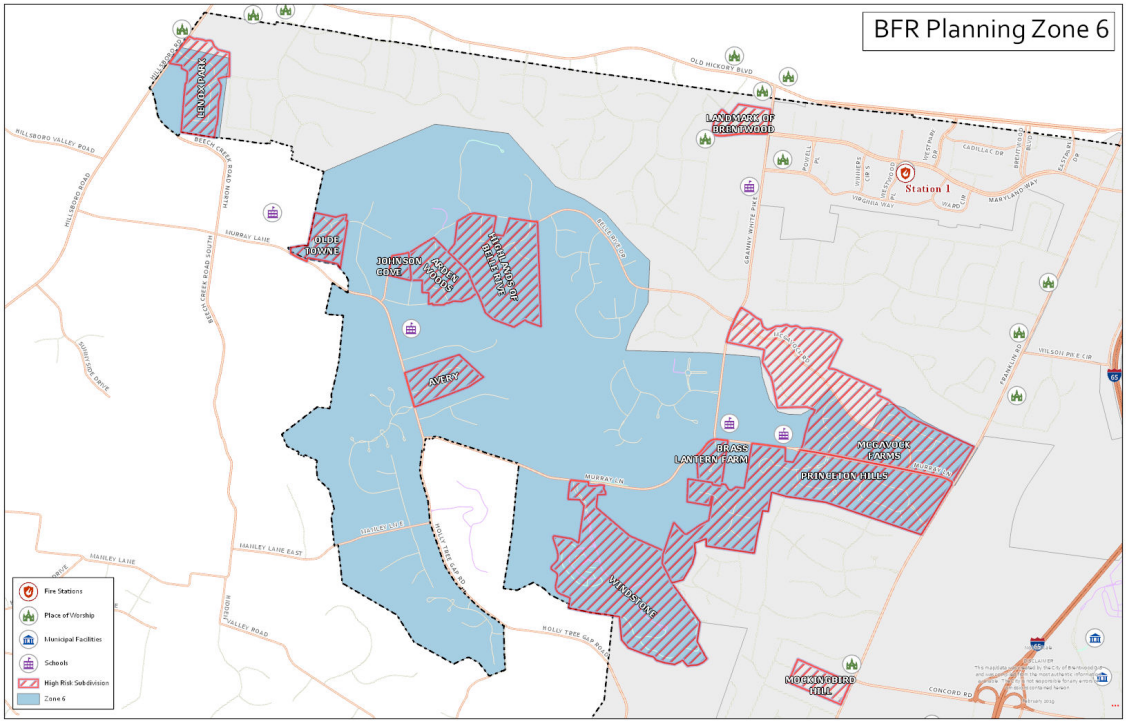
Moderate Risk – All (n=3)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:05:37	0:08:00	0:10:30	0:12:28

High Risk – All (n=5) (ERF=1)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:05:53	0:07:55	0:10:49	0:25:57

Planning Zone 6



Zone Description

Zone 6 is located on the west side of the city and is predominantly residential. This zone is 5.186 square miles and has 35.84 road miles. The population is 4,431, which results in a population density of 854 per square mile. Unique characteristics of Zone 6 include multiple subdivisions identified as special fire risks due to the size of the homes. This zone also has 3 schools: Brentwood High School, Brentwood Middle School, and Scales Elementary. Access to the far western portion of this zone is delayed due to the distance from Station 1. This zone does have some on-going development that has included both the expansion and new development of large homes. Total call volume 2019-2023 was 1020.

Fire Risks

This zone is primarily residential but does have several subdivisions that are considered part of the special risk subdivisions due to the consistently large size of the homes. There are 3 schools within in zone, all of which are fully sprinklered. The remainder of the zone is made up of homes that vary in size from 2500 – 4500 square feet. An additional challenge for this zone is limited access to the western section due to distance and winding roads. This has the potential to delay response for both the first-due and effective response force.

Special Risk Subdivisions

1. Arden Woods
2. Avery
3. Brass Lantern
4. Highlands of Belle Rive
5. Johnson Cove
6. McGavock Farms
7. Princeton Hills
8. Old Towne
9. Windstone

EMS Risks

EMS risks for Zone 6 are primarily for medical calls at residences. EMS incident data shows a relatively even distribution of medical calls for this area based upon population density. The potential for EMS response needs is increased for the 3 schools located within these zones but does not indicate a high demand. The major roadways and intersections also present an increased risk for personal injury accidents that may require medical attention.

Hazmat Risks

Risks for hazardous materials incidents include a limited amount of hazardous material products at Brentwood High School which are used for chemistry instruction. Hazmat risks also include materials that may be stored in small quantities at a residence. Additionally, there is a potential for a hazardous material spill on roadways within the zone.

Technical Rescue Risks

There are a few unique technical rescue risks for this zone. The Little Harpeth River runs diagonally from Zone 1 through Zone 6 and continues in a southeastern direction through the city. In May of 2010, the potential impact for flooding in this area, as well as other portions of the city, was realized following a substantial amount of rain resulting in a 500-year flood. A significant rain event is required to present any flooding potential; however, this type of event is possible. The terrain in this zone also includes many hills that may result in landslides or rope rescue incidents, though these are extremely rare. Other technical rescue risks include the potential for motor vehicle accidents with entrapment and low risk incidents that occur on occasion.

Planning Zone 6 Response Data

Planning Zone 6
2019-2023

Low Risk EMS (n=397)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:08:41	0:10:48	0:08:45	0:10:48

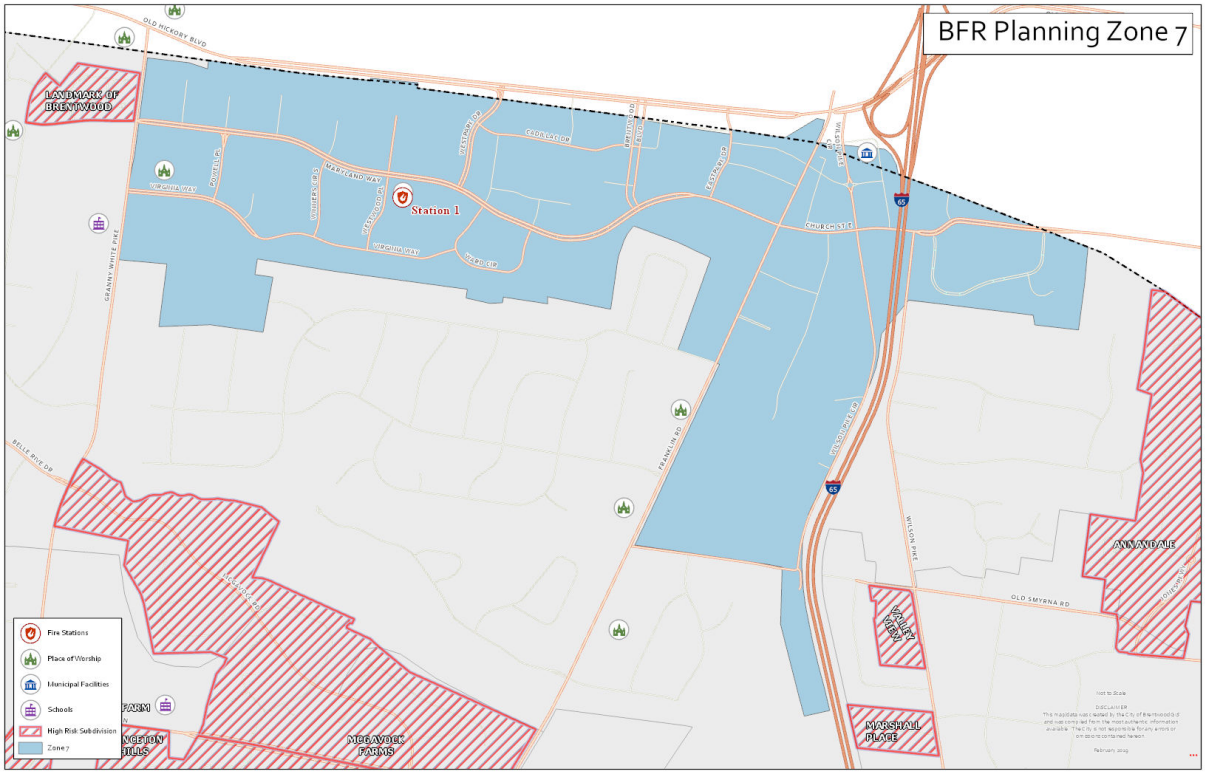
Moderate Risk – All (n=8)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:05:09	0:08:18	0:09:02	0:10:51

High Risk – All (n=9) (ERF=2)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:06:02	0:09:38	0:13:24	0:15:18

Planning Zone 7



Zone Description

Zone 7 is located within the northernmost portion of the city and is bordered by the city of Nashville. The zone is a business park with retail, hotels, assisted living, and apartments throughout this commercial area. Major roadways in the zone include Franklin Road, Old Hickory Boulevard, Maryland Way, and Church Street. The land area is 1.26 miles and the total road miles for the zone is approximately 15.24 miles. Zone 7 has a high concentration of call volume due primarily to the daytime population increase of approximately 15,000. The commercial area, known as Maryland Farms, provides a special set of risk factors including increased traffic, construction type, and various occupancy types. This zone continues to develop and redevelop resulting in higher traffic density and an increase in the total population of this district. An example is the H.G. Hills development at the corner of Franklin Road and Maryland Way. A future development that includes 324,000 sq ft of office space and 43,000 sq ft of retail space is planned in the coming years on the former property of the Maryland Farms YMCA. Total call volume 2019-2023 was 4864 incidents.

Fire Risks

This planning zone contains a wide array of commercial structures. Much of the office park includes large business occupancies used primarily during daytime hours Monday through Friday. The district contains several hotels and four assisted living facilities which can present special challenges during a fire. In addition, Zone 1 also has multiple churches, several schools, and a large apartment style living facility. Most of the large commercial structures are fully sprinklered with automatic fire alarm systems. However, there are commercial structures scattered throughout that do not have automatic fire protection.

EMS Risks

The EMS risks in Zone 7 include 4 assisted living facilities, 12 hotels, 2 churches, 1 park, and 1 school. The business park also provides an increased potential for EMS calls due to the concentrated population in this area during the week. Data analysis shows that the commercial area has a high concentration of EMS incidents specifically centered at the assisted living facilities. In addition, Zone 7 has several major roadways and intersections including 2.08 miles of I-65.

Hazmat Risks

HAZMAT risks for this zone includes multiple gas stations, auto service stations, and two pool supply stores. Several doctors' offices maintain a small amount of hazardous materials including radiation used for x-rays. These occupancies have been identified during pre-planning, and information regarding the hazardous materials is available to responding personnel. There is also a drug addiction research facility located at 500 Wilson Pike Circle that stores a variety of hazardous materials used during testing processes. Other potential HAZMAT risks include pesticide businesses and some landscaping businesses that store fertilizer. The most prominent risks include the 2.08 miles of I-65 and 3.26 miles of CSX railroads. These transportation corridors represent a large number of hazardous materials traveling by bulk through this area.

Technical Rescue Risks

Major arterial roadways and intersections are important risks to consider when evaluating the potential for motor vehicle accidents (MVA). Zone 7 has an abundance of these highly traveled roads. This increases the probability that an MVA may occur, and that vehicle extrication may be required as the result. Rope rescue incidents are very rare, but the potential exists for rescues of commercial buildings, or near the railroad overpass in the Town Center area. Risks involving confined space would be limited to utility maintenance areas and elevator shafts in a commercial building. With an abundance of parking areas in the commercial district, the likelihood of vehicle lockouts is higher than in other parts of the city.

Planning Zone 7 Response Data

Planning Zone 7
2019-2023

Low Risk EMS (n=2874)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:04:38	0:07:00	0:04:40	0:07:01

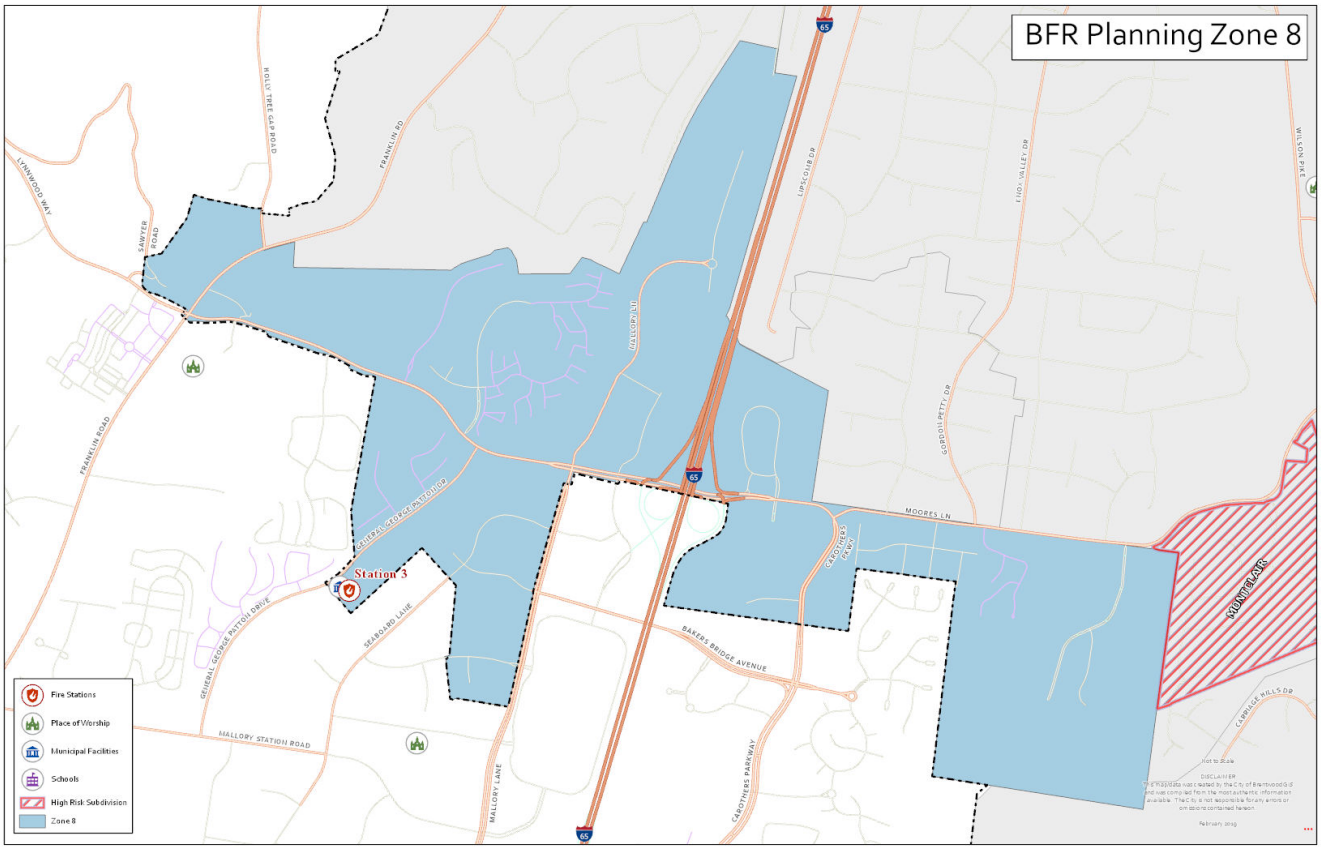
Moderate Risk – All (n=97)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:06:21	0:09:06	0:08:30	0:11:34

High Risk – All (n=3)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:04:22	0:07:32	*nd*	*nd*

Planning Zone 8



Zone Description

Zone 8 borders the city of Franklin to the south and is one of the smallest zones at 1.96 square miles. Major roadways include: I-65, Moore's Lane, Franklin Road, Mallory Lane, Carothers Parkway, and General George Patton Drive, with total road miles of 19.9. Call volume for this zone is driven by the commercial development which includes multiple business offices, hotels, and retail. The Cool Springs shopping area is subject to significant traffic volume and many people during the week. Total call volume 2019-2023 was 1922 incidents.

Fire Risks

Zone 8 has several challenging fire risks beginning with the commercial areas. Commercial structures range from large mercantile to small businesses, all of which are inspected annually and have preplan information. Many of the commercial structures can be very large but are typically protected with automatic sprinkler systems. Due to an automatic mutual aid agreement with the Franklin Fire Department, the entire commercial area of Zone 8 receives a supplemental response to reported structure fires. The residential risks include three communities: Brentwood Pointe, Mooreland Estates, and Rue de Grande subdivisions; all of which contain condominium-style residential dwellings and limited access problems for fire department apparatus. Currently, these communities are also included in the automatic-aid agreement with Franklin Fire Department. Other residential risks range in size from 2500 – 4500 and are typical Brentwood homes.

EMS Risks

The commercial area has a higher concentration of EMS-related emergencies than other parts of the city. This can be expected in an area with an increased population and traffic density due to the mercantile and business occupancies located throughout this portion of the city. Major roadways including I-65 also present an increased potential for MVAs resulting in the need for medical care and multi/mass casualty incidents. The remainder of the zone is residential in nature and is considered a lower risk potential for medical emergencies.

Hazmat Risks

Portions of I-65 and CSX rail lines pass through the zone creating an increased potential for traffic accidents and HAZMAT incidents. Home Depot also represents a challenging risk with the storage of propane and various chemicals throughout the store. As with all commercial occupancies, Home Depot is inspected annually, and pre-plans are updated during inspections to reflect changes to hazardous materials storage. Like Zone 7, Zone 8 has multiple gas stations, doctors' offices and medical centers which store a small amount of hazardous materials including radiological hazards used for x-rays. The remainder of the district consists of residential structures which may have a small amount of hazardous materials storage.

Technical Rescue Risks

The primary risk for technical rescue would be major roads; specifically, Moore's Lane, Franklin Road, and I-65. These corridors have a high volume of traffic, particularly during the week which increases the likelihood of MVAs potentially resulting in the need for vehicle extrication rescues. Like Zone 7, the commercial area also has a large number of parking lots which increases the likelihood of vehicle lockouts.

Planning Zone 8 Response Data

Planning Zone 8
2019-2023

Low Risk EMS (n=1013)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:05:36	0:07:41	0:05:38	0:07:41

Moderate Risk – All (n=54)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
0:06:58	0:09:07	0:08:23	0:10:57

High Risk – All (n=0)

90th Percentiles			
1st TRVL	1st TRT	ERF TRVL	ERF TRT
n/d	n/d	n/d	n/d

Planning Zone	Estimated Population	Land Area (Square Miles)	Residential Structures	Non-Residential Structures (no pools/sheds/barns, etc.)	Road Miles
1	5235	4.48	1772	30	41.72
2	11538	11.26	3638	105	91.97
3	1539	1.77	539	8	13.71
4	14355	10.43	4559	22	92.05
5	4162	4.24	1429	15	30.44
6	4431	5.86	1310	20	35.84
7	538	1.26	2	278	15.24
8	1715	1.96	333	182	19.09
	43513	41.26	13582	660	340.06

Critical Task Analysis

A city-wide risk analysis was conducted, and the charts below outline the critical tasks necessary to mitigate an incident involving the various risks. The primary objective of the critical task analysis is to provide the appropriate amount of staffing and resources needed to stop an incident from growing. A critical task is identified as a task that must be completed by on-scene personnel to allow for life safety, incident stabilization, and property conservation. To fully gain control of an incident, an effective response force (ERF) must be established enabling all the critical tasks to be completed. The goal for developing critical tasks and the needed ERF response is to allow the agency to better understand the risks presented by the community and the level of response the agency must provide to mitigate those risks.

Fire Suppression

Low Fire Response

The low-risk fire response includes commercial and residential fire alarms, passenger vehicle fires, brush fires, trash fires, outside investigations, fire department assistance and wires down. These incidents require a single unit response, however, the officer in charge can request additional resources as needed. Most of these call types require an engine/tower with 3 personnel. For calls, such as fire department assistance, that do not require a pump, Rescue 52 with 2 personnel may be assigned to the call if E52 is unavailable.

Critical Tasking – Low-Risk Fire Response

Critical Tasks	Personnel Needed	Units Dispatched	Crew
Pump Operator	1	1 Unit	3
Attack	2		
Total	**3**		

Moderate Risk 2-Unit Fire Response

Moderate risk 2-Unit response is reserved for vehicle fires that occur on Interstate 65. An additional unit is dispatched to provide traffic protection.

Critical Tasks	Personnel Needed	Units Dispatched	Crew
Command	1	2 Units	5
Suppression	2		
Traffic Control	1		
Hazard Control	1		
Total	**5**		

Moderate Risk 3-Unit Fire Response

Moderate risk fire response includes small sheds and outbuildings, commercial vehicle fires (buses, tractor trailers, box trucks) and inside investigations. This response category will include a battalion chief and an additional unit to compete critical tasks and provide command for multiple units. The battalion chief can request additional resources based upon dispatch information or factors found upon arrival.

Critical Tasks	Personnel Needed	Units Dispatched	Crew
Command	1	1 Battalion Chief	1
Pump Operator	1	2 Units	6
Attack	2		
Back up	2		
Total	**7**		

High Risk Fire Response

The agency has identified high risks as structures less than 5,000 square feet and fully sprinklered structures regardless of square footage. Brentwood contains an abundance of residential structures that are larger than the average 2000-square foot home identified in NFPA 1710. This NFPA standard requires a minimum response of 15 personnel to complete the tasks the standard has established. Due to the abundance of large homes and the limited number of annual structure fires, the agency has elected to use 5000 square feet as the criteria for requesting immediate aided response or including an area in the automatic-aid fire demand zones. The agency recognizes that a home near 5000 square feet may pose staffing problems should the fire continue to grow. Incident commanders have been trained to call for mutual aid assistance immediately should critical task needs exceed the manpower the agency is able to provide with the initial ERF.

Risks Receiving a High Response

1. Residential Structure Fires (less than 5,000 sq. ft.)

Critical Tasking – High Risk Fire Response

Critical Tasks	Personnel Needed	Units Dispatched	Crew
Command/Safety/ Accountability	1	**BFRD Units**	
Attack	2	1 Battalion Chief	1
Pump Operator	1	4 Engines	12
Back Up	3	1 Tower	3
Water Supply	1	1 Rescue	2
Search/Rescue	3		
RIT/On-Deck	4		
Vent/Utilities	3		
Total	18		18

Additional Responding Units (Non ERF)	Personnel
Car 51	1 (Fire Chief)
Car 52	1 (Deputy Chief)

Special Fire Response

The special risk category contains occupancies that will likely exceed the capabilities of the department. One area of concern includes residential structures in excess of 5000 square feet. These structures present substantial staffing challenges and include lightweight wood frame construction that can be quickly compromised by fire. The critical task analysis for fires involving a special risk indicates the need for a rapid overwhelming response to control fire spread and stabilize the incident. Large non-sprinklered commercial occupancies also present many of the same staffing challenges presented by large residential structures.

Subdivisions where many homes exceed 5000 square feet are considered for auto/mutual aid for confirmed structure fires. This is necessary to fulfill the additional critical tasks represented in the chart below. One area that currently has a well-established automatic aid agreement is the commercial area in District 3 and large portions of Districts 4 and 5. Department leadership recognized that additional resources would be needed in a more efficient timeframe to mitigate an incident in the commercial section should one occur. Therefore, beginning in 2010, the department signed an automatic-aid agreement with the Franklin Fire Department for the entire commercial portion of District 3. In exchange, the department agreed to reciprocate this response to a large portion of the Cool Springs area located in Franklin. The automatic-aid area encompasses 9.6 square miles and reduces the timeframe needed to gather an ERF in the commercial area of the district. The automatic-aid agreement has proven beneficial to both departments. With a Franklin Fire Department station located approximately 1 mile from Station 3, the efficiency and effectiveness has been improved for all parties and will continue to benefit the citizens of both cities in the future. Additionally, the department signed an auto-aid

agreement with the town of Nolensville in 2021 providing additional coverage for the eastern part of the city.

Assisted living facilities and schools are also part of the Special Risk Category. While these occupancies are fully sprinklered, it is the occupants that present the biggest challenge for responders. A large ERF may be needed to move occupants out of the building or to an area of safe refuge until the incident can be brought under control. It is essential to provide enough staffing for an incident involving one of these special populations to ensure that life safety is quickly secured, and fire suppression activities are substantial enough to limit the amount of smoke and fire spread.

Risks Receiving Special Fire Response (Automatic/Mutual Aid)

1. Large Homes – 5000+ ft^2. (grouped by subdivision)
2. Commercial Occupancies
3. Assisted Living Facilities
4. Schools
5. High Density Areas – Brentwood Pointe, Mooreland Estates, Landmark, Foxland Square, Rue de Grande.

Critical Tasking - Special Fire Response

Critical Tasks	Personnel Needed	Units Dispatched	Crew
Command (Brentwood/Franklin)	2	**BFRD Units**	
Safety/Accountability	1	1 Battalion Chief	1
Utilities	1	4 Engines	12
Attack	3	1 Tower	3
Back Up	3	1 Rescue	2
Water Supply	1		
Search	4	**Auto/Mutual Units**	
Truck Operations (Attic Access, Ventilation)	6	1 Battalion Chief	1
RIT	4	1 Engine	3
		1 Ladder	3
Total	25	Total	25

Additional Responding Units (Non-ERF)	Personnel
Car 51	1 (Fire Chief)
Car 52	1 (Deputy Fire Chief)

Emergency Medical Service (EMS) Response

The EMS levels of response have been divided into three categories: Low, Moderate, and High/ Special response. The low response category includes standard medical calls and medical alarms. The effective response force for a low response medical emergency is two personnel with the discretion left to the officer and highest medically trained staff member to call for additional personnel if needed. Typically, medical calls receive an engine which includes 3 personnel, however, R52 with 2 personnel, will respond if E52 is unavailable. Williamson EMS responds with two personnel on each EMS unit.

Moderate EMS Response is reserved for incidents where dispatch receives the call as CPR in progress. The agency has determined that an enhanced response is required to meet the critical task needs for highly effective resuscitative efforts. The agency collects data that can be used to measure return of spontaneous circulation during cardiac arrest events. This information can be analyzed to monitor the effectiveness of resuscitation efforts and adjust staffing accordingly.

High/Special Response EMS incidents include an incident where the number of patients may overwhelm the number of units dispatched to a moderate risk EMS emergency. An incident of this magnitude may require the utilization of additional department resources. The initial effective response force leaves one engine available to respond to additional emergencies; however, the incident commander may utilize all personnel for this incident if needed. Mutual aid agreements with both Nashville and Franklin would allow for additional resources if the agency is fully engaged in mitigating the incident. Williamson EMS would provide multiple EMS units and an EMS supervisor to allow for rapid treatment and transport of patients.

Low-Risk Response – Basic Life Support and Advanced Life Support

Critical Tasking - EMS Low-Risk Response

Critical Tasks	Personnel Needed	Units Dispatched	Crew
Medical Treatment BLS/ALS	2	1 Unit	2
Total	2		2

- *1 Engine staffed with 3 is typically dispatched. If unavailable, Rescue 52 staffed with 2, will be dispatched.*

Moderate Risk 2 - Unit EMS – PIA on the Interstate

Critical Tasks	Personnel Needed	Units Dispatched	Crew
OIC	1	2 Units	5
Medical Care	2		
Hazard Control	1		
Traffic Blocker	1		
Total ERF	**5**		5

Moderate EMS 3-Unit Response – CPR in Progress

Critical Tasking - EMS Moderate-Risk Response

Critical Tasks	Personnel Needed	Units Dispatched	Crew
Command	1	1 Battalion Chief	1
Chest Compressions	1	2 Units	5
Airway	1		
Cardiac Monitor	1		
Medication	1		
IV Access	1		
Total ERF	**6**		6

High-Risk Response – Active Shooter/Mass Casualty EMS Incident

Critical Tasking - EMS High/Special-Risk Response

Critical Tasks	Personnel Needed	Units Dispatched	Crew
Command	1	1 Battalion Chief	1
Triage	4	4 Engines	12
Medical Treatment	10	1 Rescue	2
Total	15		15

Hazardous Materials Response

The levels of response for hazmat include four categories with assigned critical tasks outlined for each response level. The following response categories: low, moderate, high and special have been developed to complete the critical task requirements.

A low response hazmat incident has minimal impact on the community and can be mitigated by a single engine response. These incidents typically have limited threats to life safety or property but must be investigated or mitigated to ensure the community's exposure to potential threats remains low.

Moderate response hazmat incidents include homeowners that are complaining of symptoms of possible carbon monoxide (CO) poisoning. Unlike non-symptomatic CO alarms, BFRD responds emergency traffic prepared to render medical care and investigate the cause of the CO alarm. Dispatchers have been trained to determine non-symptomatic versus symptomatic CO alarms and provide this information to responding personnel. In addition, spills between 10-100 gallons of hazardous materials (typically hydrocarbons) would initially be dispatched in the moderate response category. The battalion chief has the authority to augment this response based on dispatch information or factors that are discovered after on-scene arrival.

The High hazmat response is the response guideline for spills more than 100 gallons. This level of response will include a command officer, multiple engine companies, and a ladder and rescue response. First arriving units can also request the response of the hazmat trailer which will provide mitigation and decontamination equipment. Units not responding to the incident will provide response to additional emergencies throughout the city.

A special hazmat response would include a major hazmat release typically involving either a rail car or a cargo tanker on the interstate. An incident of this size would require a mutual-aid response from surrounding departments for both equipment and staffing. The role of BFRD personnel would be to deny entry, identify the hazard, and begin the process of mitigation. Hazardous materials clean up would be the responsibility of a professional chemical clean-up contractor. The agency has pre-established agreements with a professional clean-up contractor to respond to incidents of this nature.

Low-Risk Hazardous Materials Response

Outside Investigation, Non-symptomatic CO Alarm, Wash Down, Spill (Less than 10 Gal)

Critical Tasking – Low-Risk Hazardous Materials Response

Critical Tasks	Personnel Needed	Units Dispatched	Crew
OIC	1	1 Unit	2
Investigate/Mitigate	1		
Total	2		2

- *1 Engine staffed with 3 is typically dispatched. If unavailable, Rescue 52 staffed with 2 personnel will be dispatched.*

Moderate-Risk Hazardous Materials Response

Symptomatic CO Alarm, Spills > 10 gallons – 100 gallons

Critical Tasking – Moderate-Risk Hazardous Materials Response

Critical Tasks	Personnel Needed	Units Dispatched	Crew
Command	1	1 Battalion Chief	1
Investigation/Hazard Identification	1	2 Units	5
Medical Care	2		
Hazard Mitigation/Ventilation	2		
Total	6		6

High-Risk Hazardous Materials Response

Transportation or fixed site incidents with reported hydrocarbon or other potential hazardous substance spills of greater than 100 gallons.

Critical Tasking - High/Special – Risk Hazardous Materials Response

Critical Tasks	Personnel Needed	Units Dispatched	Crew
Command	1	1 Command Unit	1
Safety/Acct.	1	4 Engines	12
Entry	2	1 Rescue	2
RIT	3		
Decon	4		
Communications	1		
Technical Specialist	1		
Medical Treatment	2		
Total	**15**	**Total**	**15**

Additional Responding Units (Non ERF)	Personnel
Car 51	1 (Fire Chief)
Car 52	1 (Deputy Fire Chief)

**A fire would result in the need of an additional engine for suppression, and there would be no entry until the fire is contained or extinguished.*

Special - Major Hazardous Materials Response

A Special hazmat spill would include a significant spill or leak. Large spills or leaks from a rail car or cargo tanker would be included in this risk category.

Critical Tasking - Major Hazardous Materials Response

Critical Tasks	Personnel Needed	Units Dispatched	Crew
Command	2	**BFRD Units Dispatched**	
Safety/Acct.	1	1 Battalion Chief	1
Suppression	4	4Engines	12
Entry	3	1 Rescue	2
RIT	4	1 Tower	3
Technical Specialist	1		
Decontamination	6	**Mutual-Aid Units Dispatched**	
Communications	1	1 Battalion Chief	1
Logistics	1	1 Haz-Mat Response Unit	4
Medical Monitoring	2		
		1 WEMS Unit	2
Total	**25**	**Total**	**25**

Additional Responding Units (Non ERF)	Personnel
Car 51	1 (Fire Chief)
Car 52	1 (Deputy Fire Chief)

Technical Rescue Response

Low and moderate response technical rescue incidents are the most common form of technical rescue responded to by Brentwood Fire and Rescue. These incidents can typically be handled by a single unit and have very little impact on the community when they occur. The officer in charge has the flexibility to request additional resources dependent upon dispatch information or what is discovered upon arrival. The initial dispatch of resources which make-up the effective response force for low and moderate technical rescue incidents are listed in the charts below:

Low Response – Elevator Rescue, Vehicle Lockout

Critical Tasking - Low Technical Rescue Response

Critical Tasks	Personnel Needed	Units Dispatched	Crew
OIC	1	1 Unit	2
Rescue	1		
Total	2		2

- *1 Engine staffed with 3 is typically dispatched. If unavailable, Rescue 52 staffed with 2 personnel will be dispatched.*

Moderate Response – Vehicle Extrication

Critical Tasking - Moderate Technical Rescue Response

Critical Task	Personnel Needed	Units Dispatched	Crew
Command	1	1 Battalion Chief	1
Vehicle Extrication	2	2 Units	5
Pump Operator	1		
Treatment/Triage	2		
Total	6		6

High/Special Response – Confined Space, Trench Rescue, Rope Rescue, Water Rescue, Structural Collapse

The High/Special Response category of technical rescue includes confined space, rope rescue, water rescue, and structural collapse. Critical tasking charts have been developed to illustrate the tasks that must be completed to allow for rapid mitigation of an incident when they occur. Due to the very rare nature of incidents in this category, the department does not maintain equipment and personnel capable of mitigating a large-scale event. In these instances, the agency would rely on mutual-aid partners to provide additional staffing and specialized equipment needed to mitigate the incident. BFRD is part of the Homeland Security District 5 and has access to resources from the Office of Emergency Management and Nashville Fire Department's Tennessee Task Force 2 (TEMA Accredited). Furthermore, Franklin Fire is also available to assist with staffing and resources if requested. Williamson County has developed a technical rescue committee which includes all aspects of technical rescue response. The purpose of this committee is to ensure that Williamson County Emergency Management Agency can coordinate county wide resources for large-scale incidents and mutual-aid requests. BFRD

participates in this committee and is willing to provide and accept mutual aid for technical rescue incidents that may occur in the county.

Confined Space Rescue

Potential confined space emergencies are limited primarily to utility maintenance areas and commercial spaces such as elevator shafts. The agency maintains ventilation, air monitoring, harnesses, rescue tripod, and rope rescue equipment capable of allowing rescuers to access the confined space area. The critical tasks chart indicates the tasks that must be completed to successfully mitigate a confined space rescue.

Critical Tasking - Confined Space Rescue

Critical Task	Personnel Needed	Units Dispatched	Crew
Command/Accountability	1	1 Command Vehicle	1
Safety	1	3 Engines	9
Victim Rescue	2	1 Rescue	2
Back-Up	2	1 Tower	3
Ventilation	1		
Hazard ID	1		
Rigging	6		
Equipment Control	1		
Total	15	Total	15

- **2 Engines available for other calls for service.**

Rope Rescue

Areas for potential rope rescue include the hillside protection areas located primarily in District 1 and 2, and the railroad overpass in the Town Center area of District 1. If a rope rescue is necessary the agency is capable of providing rope rigging, harnesses, and personnel trained to properly develop and use mechanical advantage systems required to perform a rescue. A critical tasks chart has been developed to clarify the roles and responsibilities of those involved in a rope rescue incident.

Critical Tasking - Rope Rescue

Critical Task	Personnel Needed	Units Dispatched	Crew
Command/Accountability	1	1 Command Vehicle	1
Safety	1	3 Engines	9
Victim Rescue	4	1 Rescue	2
Back-Up	2	1 Tower	3
Rope System Rigging	6		
Equipment Control	1		
Total	15	Total	15

- **2 Engines available for other calls for service.**

Trench Rescue – 10' Depth Maximum

The primary trench rescue risks in the city would include areas where underground utility work is being conducted and some construction areas. The agency can provide rescue efforts in trenches that are no deeper than 10 feet. An incident involving a trench of greater depth would require a mutual-aid request from Nashville Fire Department. The critical task chart below describes the tasks that must be completed to mitigate and trench rescue of 10' or less.

Critical Tasking - Trench Rescue

Critical Task	Personnel Needed	Units Dispatched	Crew
Command	1	1 Battalion Chief	1
Safety	1	3 Engines	9
Entry Team	3	1 Rescue	2
Back-Up Team	2	1 Tower	3
Hazard Control	2		
Cut Team	2		
Shore Team	4		
Total	15	Total	15

- **2 Engines available for other calls for service.**

Water Rescue

Periodic flooding is the primary trigger for water rescue incidents along areas near the Little Harpeth River. The agency has equipment capable of providing this service including two inflatable rafts with a 25 HP motor and two inflatable rafts for rowing. While these incidents are also rare, they represent the most common type of technical rescue in the High/Special category when looking at historical data. The below critical task chart represents the tasks necessary to complete a water rescue in a swift water environment often the result of significant flooding. During a flooding event other rescues may be done but would not require the same number of resources as a swift water rescue.

Critical Tasking - Water Rescue

Critical Task	Personnel Needed	Units Dispatched	Crew
Command	1	1 Battalion Chief	1
Safety/Acct	1	3 Engines	9
Entry Team	2	1 Rescue	2
Back-Up Team	2	1 Tower	3
Upstream Spotter	2		
Boat Operator	1		
Downstream Spotter/Throw bag	2		
Downstream Throw bag Personnel	4		
Total	15	Total	15

- **2 Engines available for other calls for service.**

Structural Collapse

A structural collapse incident would most likely be caused by a significant weather event. An incident involving more than one structure would require a significant response and mutual aid would be requested. Nashville Fire Department can provide Tennessee Task Force 2 which would include significant staffing and a variety of resources outside the current capabilities of BFRD. In addition, mutual aid request would also include Franklin Fire Department, Williamson Emergency Management Agency, and Williamson County Rescue Squad. The critical task chart below outlines the tasks needed to be completed initially and the effective response force required to achieve these objectives.

Critical Tasking - Structural Collapse

Critical Task	Personnel Needed	Units Dispatched	Crew
Command/Accountability	1	1 Battalion Chief	1
Safety	1	3 Engines	9
Hazard ID	2	1 Rescue	2
Search/Rescue	4	1 Tower	3
Shore Team Leader	1		
Shoring Team	4		
Cut Team	2		
Total	15	Total	15

Additional Responding Units (Non-ERF)	Personnel
Car 51	1 (Fire Chief)
Car 52	1 (Deputy Fire Chief)

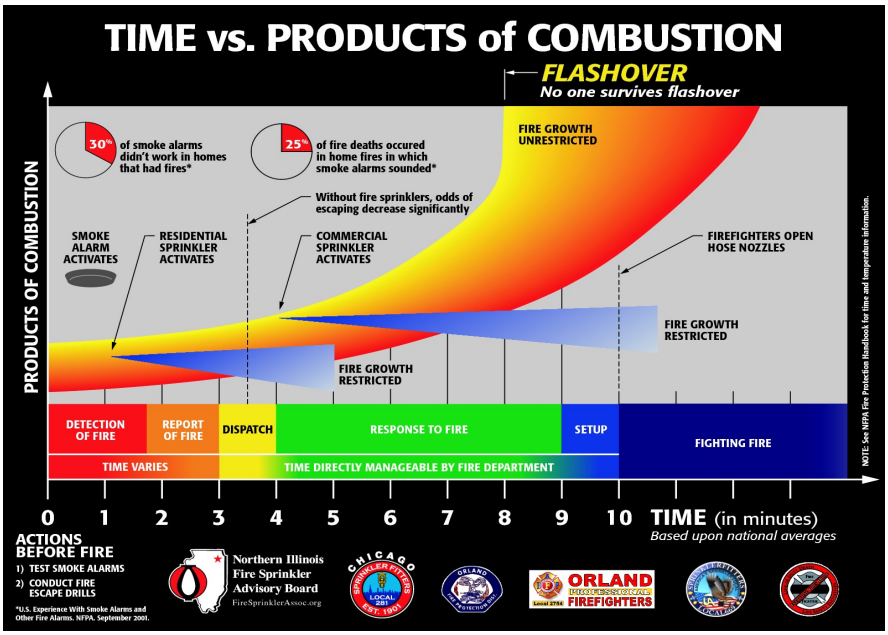
***A structural collapse involving more than 1 structure would result in immediate mutual-aid requests. Critical tasks and incident command would be expanded to meet the needs of the incident.**

Summary

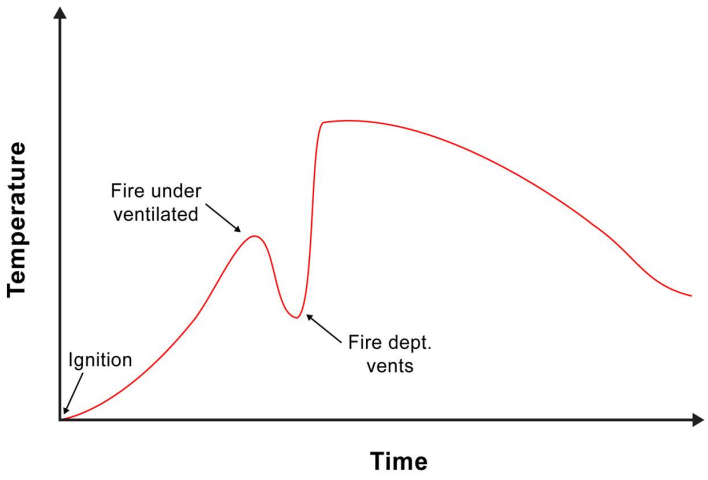
The community risk/hazard analysis and critical tasking assignments are linked by the model used to classify risks. The risk classification was completed by analyzing the probability of an event and the consequences the event may have upon the community. As risk levels increase, resource needs correspondingly increase. The primary objective is to provide an appropriate response to all risks in each response category while maintaining a system that is highly reliable and ready to respond. The department must be prepared to provide the necessary resources to mitigate an event of any size and scope, utilizing both department staffing and resources available through mutual and automatic aid. In addition, the agency recognizes that "over responding" can impact reliability equally as much as "under responding" impacts incident mitigation and concentration. By linking community risks with critical tasking, the department is better prepared to meet the various demands of the community.

E. Summary of System Performance

The department's ability to respond rapidly and consistently is critical in providing the high level of service expected by the citizens of Brentwood. When an efficient and effective response is provided, the escalation of an emergency is limited which results in a better outcome for all parties. Studies in both fire and EMS provide further evidence that a rapid response will result in improved outcomes protecting both life safety and property conservation. The figure below illustrates the importance of a rapid response to fire emergencies and the benefits of the early activation of fire suppression systems. With today's lightweight construction and contents which release high levels of thermal energy, it is now more important than ever to ensure that a rapid response is provided for fire incidents.



Time Temperature Curve
Illustrating the relationship between fire growth and extinguishment activities. It is evident that early activation of fire suppression either by a sprinkler system, which is far superior, or rapid-fire department response impacts the escalation of fire growth.

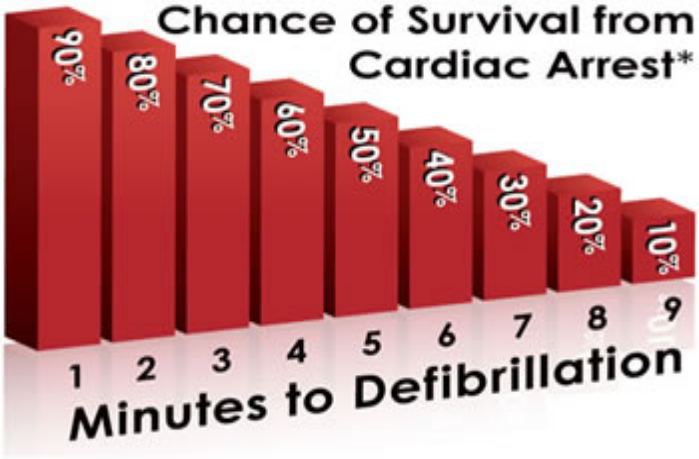


NIST/UL Fire Dynamics – *Data and research conducted by both the National Institute of Standards and Technology and Underwriters Laboratory have shown changes in fire growth as the result of fire load changes and modern construction.*

Data and research conducted by both the National Institute of Standards and Technology (NIST) and Underwriters Laboratory (UL) have provided valuable data that has altered the traditional understanding of fire growth. As a result, the use of new tactics, such as cooling the fire from the exterior prior to entry and flow path control, have improved both the safety and effectiveness of firefighting efforts. The agency has adopted the new information provided by NIST and UL and utilizes these tactics at both the strategic and tactical level. Both officers and firefighters train on

the use of **SLICERS** (**S**ize-up, **L**ocate the fire, **I**solate the flow path, **C**ool from a safe distance, **E**xtinguish, **R**escue, **S**alvage) and the implementation of these tactics in both training evolutions and incidents. Furthermore, officers receive extensive training during Blue Card command courses regarding completing a 360-degree size-up, basement identification, and fire location to determine the appropriate strategy and tactics.

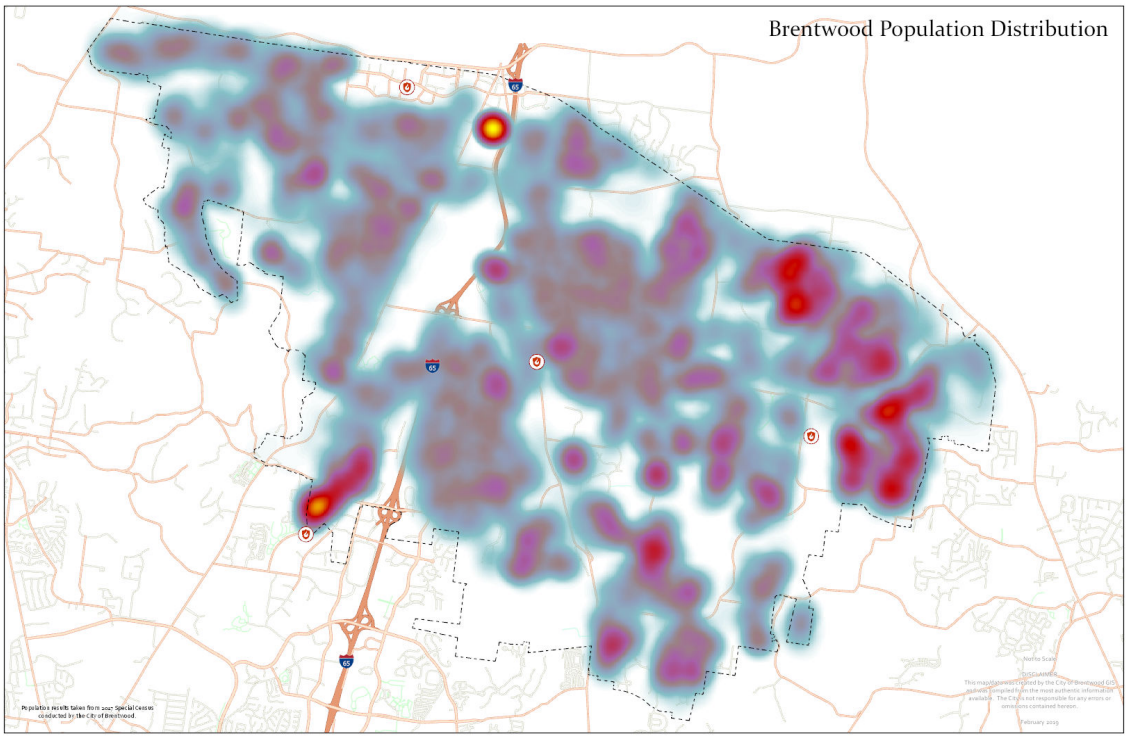
There is also a direct correlation between early defibrillation and patient survival rates. The initiation of rapid cardio-pulmonary resuscitation and defibrillation directly impacts the expected outcome for individuals who suffer from sudden cardiac arrest. The figure below shows the benefits of early defibrillation**.** It can be expected that a rapid response with an appropriate number of personnel would also have the same effect for any form of emergency services delivery. An effective response that arrives rapidly is at the core of developing a community standard of cover and planning to maintain a highly resilient response force prepared to meet the changing needs of the community. The information provided throughout the rest of this section will show the response history and capabilities of the agency.



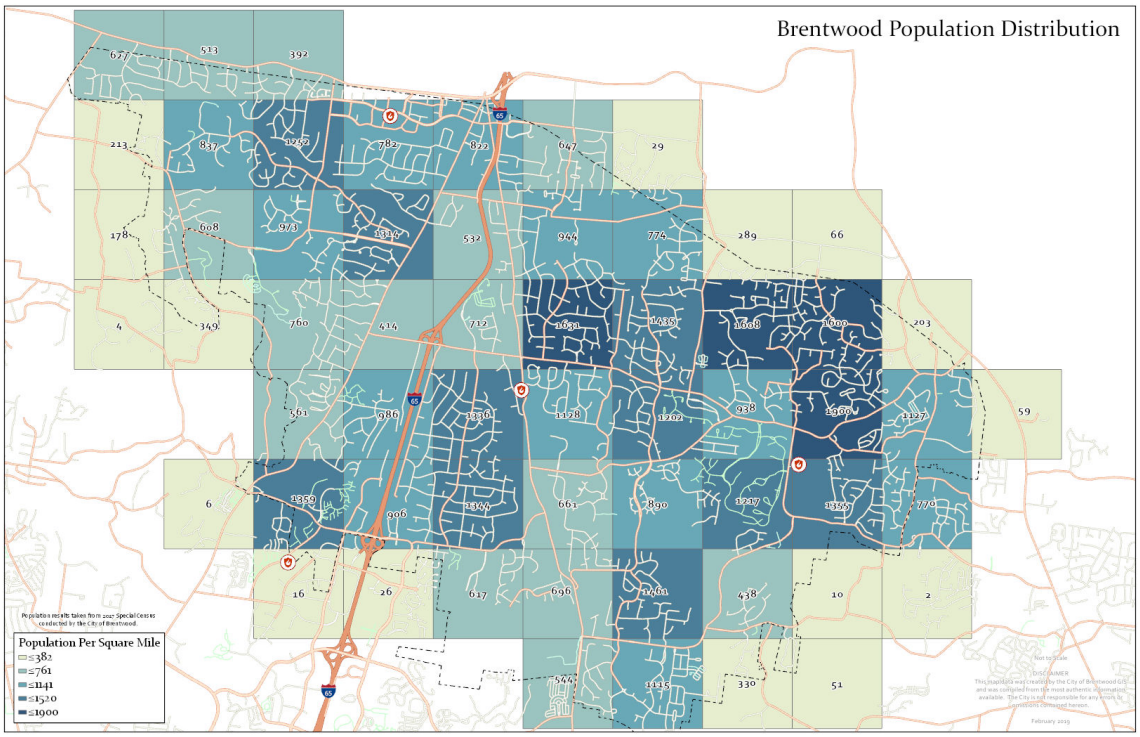
Time vs. Defibrillation Success
As time after event initiation increases, the likelihood of successful resuscitation diminishes tremendously. A rapid Fire/EMS response, as well as high-quality by-stander CPR play key role in cardiac arrest survival rates.

Population Density

The city of Brentwood is home to 45,373 residents according to data from the 2020 Federal Census. In 2010 the Federal Census Bureau confirmed a population of 37,060 resulting in a population growth from 2010 – 2020 of approximately 22.5%. Brentwood is zoned approximately 90% residential with the remaining 10% split evenly between commercial (office, retail, financial) and service institutional (schools, churches, and health care facilities). Given the population, with an area of 41.2 square miles and residential zoning restrictions of one home per lot and one lot per acre, most of the city would be considered to have a rural population density (by the definition provided by United States Census Bureau) of slightly more than 1,000 per square mile.

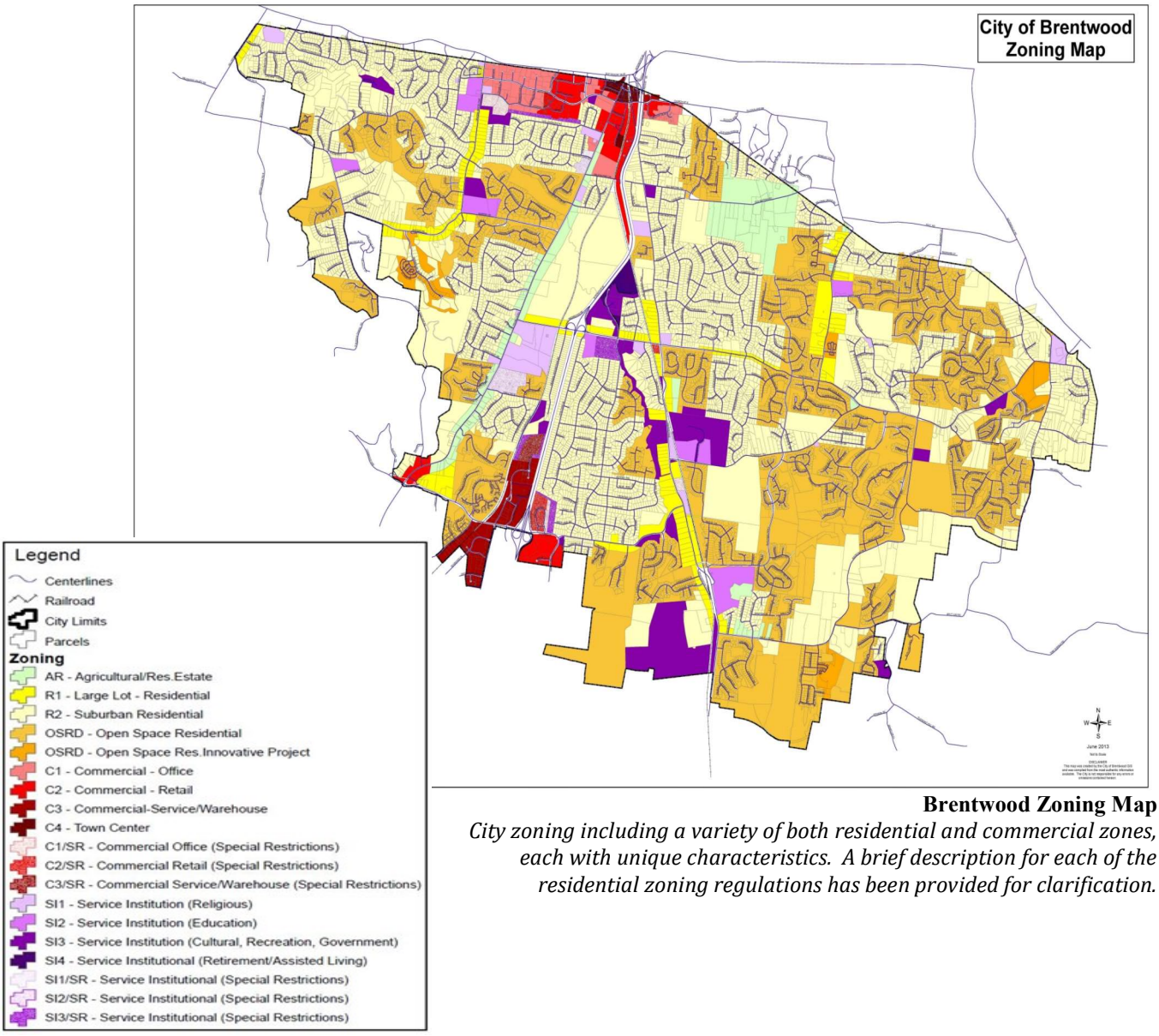


Population Density Heat Map



Population Density per Square Mile

The zoning map below illustrates the most current zoning designations. The two areas in the city considered urban are the commercial areas in both Zones 7 and 8. A legend and descriptions of the residential zoning requirements are provided below.



Brentwood Zoning Map

City zoning including a variety of both residential and commercial zones, each with unique characteristics. A brief description for each of the residential zoning regulations has been provided for clarification.

AR Zoning – Agricultural/Residential Estate – Minimum required lot area, three acres.

R1 Zoning – Large Lot Residential - Minimum required lot area, two acres.

R2 Zoning – Suburban Residential - Minimum required lot area, one acre.

OSRD Zoning – Open Space Residential - While traditional subdivisions result in homes more or less evenly spaced throughout the tract, open space residential development (OSRD) zoning district provisions allowing individual lot and yard requirements to be reduced to permit the arrangement of homes on a portion of the subdivision tract. Although individual lot sizes may be less than one acre, the maximum density in an OSRD subdivision is consistent with the density

allowed in the suburban residential(R-2) district which is no greater than one residential dwelling unit per acre. Any reduction in individual lots below one acre is permitted only if the land thus saved is designated as open space in accordance with the provisions of this division.

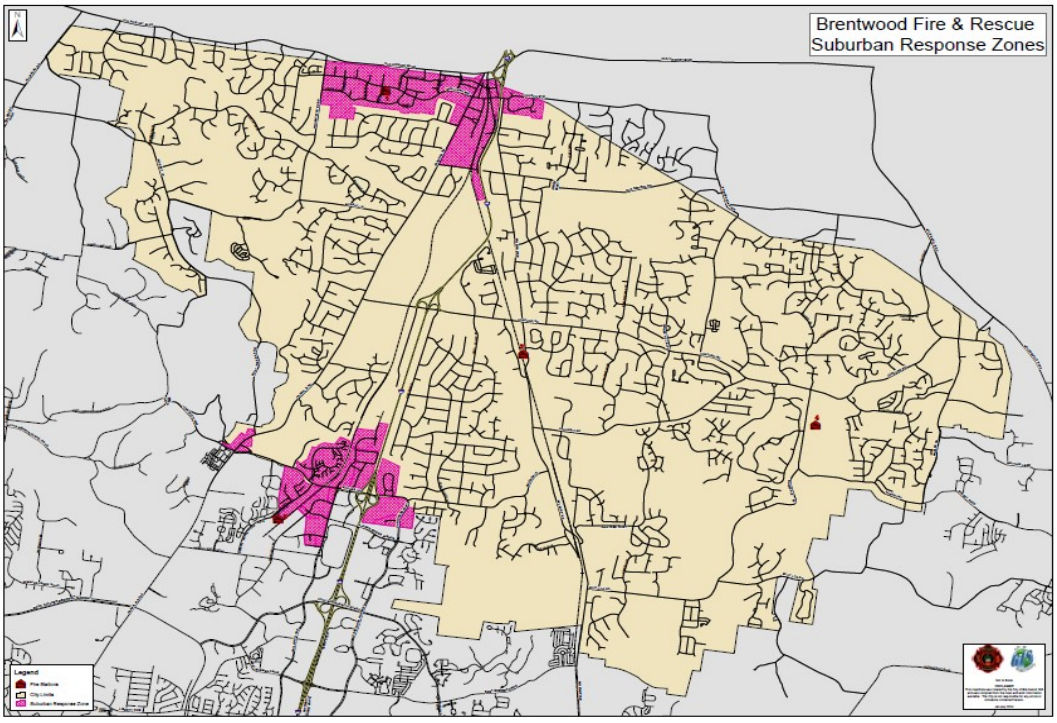
OSRD Zoning Innovative Project – The intent of the open space residential development - innovative project (OSRD-IP) overlay zoning district is to allow for innovative residential development that is consistent with the health, safety and welfare purposes of the OSRD zoning district. While the OSRD-General district encourages greater preservation of permanent open space than traditional residential zoning districts, the special technical and development standards of the OSRD-IP overlay district are designed to encourage more significant land preservation. The OSRD-IP standards are intended to encourage a wider range of creative housing options for the community that are consistent with the city's fundamental density standard of one dwelling unit per acre.

OSRD Innovative Project Fire protection Provision: Any dwelling unit and associated garage constructed within 15 feet of another existing or planned dwelling unit or garage must be protected through an automatic residential sprinkler system installed in accordance with National Fire Protection Association (NFPA) standards and requirements and approved by the fire chief or his designee.

Additional Residential Fire Sprinkler Requirements (General)

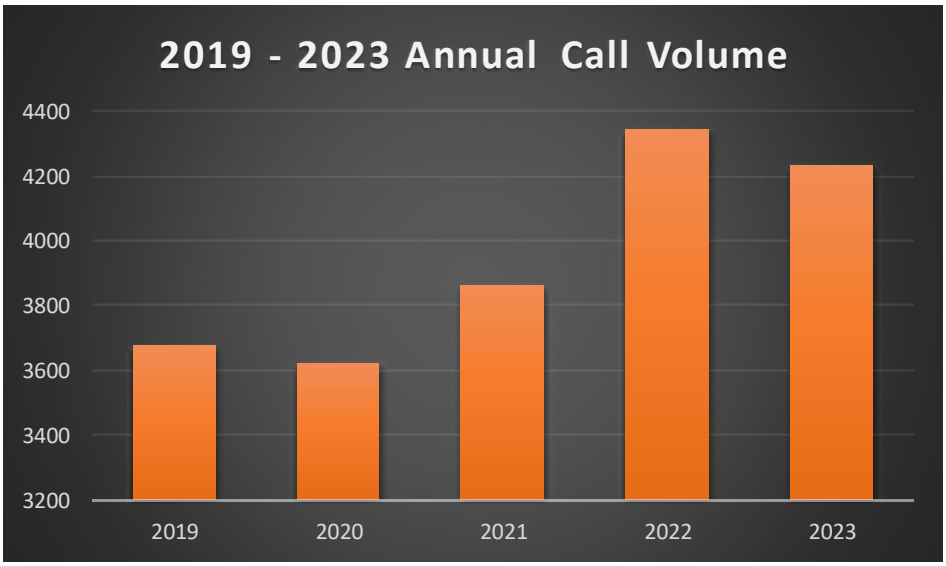
Any new dwelling constructed more than 500 feet from a public roadway or authorized private roadway providing vehicle access to the dwelling must be protected through an automatic residential fire sprinkler system installed in accordance with NFPA standards and requirements and approved by the fire chief or his designee.

Urban Response Zones
Areas of the city designated as urban response zones. These areas have a higher call density.

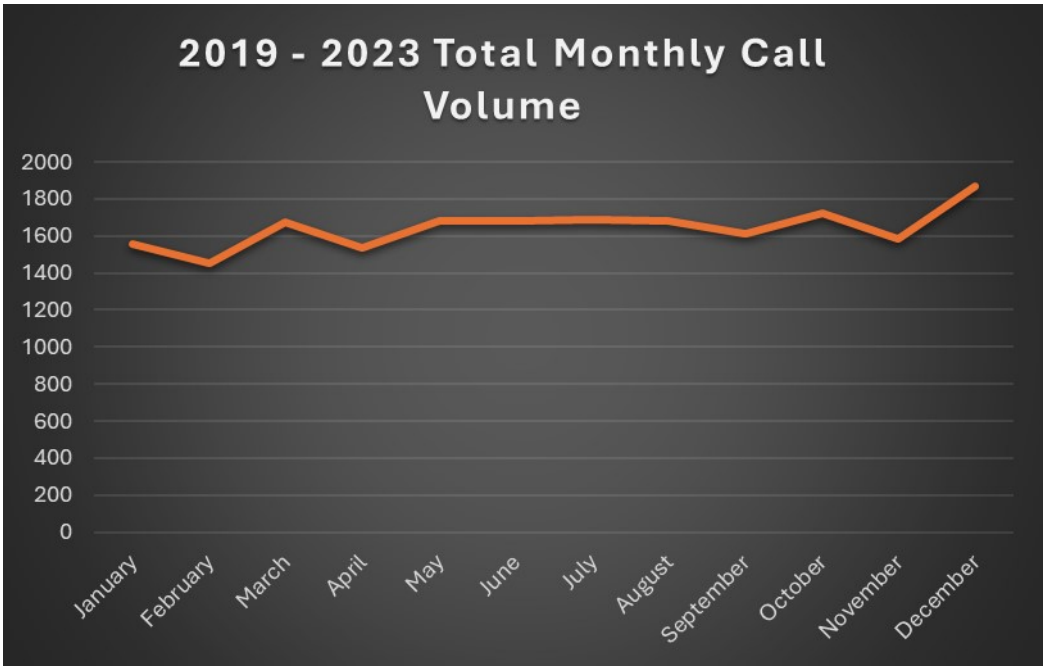


Call Volume Statistics

Brentwood Fire and Rescue responds to approximately 3,600 calls for service annually which represents an average of ten calls per day. As with many departments across the country, Brentwood has seen a steady increase in call volume since its inception in 1986. This increase in call volume correlates closely with the increase in population and development during this time. The following charts illustrate a variety of statistics from the previous 5 years to assist with laying a foundation of data to explain the response needs, peak response times, and how they relate to service demand.

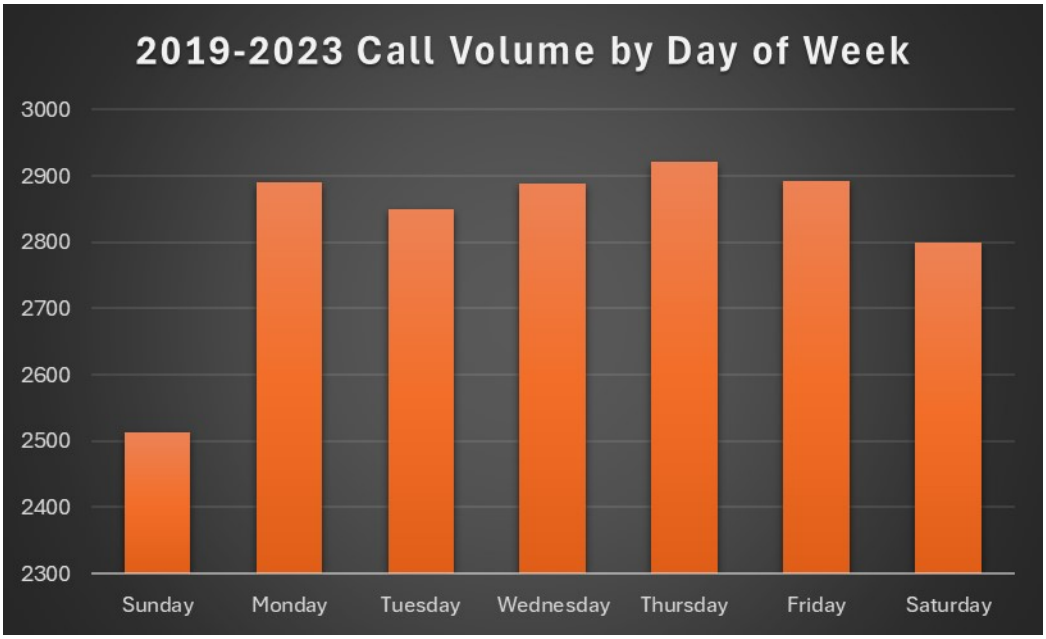


Annual Call Volume 2019-2023



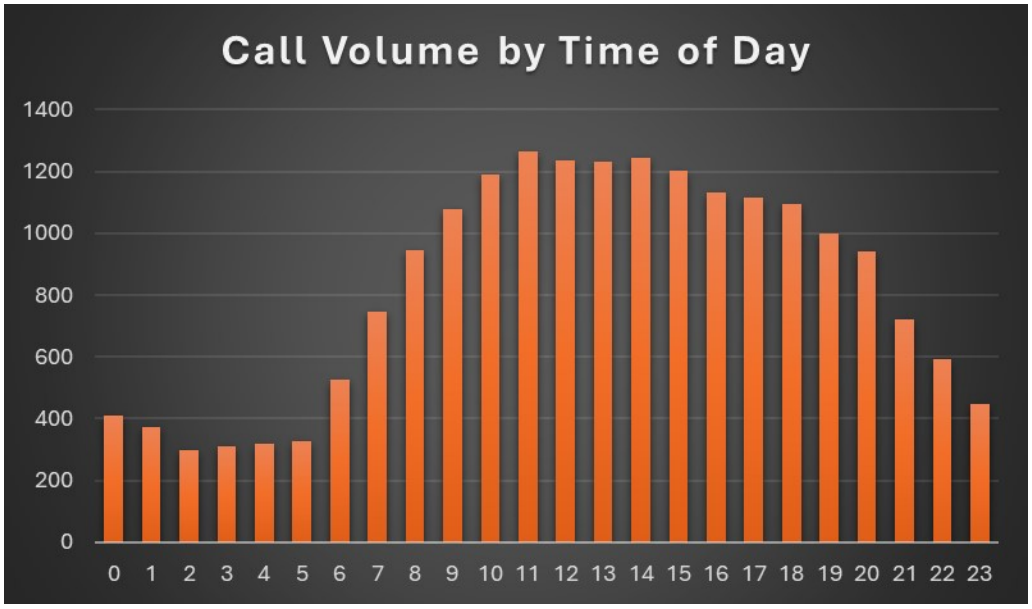
Total Call Volume Per Month, 2019-2023

Average call volumes per month indicating a steady call volume throughout the year with a slight increase in demand during the spring and summer months.



Total Call Volume by Day of Week, 2019-2023

Illustrates an increase in call volume during the week. This corresponds with an increase in daytime population in the Maryland Farms Office Park and Cool Springs commercial district.



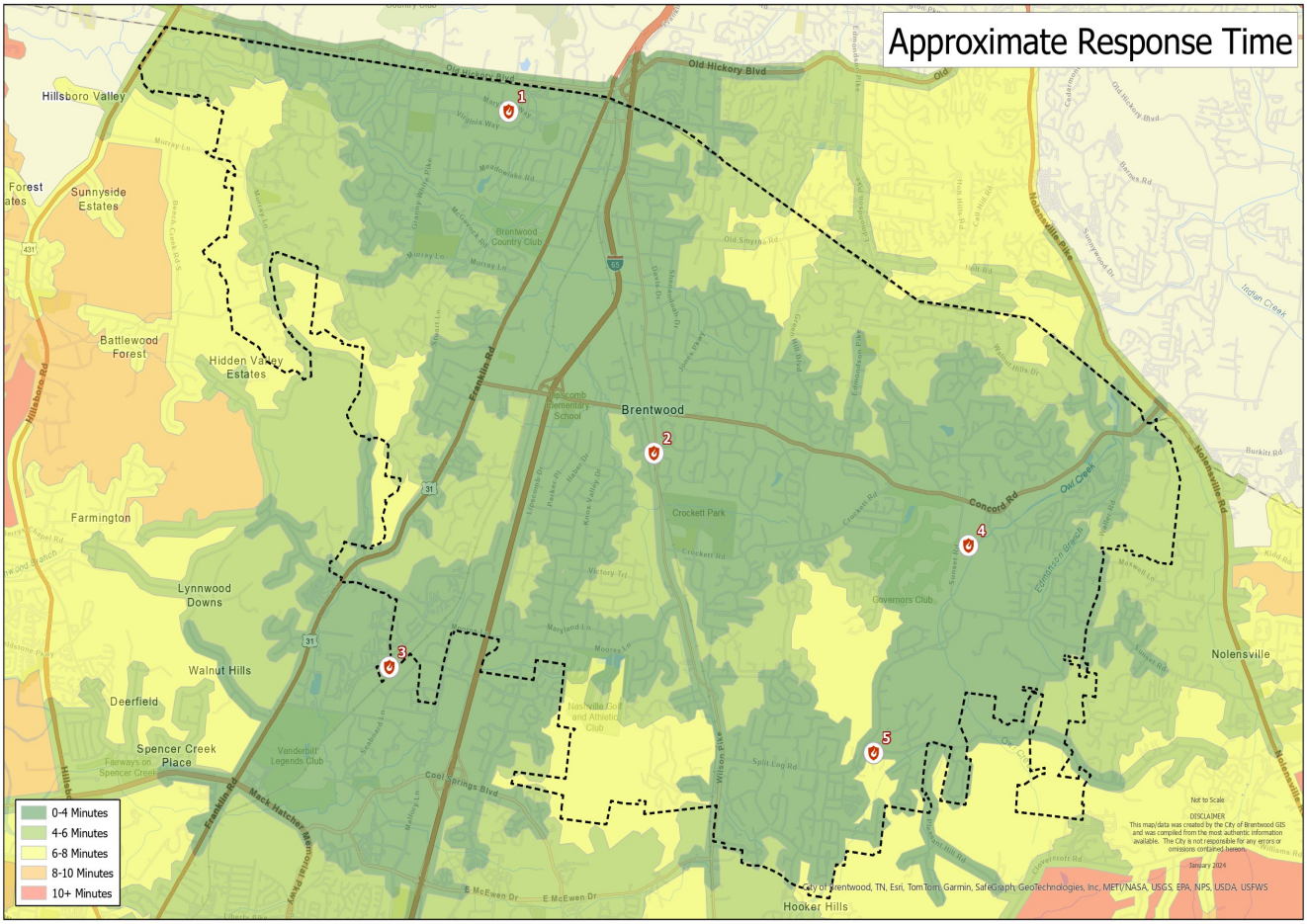
Total Call Volume by Time of Day, 2019 - 2023

Demand is at its highest during the day with a corresponding reduction during nighttime hours due to decreased population, fewer commuters, and less activity.

Distribution Factors

Station locations were influenced by a variety of factors including: travel time, land availability, budgetary constraints, community impact, and the political climate at the time of construction. For Districts 1, 2, 4, and 5 stations have a relatively central location providing for an equitable response to most parts of their zone. District 3 is unique to the other fire response zones given its location at the southern border. Each district has factors that affect response as described below.

Drive Time Map - Priority Response



District 1 Distribution Factors

Station 1 is centrally located in the Maryland Farms Office Park allowing rapid access to the area representing the highest call volume in the city. Population density and four assisted living facilities in the commercial area drive demand for this part of the district and impact the total call volume for the entire department. Residential areas to the far west and east can expect increased response times due to both distance and limited connectivity. These areas have a lower population density and are not subject to the same response time requirements of the more densely populated commercial area. The drive time map indicates the estimated travel time to all portions of the district and the areas that can expect a slower response. In addition to Engine 51, Tower 51 is also available at the station to respond to calls within the district or other parts of the city when needed. The mini pumper (E58) is not staffed but can respond when assigned to a call. An E58 response is recommended for addresses that have long narrow driveways. This process is automated by CAD. Personnel from T51 would drive E58 when assigned to a call.

District 2 Distribution Factors

Station 2 has a centralized location within its district resulting in a large response zone. There are several major thoroughfares including: I-65, Concord Rd., Wilson Pk., and Franklin Rd., all of which result in easy and rapid access to most parts of the district. Due to the centralized location of Station 2, it can be expected that areas along the border of the district will require longer response times due primarily to the distance from the station rather than access challenges. This represents the most apparent factor affecting distribution of resources for District 2. It should also be noted that in addition to Engine 52, Rescue 52 is available to provide an additional company available for response. As the second busiest station, the redundancy of resources assists by providing readily available responders when the first due unit is on a call, training, or otherwise unavailable. The population density would be considered rural due to predominantly residential zoning. Commercial pockets are scattered throughout the district but are reserved for service institutional structures such as churches, schools, or retirement and assisted living facilities.

District 3 Distribution Factors

The location of Station 3 is not ideal due in large part to available land, budget, and political influences at the time of construction. As a result of Station 3's location along the southern border of the city, the response district is substantially smaller compared to the other fire response zones. Furthermore, lack of connectivity and traffic impacts of the Cool Springs area create response challenges for Station 3 which further limits the opportunity to enlarge this district.

District 4 Distribution Factors

Like Stations 1 and 2, Station 4 is located near the center of District 4. The primary challenge for the responding units in this district is the rural nature of the roads and limited connectivity to many of the residential areas. With a limited number of major thoroughfares, Engine 4's access to several residential communities is through a series of narrow and winding residential streets resulting in a slowed response.

District 5 Distribution Factors

Station 5 is centrally located within its district. Similar to District 4, this area is primarily residential and consists of winding roads and a few rural areas. This district continues to grow and has the potential for enlargement due to annexation in the future. District 5 has a few commercial buildings including 3 schools.

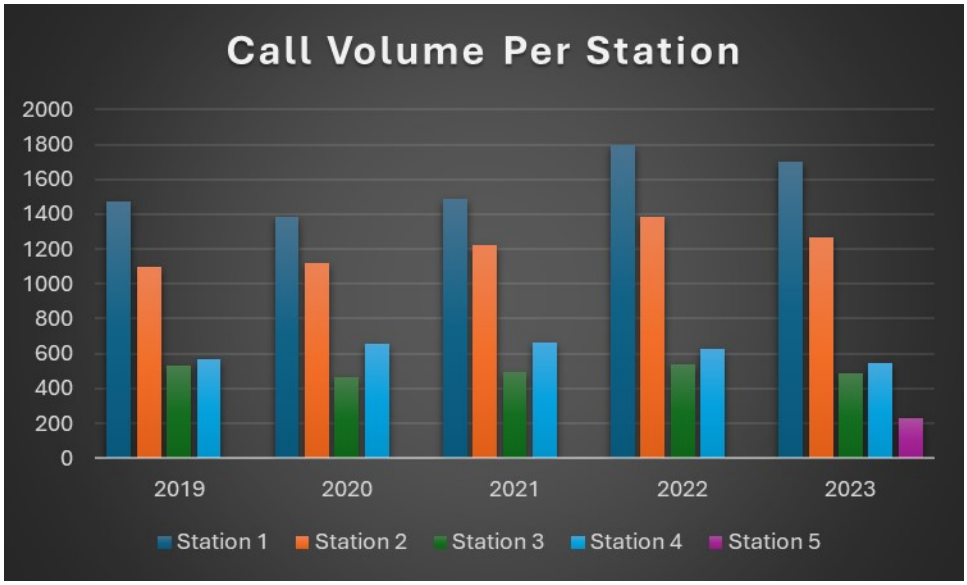
District	Square Miles	% of Total Area
1	10.01	23.61%
2	11.6	27.37%
3	3.41	8.02%
4	10.96	25.86%
5	6.46	15.24%
Total	**42.38**	**100%**

Concentration Factors

Concentration refers to the agency's ability to gather the resources needed to create an effective response force (ERF) capable of completing the critical tasks necessary to mitigate an event. This must be done within a timeframe that allows the agency to stop the escalation of an incident before it develops into an event that exceeds the resources available to respond. Some of the measures used to analyze the concentration factors include: number of calls per first due area, call density (areas of high demand), ERF establishment challenges in each district, and arrival sequencing of units. Each of these areas of evaluation are described in more detail moving forward.

Number of calls per first due company

This chart shows the percentage of calls in each district for each of the last five years. As the chart illustrates, Districts 1 and 2 maintain the highest call volume. Both districts have stations with multiple companies available to meet the increased demand.



Five-Year Response History by District

Effective Response Force Establishment

An agency's ability to establish an effective response force is directly impacted by the unique characteristics and challenges that each response zone presents for responding units. This discussion examines each district and the features that benefit or hinder the timely assembly of an effective response force.

District 1

Access to District 1 by outside units is accommodated by the large number of arterial roads which allow for rapid access to the district's core. It should be noted that Station 1 houses Engine 51, Tower 51, and Battalion 51, which provides for a greater number of personnel and resources arriving collectively. However, while the Maryland Farms area does contain several major roadways, frequent traffic congestion can cause a delayed response for units primarily during morning and afternoon rush hours. Besides traffic, another challenge is timely access to areas located to the district's far west end. Access to this primarily residential area is limited by narrow roads and distance. It can be expected that the assembly of the ERF for this part of the district would be delayed.

District 2

District 2 lies in the center of the city which provides the most direct routes of response for outside units. With several major thoroughfares and a central location, the establishment of an ERF in most parts of the district is more easily accomplished. Challenges that do exist for a rapid ERF creation are distance related, primarily along the borders of District 2. Like Station 1, Station 2 also houses multiple companies which increase the number of personnel and resources arriving simultaneously. Due to the central location of Station 2, Engine 52 is the second due unit to most parts of the city which impacts the call volume for this unit.

District 3

District 3 presents several challenges to a rapid ERF development including the district location, traffic volume, and identified risks. As noted earlier, District 3 lies in the southernmost portion of the city. Outside units must respond from long distances with limited connectivity to gain access to this area which obviously delays an ERF. In addition, this area typically has high traffic volume due to the commercial area and I-65. Like District 1, incidents that occur during morning or afternoon rush hours can delay responding units. To mitigate the expected delays of outside units, an automatic-aid agreement with Franklin Fire Department helps enhance resources allowing for a much faster ERF development.

District 4

As noted previously, much of District 4 is residential and roads for this area are narrower and winding. With a reduced number of major roadways, outside units can expect a prolonged response. This is especially evident in areas to the far north and east of the district. Residential areas in this section of the district have few major roadways and consist primarily of subdivisions with winding narrow roads, cul-de-sacs, and frequent stop signs. Areas near the border of District 2 could expect a timely ERF establishment due to the central location of this section. Clearly, incident location is the determining factor for predicted ERF times but is especially important in District 4. In 2021, the city signed an automatic aid agreement with the town of Nolensville. This agreement provides additional ERF resources faster than years previous. Additionally, Station 5 also provides additional equipment and personnel rapidly for the southern portion of District 4. Both enhancements should improve ERF concentration for this zone.

District 5

District 5 is located along the most southern portion of the city. This zone is primarily residential and consists of narrow winding roads throughout. As a result, ERF concentration would be delayed due to location. However, auto-aid with Nolensville and proximity to Stations 2 and 4 will provide second and third due units rapidly. Stations 1 and 3 will be delayed in this area due primarily to the distance from their districts.

Automatic-Aid and Mutual Aid

Another factor to consider for the concentration component is the use of automatic and mutual aid. An automatic aid agreement is in place with the Franklin Fire Department for a large portion of the commercial area of District 3 and special population areas such as The Heritage Assisted Living Facility, Ravenwood High School, and Kenrose Elementary. In addition, the agency has also identified multiple subdivisions where most homes are more than 5000 square feet. These areas are included as part of the automatic aid package or will be subject to an immediate mutual-aid request upon confirmation of a working structure fire. The department also has an auto-aid agreement with Nolensville for the eastern section of the city. In addition to the two automatic aid agreements, the agency also has mutual-aid agreements with Nashville, Nolensville, Franklin, and Williamson County and can rely on these agencies to provide additional personnel and units when requested.

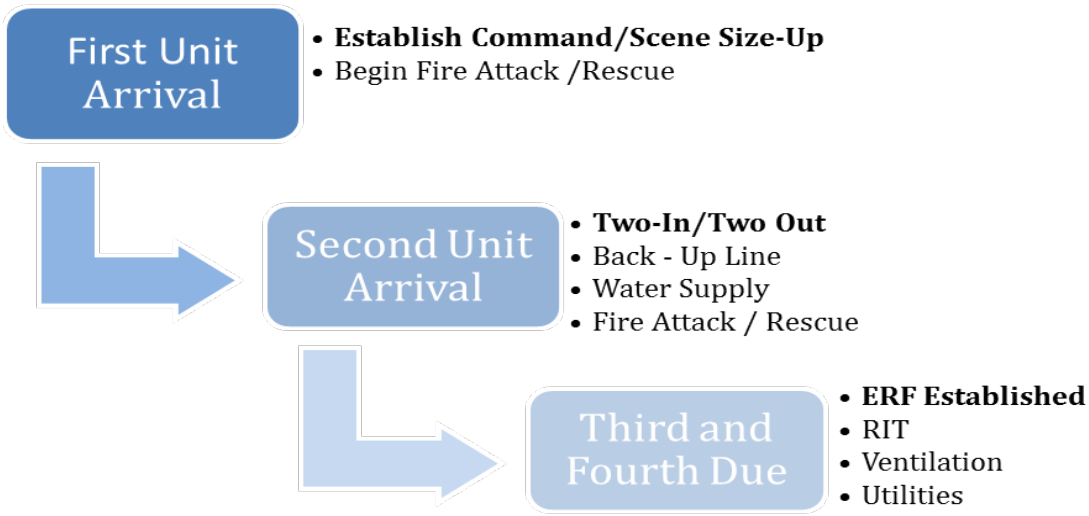
Arrival Sequencing – Critical Task Analysis

The assembly of an effective response force (ERF) is impacted not only by station location, but also the order in which apparatus, equipment, and personnel arrive. The critical task analysis conducted by the agency considered these factors and has ensured that all apparatus and personnel can begin critical tasks upon arrival. For example, all engines respond with three personnel and the equipment necessary to begin fire suppression activities. Second due engines will arrive with three personnel and allow for the establishment of two-in/two-out and the completion of the most critical tasks (i.e. fire attack/rescue, and water supply). As additional units arrive, the remaining critical tasks will be completed. Typically, the first arriving unit is an engine staffed with two firefighters and one officer. This resource can provide the equipment and staffing necessary to complete many of the initial fireground functions.

Arrival sequencing is equally important for EMS, hazmat, and technical rescue. For EMS, all frontline apparatus responds with personnel and equipment capable of beginning the critical tasks needed for low risks EMS incidents. For higher risk level incidents, EMS responses such as multi/mass casualty incidents, the arrival sequence would include Battalion 51, and additional engines providing staffing and equipment capable of completing the critical tasks. Hazmat and technical rescue arrival sequencing is also critically important. Response to a low-risk hazmat or technical rescue incidents can be handled by the initial arriving engines which have been equipped to complete the critical tasks for these risk categories. A hazmat or technical rescue incident in the moderate category would require additional engines for staffing and equipment needs. An incident in the high/special category for either hazmat or technical rescue would require the response of command staff, additional engines, Rescue 52, and specialty equipment. Outside resources from mutual-aid partners may also be required to meet the critical tasks for these events (for a more detailed review of the critical task assignments please refer to the critical task section earlier in the document). Specialty units needed for hazmat or technical rescue are stored in locations where space is available rather than an ideal central location.

These types of incidents are very infrequent in Brentwood and result in a slower concentration of resources and arrival sequencing when they occur. The baseline response charts later in the document provide data showing the arrival time of an ERF for each of the major response categories.

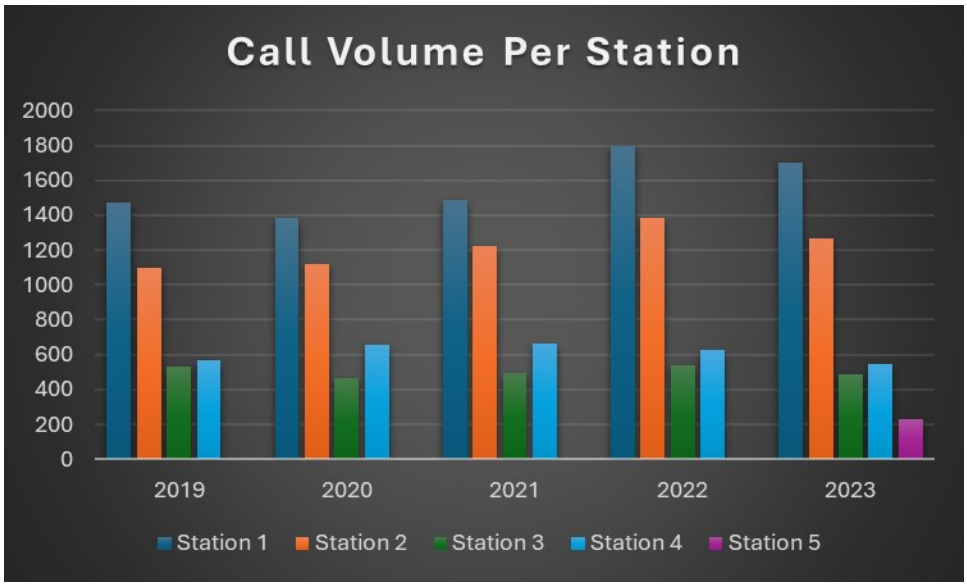
The chart below shows an example of arrival sequencing using the critical tasks discussed earlier in the document for a moderate risk structure fire. The purpose of this graph is to display the necessity of combining concentration of units, arrival sequencing, and critical tasks. All the components work together to create the effective response force which, once established, should limit the escalation of an emergency, and bring the incident to a conclusion. It should also be considered, however, that strategy and tactics chosen by the incident commander will also impact the outcome of an event. The ERF provides the tools, equipment, and personnel needed to complete the tasks if used appropriately.

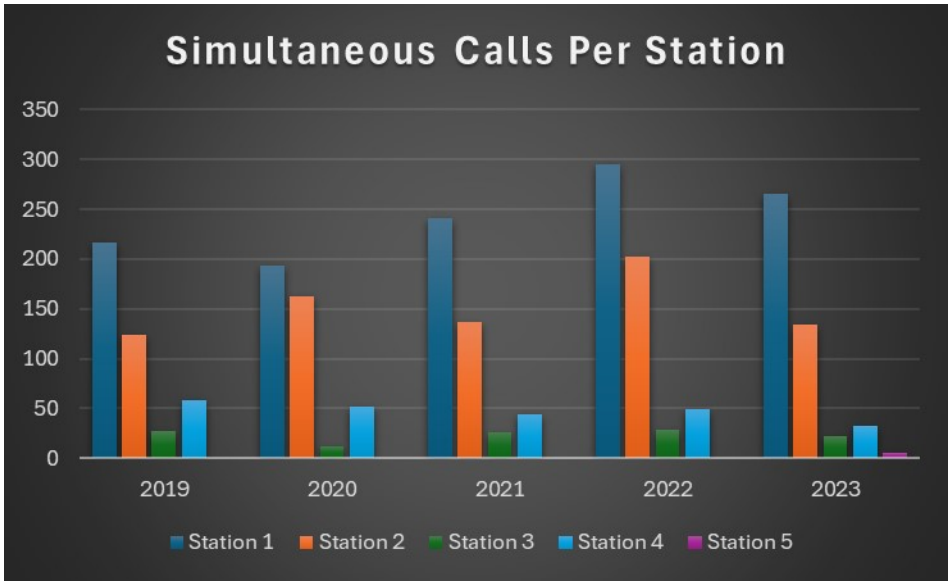


Moderate Risk Structure Fire Arrival Sequencing Example

Unit Reliability

Unit reliability is an important factor to consider when analyzing the agency's ability to consistently respond to emergencies. Unit reliability not only considers total call volume, but further analyzes individual responding units and the percentage of time first due units are available to respond to calls for service in their response zones. The chart below illustrates the number of calls that occurred during a separate incident, simultaneous incidents per district.





Total Call Volume Per Station and Percentage of Simultaneous Calls

Station 1	Total	Simultaneous
2019	1475	216/14.64%
2020	1385	193/13.94%
2021	1485	241/16.22%
2022	1794	295/16.48%
2023	1698	266/15.67%
Station 2	Total	Simultaneous
2019	1099	124/11.28%
2020	1118	162/9.12%
2021	1222	137/11.23%
2022	1386	202/14.96%
2023	1270	134/10.71%
Station 3	Total	Simultaneous
2019	533	27/5.07%
2020	462	12/2.60%
2021	494	26/5.26%
2022	536	29/5.31%
2023	487	22/4.38%
Station 4	Total	Simultaneous
2019	571	58/10.16%
2020	657	52/7.90%
2021	662	44/6.65%
2022	626	49/7.48%
2023	546	33/5.98%
Station 5	Total	Simultaneous
2019	0	0
2020	0	0
2021	0	0
2022	0	0
2023	231	6/2.63%

Data Tables

The following data tables provide 90th percentile response data for call processing, turn-out time, travel time and total response time for all risk levels within each service delivery category (fire, EMS, hazmat and technical rescue).

Low Risk Fires - Baseline Performance

(Low Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			2019-2023	2023	2022	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	Urban	01:23	01:29	01:31	01:15	01:18	01:24
		Rural	01:18	01:17	01:17	01:07	01:17	01:25
Turnout Time	Turnout Time 1st Unit	Urban	02:15	02:09	02:22	02:23	02:17	02:07
		Rural	02:05	01:59	02:14	02:10	02:04	02:01
Travel Time	Travel Time 1st Unit **Distribution**	Urban	04:41	04:43	04:40	05:00	04:21	04:41
		Rural	07:54	07:02	08:26	07:59	07:35	08:05
	Travel Time ERF **Concentration**	Urban	4:45	04:45	04:40	05:08	04:27	04:53
		Rural	07:54	07:09	08:27	07:59	07:36	08:04
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	07:24	07:10	07:23	07:46	07:11	07:31
			n=1136	n=198	n=245	n=212	n=221	n=260
		Rural	10:11	09:02	10:41	10:43	09:51	10:24
			n=1321	n=289	n=292	n=257	n=245	n=239
	Total Response Time ERF **Concentration**	Urban	07:28	07:10	07:23	07:50	07:15	07:36
			n=1127	n=195	n=245	n=214	n=221	n=250
		Rural	10:13	09:02	10:44	10:43	09:53	10:24
			n=1319	n=287	n=287	n=255	n=242	n=239

Moderate Risk 2-Unit Response Fires - Baseline Performance (Interstate 65)

(Moderate Risk 2-Unit Response) Fire Suppression - 90th Percentile Times - Baseline Performance			2019-2023	2023	2022	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	01:15	2:01	00:36	01:01	00:16	01:28
Turnout Time	Turnout Time 1st Unit	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	01:24	1:14	01:22	01:31	01:26	01:25
Travel Time	Travel Time 1st Unit **Distribution**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	05:42	6:55	04:50	05:25	04:18	05:43
	Travel Time ERF **Concentration**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	07:55	07:39	07:54	8:07	5:59	6:17
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
			n=0	n=0	n=0	n=0	n=0	N=0
		Rural	08:25	9:28	06:53	07:46	06:09	10:24
			n=28	n=8	n=5	n=5	n=3	n=8
	Total Response Time ERF **Concentration**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	11:01	9:50	9:39	10:28	7:18	16:05
			n=26	n=8	n=5	n=4	n=3	n=6

Moderate Risk (3-Unit Response) Fires

(Moderate Risk 3-Unit Response) Fire Suppression - 90th Percentile Times - Baseline Performance			2019-2023	2023	2022	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	Urban	01:09	n/a	n/a	n/a	01:17	00:36
		Rural	01:34	00:24	00:37	01:26	01:26	00:45
Turnout Time	Turnout Time 1st Unit	Urban	01:41	n/a	n/a	n/a	01:27	01:38
		Rural	01:22	01:57	01:15	01:01	01:19	00:45
Travel Time	Travel Time 1st Unit **Distribution**	Urban	02:26	n/a	n/a	n/a	02:16	02:27
		Rural	05:20	2:02	02:58	04:21	04:48	08:41
	Travel Time ERF **Concentration**	Urban	06:46	n/a	n/a	n/a	06:51	06:05
		Rural	09:39	n/a	08:09	04:49	08:21	10:01
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	05:31	n/a	n/a	n/a	05:37	05:02
			n=3	n=0	n=0	n=0	n=1	n=2
		Rural	07:50	04:23	04:56	06:23	07:24	10:30
			n=10	n=1	n=2	n=2	n=3	n=2
	Total Response Time ERF **Concentration**	Urban	09:55	n/a	n/a	n/a	09:35	09:31
			n=3	n=0	n=0	n=0	n=1	n=2
		Rural	12:32	n/a	10:38	09:03	11:36	11:55
			n=8	n=0	n=1	n=2	n=3	n=2

High Risk Fires

(High Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			2019-2023	2023	2022	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	Urban	01:49	n/d	01:30	00:48	01:32	01:52
		Rural	01:51	01:49	01:18	01:37	01:45	01:51
Turnout Time	Turnout Time 1st Unit	Urban	02:06	n/d	01:05	00:43	02:35	01:55
		Rural	01:38	01:37	01:40	01:29	01:28	00:53
Travel Time	Travel Time 1st Unit **Distribution**	Urban	06:14	n/d	07:28	02:44	03:59	05:25
		Rural	06:33	06:47	05:39	06:38	6:56	06:14
	Travel Time ERF **Concentration**	Urban	n/d	n/d	n/d	n/d	n/d	n/d
		Rural	14:16	14:05	10:57	12:49	12:55	15:07
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	09:44	n/a	10:05	05:30	07:50	09:30
			n=9	n=0	n=4	n=1	n=3	n=1
		Rural	10:18	10:54	08:27	09:11	9:56	09:30
			n=51	n=6	n=18	n=10	n=6	n=11
	Total Response Time ERF **Concentration**	Urban	n/d	n/d	n/d	n/d	n/d	n/d
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	18:15	18:25	13:31	24:06	15:01	17:15
			n=17	n=3	n=6	n=3	n=1	n=4

Special Risk Fires

(Special Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			2019-2023	2023	2022	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	Urban	01:33	01:29	1:43	01:07	01:18	00:33
		Rural	00:55	00:52	00:55	00:48	n/a	n/a
Turnout Time	Turnout Time 1st Unit	Urban	02:03	01:50	02:05	01:57	00:40	01:04
		Rural	01:31	01:36	00:36	01:08	n/a	n/a
Travel Time	Travel Time 1st Unit **Distribution**	Urban	06:26	05:43	07:24	05:48	06:11	05:06
		Rural	04:33	01:15	02:11	04:49	n/a	n/a
	Travel Time ERF **Concentration**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	n/a	n/a	n/a	n/a	n/a	n/a
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	09:46	08:02	9:57	08:07	09:05	06:43
			n=18	n=5	n=5	n=5	n=1	n=2
		Rural	06:44	03:31	04:35	06:53	n/a	n/a
			n=5	n=2	n=1	n=2	n=0	n=0
	Total Response Time ERF **Concentration**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	n/a	n/a	n/a	n/a	n/a	n/a
			n=0	n=0	n=0	n=0	n=0	n=0

Low Risk EMS - Baseline Performance

(Low Risk) EMS - 90th Percentile Times - Baseline Performance			2019-2023	2023	2022	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	Urban	01:13	01:08	01:09	01:17	01:14	1:18
		Rural	01:14	01:09	01:11	01:12	01:16	1:22
Turnout Time	Turnout Time 1st Unit	Urban	01:50	01:44	01:50	01:58	02:04	01:47
		Rural	01:51	01:46	01:48	01:56	01:53	01:51
Travel Time	Travel Time 1st Unit **Distribution**	Urban	04:53	04:41	04:58	04:53	04:46	05:01
		Rural	07:15	06:52	07:20	07:33	07:15	07:13
	Travel Time ERF **Concentration**	Urban	04:54	04:41	05:01	04:54	04:51	05:01
		Rural	07:16	06:52	07:20	07:33	07:18	07:14
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	07:10	06:49	07:20	07:19	07:06	07:15
			n=3784	n=915	n=810	n=672	n=619	n=763
		Rural	09:25	08:54	09:26	09:47	09:28	09:27
			n=6203	n=1355	n=1353	n=1245	n=1124	n=1128
	Total Response Time ERF **Concentration**	Urban	07:10	06:48	07:23	07:19	07:06	07:17
			n=3744	n=904	n=806	n=665	n=617	n=751
		Rural	09:25	08:52	09:26	09:46	09:29	09:27
			n=6187	n=1351	n=1353	n=1233	n=1124	n=1124

Moderate Risk 2-Unit Response EMS (Interstate 65)

(Moderate Risk 2-Unit Response) EMS - 90th Percentile Times - Baseline Performance			2019-2023	2023	2022	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	00:59	00:59	00:52	00:51	00:55	01:11
Turnout Time	Turnout Time 1st Unit	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	01:53	01:42	01:56	01:57	01:47	01:52
Travel Time	Travel Time 1st Unit **Distribution**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	07:11	06:11	07:41	06:39	6:42	07:34
	Travel Time ERF **Concentration**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	09:21	09:31	09:12	09:11	08:47	09:55
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
			n=0	n=0	n=0	n=0	n=0	N=0
		Rural	09:25	08:42	09:58	09:17	09:00	10:08
			n=389	n=81	n=76	n=67	n=78	n=87
	Total Response Time ERF **Concentration**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	11:34	12:21	11:51	10:53	10:47	14:15
			n=307	n=70	n=62	n=51	n=66	n=58

Moderate Risk 3-Unit Response EMS

(Moderate Risk 3-Unit Response) EMS - 90th Percentile Times - Baseline Performance			2019-2023	2023	2022	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	Urban	01:39	01:37	02:04	01:34	00:57	01:11
		Rural	01:20	01:16	01:09	02:00	01:11	01:08
Turnout Time	Turnout Time 1st Unit	Urban	01:48	01:40	01:48	01:49	00:49	01:03
		Rural	01:34	01:58	01:08	01:22	01:06	01:05
Travel Time	Travel Time 1st Unit **Distribution**	Urban	04:38	05:33	03:53	02:56	04:09	04:56
		Rural	05:56	05:32	04:55	06:09	05:52	05:59
	Travel Time ERF **Concentration**	Urban	07:10	06:33	03:21	02:56	5:56	08:17
		Rural	11:18	10:24	09:49	12:47	07:20	10:41
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	06:52	07:54	06:42	06:34	06:04	06:22
			n=25	n=3	n=7	n=2	n=5	n=8
		Rural	08:03	07:59	06:31	09:09	08:21	07:47
			n=74	n=21	n=12	n=19	n=10	n=12
	Total Response Time ERF **Concentration**	Urban	10:08	09:47	07:32	07:21	09:01	11:24
			n=19	n=3	n=4	n=2	n=4	n=6
		Rural	13:09	13:06	11:21	15:16	09:16	12:31
			n=56	n=17	n=10	n=14	n=7	N=8

High Risk EMS

(High Risk) EMS - 90th Percentile Times - Baseline Performance			2019-2023	2023	2022	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
			n= 0	n= 0	n= 0	n= 0	n= 0	n= 0
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
			n= 0	n= 0	n= 0	n= 0	n= 0	n= 0
	Total Response Time ERF **Concentration**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
			n= 0	n= 0	n= 0	n= 0	n= 0	n= 0
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
			n= 0	n= 0	n= 0	n= 0	n= 0	n= 0

Low Risk Hazmat

(Low Risk) Hazmat - 90th Percentile Times - Baseline Performance			2019-2023	2023	2022	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	Urban	01:55	00:41	02:03	01:49	n/a	01:29
		Rural	01:46	01:16	01:48	01:20	01:57	01:32
Turnout Time	Turnout Time 1st Unit	Urban	02:52	00:35	01:02	03:04	n/a	00:24
		Rural	01:58	01:44	01:37	01:19	01:59	02:11
Travel Time	Travel Time 1st Unit **Distribution**	Urban	04:46	04:04	3:36	03:45	n/a	05:39
		Rural	08:09	05:56	07:45	05:32	08:08	08:33
	Travel Time ERF **Concentration**	Urban	04:46	04:04	03:36	03:45	n/a	05:39
		Rural	08:09	05:56	07:45	05:32	08:08	10:19
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	07:34	05:20	06:41	07:10	n/a	07:32
			n=7	n=1	n=1	n=4	n=0	n=1
		Rural	10:52	07:51	10:40	07:24	10:48	11:30
			n=39	n=10	n=9	n=2	n=9	n=9
	Total Response Time ERF **Concentration**	Urban	07:34	05:20	06:41	07:10	n/a	07:32
			n=6	n=1	n=1	n=4	n=0	n=1
		Rural	10:52	07:51	10:40	07:24	10:48	11:30
			n=39	n=10	n=9	n=2	n=9	n=9

Moderate Risk Hazmat

(Moderate Risk) Hazmat - 90th Percentile Times - Baseline Performance			2019-2023	2023	2022	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	Urban	02:00	02:02	01:46	n/a	n/a	n/a
		Rural	02:20	02:09	02:20	00:22	n/a	00:37
Turnout Time	Turnout Time 1st Unit	Urban	01:09	00:41	01:12	n/a	n/a	n/a
		Rural	01:20	01:27	00:42	00:27	n/a	00:44
Travel Time	Travel Time 1st Unit **Distribution**	Urban	02:20	01:37	02:25	n/a	n/a	n/a
		Rural	05:13	05:14	04:42	04:49	n/a	03:31
	Travel Time ERF **Concentration**	Urban	08:38	08:38	n/a	n/a	n/a	n/a
		Rural	10:20	03:53	05:08	11:32	n/a	07:33
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	05:20	04:56	05:23	n/a	n/a	n/a
			n=2	n=1	n=1	n=XX	n=0	n=0
		Rural	08:01	07:56	07:54	05:38	n/a	04:52
			n=7	n=3	n=2	n=1	n=0	n=1
	Total Response Time ERF **Concentration**	Urban	11:21	11:21	n/a	n/a	n/a	n/a
			n=1	n=1	n=0	n=0	n=0	n=0
		Rural	11:32	07:52	08:51	12:35	n/a	09:06
			n=4	n=1	n=1	n=1	n=0	n=1

High Risk Hazmat

(High Risk) Hazmat - 90th Percentile Times - Baseline Performance			2019-2023	2023	2022	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	n/a	n/a	n/a	n/a	n/a	n/a
Turnout Time	Turnout Time 1st Unit	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	n/a	n/a	n/a	n/a	n/a	n/a
Travel Time	Travel Time 1st Unit **Distribution**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	n/a	n/a	n/a	n/a	n/a	n/a
	Travel Time ERF **Concentration**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	n/a	n/a	n/a	n/a	n/a	n/a
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	n/a	n/a	n/a	n/a	n/a	n/a
			n=0	n=0	n=0	n=0	n=0	n=0
	Total Response Time ERF **Concentration**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	n/a	n/a	n/a	n/a	n/a	n/a
			n=0	n=0	n=0	n=0	n=0	n=0

Special Hazmat

(Special Risk) HAZMAT - 90th Percentile Times - Baseline Performance			2019-2023	2023	2022	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
			n= 0	n= 0	n= 0	n= 0	n= 0	n= 0
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
			n= 0	n= 0	n= 0	n= 0	n= 0	n= 0
	Total Response Time ERF **Concentration**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
			n= 0	n= 0	n= 0	n= 0	n= 0	n= 0
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
			n= 0	n= 0	n= 0	n= 0	n= 0	n= 0

Low Risk Technical Rescue

(Low Risk) Technical Rescue - 90th Percentile Times - Baseline Performance			2019-2023	2023	2022	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	Urban	02:01	00:26	01:04	01:03	01:48	01:57
		Rural	02:11	03:04	n/a	01:23	02:50	01:39
Turnout Time	Turnout Time 1st Unit	Urban	01:50	02:03	1:47	01:12	01:09	01:36
		Rural	01:33	00:47	n/a	00:25	00:52	01:33
Travel Time	Travel Time 1st Unit **Distribution**	Urban	05:48	03:38	7:22	02:27	04:44	05:37
		Rural	08:12	07:48	n/a	01:08	02:40	08:26
	Travel Time ERF **Concentration**	Urban	05:45	03:49	7:22	02:27	04:44	05:37
		Rural	08:12	07:48	n/a	1:08	02:40	08:26
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	08:03	07:00	08:35	02:27	07:39	08:06
			n=22	n=4	n=4	n=2	n=3	n=9
		Rural	09:54	09:01	n/a	05:38	05:40	11:07
			n=8	n=1	n=0	n=1	n=3	n=3
	Total Response Time ERF **Concentration**	Urban	08:11	07:00	08:35	04:16	07:39	08:06
			n=18	n=4	n=4	n=2	n=3	n=9
		Rural	09:54	09:01	n/a	05:38	05:40	11:07
			n=8	n=1	n=0	n=1	n=3	n=3

Moderate Risk Technical Rescue

(Moderate Risk) Technical Rescue - 90th Percentile Times - Baseline Performance			2019-2023	2023	2022	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	01:02	00:38	01:48	00:20	00:53	00:54
Turnout Time	Turnout Time 1st Unit	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	001:54	01:01	04:07	01:12	01:36	00:39
Travel Time	Travel Time 1st Unit **Distribution**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	05:33	05:59	03:17	02:05	04:49	3:32
	Travel Time ERF **Concentration**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
		Rural	08:50	08:54	7:05	n/a	05:20	6:13
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	07:29	07:06	09:26	03:45	06:44	6:53
			n=10	n=3	n=1	n=1	n=2	n=3
	Total Response Time ERF **Concentration**	Urban	n/a	n/a	n/a	n/a	n/a	n/a
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	11:36	10:54	13:00	n/a	07:03	7:55
			n=9	n=3	n=1	n=0	n=2	n=3

High Risk Technical Rescue

(High Risk) Technical Rescue - 90th Percentile Times - Baseline Performance			2014-2018	2018	2017	2016	2015	2014
Alarm Handling	Pick-up to Dispatch	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
			n= 0	n= 0	n= 0	n= 0	n= 0	n= 0
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
			n= 0	n= 0	n= 0	n= 0	n= 0	n= 0
	Total Response Time ERF **Concentration**	Urban	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
			n= 0	n= 0	n= 0	n= 0	n= 0	n= 0
		Rural	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
			n= 0	n= 0	n= 0	n= 0	n= 0	n= 0

F. Performance Objectives and Measurement

Performance Objectives – Benchmarks

The agency has developed both benchmark and baseline objectives used to measure the performance of the department. The areas of measurement include: call processing, turnout time, travel time (first-arriving unit), total response time (first-arriving unit), travel time (effective response force), total response time (effective response force). A benchmark objective is the goal or industry best practice that the agency seeks to achieve. The benchmark objective is based upon the National Fire Protection Association 1710: *Standard for the Organization and Deployment of Fire Suppression Operations, and Special Operations to the Public by Career Fire Departments, 2016 Edition.*

Definitions for Areas of Performance Measurement

First Arriving Unit – The first unit to arrive on the scene capable of initiating critical tasks.

Effective Response Force (ERF) - The number of personnel and resources needed to mitigate an incident. The ERF is determined based upon risk level and critical tasks that must be completed to stop the escalation of an incident.

Call Processing – The time interval beginning when the communications center answers the 911 call and ending when resources are dispatched.

Turnout Time – The time interval beginning when unit(s) is dispatched (audible tones) and ending when the unit(s) initiates response and begins travel time.

Travel Time (First Arriving Unit) – The time interval beginning when the first unit is en route and ends after the unit arrives on scene.

Total Response Time (First Arriving Unit) – The time interval beginning with the 911 call pick-up and ending after the arrival of the first unit.

Travel Time ERF – The time interval beginning when units are en route to the emergency and ending after all units arrive on the scene.

**The ERF varies based upon risk level and critical task needs.*

Total Response Time ERF – The time interval beginning with the 911 call pick-up and ending after the arrival of all resources needed to establish an ERF.

Call Processing Benchmark Objective

For 90 percent of all fire, EMS, hazardous materials, and technical rescue emergencies the call processing time shall be 1 minute and 00 seconds.

Turnout Time Benchmark Objective

For 90 percent of all fire, hazardous materials, and technical rescue emergencies the turnout time shall be 1 minute and 20 seconds.

For 90 percent of all EMS emergencies the turnout time shall be 1 minute and 00 seconds.

Benchmark Performance Objectives

Time Component	ERF	Urban	Rural
Alarm Handling		1:00 *(1710)*	1:00
Turnout Time w/ PPE		1:20 *(1710)*	1:20
Turnout Time (EMS)		1:00 *(1710)*	1:00
Travel Time – 1st Arriving Unit		4:00 *(1710)*	6:00
Travel Time – ERF - 1 Unit Low Risk		4:00	6:00
Travel Time – ERF - 2 Unit Moderate Risk			7:00 ***(Interstate 65 Only)***
Travel Time – ERF - 3 Unit Moderate Risk		6:00	8:00
Travel Time – ERF - 6 Unit High Risk		7:00	9:00
Travel Time – ERF - 7 Unit High Risk		8:00 *(1710)*	10:00
Travel Time – ERF - Aided Response Special Risk		8:00 *(1710)*	12:00
Total Response Time – 1st Arriving Unit		6:00 (EMS) 6:20 (PPE) *(1710)*	8:00 (EMS) 8:20 (PPE)
Total Response Time – ERF - 1 Unit Low Risk	2	6:00 (EMS) 6:20 (PPE)	8:00 (EMS) 8:20 (PPE)
Total Response Time – ERF - 2 Unit Moderate Risk	5		9:20 ***(Interstate 65 Only)***
Total Response Time – ERF - 3 Unit Moderate Risk	6	8:00 (EMS) 8:20 (PPE)	10:00 (EMS) 10:20 (PPE)
Total Response Time – ERF - 6 Unit High Risk	14	9:00 (EMS) 9:20 (PPE)	11:00 (EMS) 11:20 (PPE)
Total Response Time – ERF - 7 Unit High Risk	17	10:20 (PPE) *(1710)*	12:20 (PPE)
Total Response Time – ERF Aided Response Special	24	10:20 (PPE) *(1710)*	14:20 (PPE)

Fire Suppression – First Arriving Unit Benchmark Statement

For 90 percent of all low, moderate, high and special risk structure fires the total response time for the first-arriving unit, staffed with 2 firefighters and 1 officer, shall be: 6 minutes and 20 seconds in urban areas; and 8 minutes and 20 seconds in rural areas. The first-arriving unit, for all risk levels shall be capable of: establishing command; conducting a scene size-up; requesting additional resources; providing 500 gallons of water and 1,500 gallons per minute (GPM) pumping capacity; advancing an attack line, flowing a minimum of 150 GPM; rescuing at-risk victims; and performing salvage operations. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

Fire Suppression – Effective Response Force (ERF) Benchmark Statements

For 90 percent of all low-risk fires, the total response time for the arrival of the ERF, staffed with 2 firefighters and 1officer, shall be: 6 minutes and 20 seconds in urban areas; and 8 minutes and 20 seconds in rural areas. The ERF for low risk shall be capable of: establishing command; providing 500 gallons of water and 1,500 GPM pumping capacity; conducting a scene size-up; providing for the safety of responders; requesting additional resources; advancing an attack line, flowing a minimum of 150 GPM; extinguishing the fire; and performing salvage operations. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all moderate risk (2-Unit) fires, the total response time for the arrival of the ERF, staffed with 5 firefighters, shall be: 9 minutes and 20 seconds in rural areas; The ERF for moderate risk shall be capable of: establishing command; conducting a scene size-up; providing an uninterrupted water supply; advancing an attack line and a backup line for fire control; providing for the safety of responders. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all moderate risk (3-Unit) fires, the total response time for the arrival of the ERF, staffed with 7 firefighters and officers, shall be: 8 minutes and 20 seconds in urban areas; 10 minutes and 20 seconds in rural areas. The ERF for moderate risk shall be capable of: establishing command; conducting a scene size-up; providing an uninterrupted water supply; advancing an attack line and a backup line for fire control; providing for the safety of responders. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all high-risk structure fires, the total response time for the arrival of the ERF, staffed with 18 firefighters and officers, shall be: 10 minutes and 20 seconds in urban areas; and 12 minutes and 20 seconds in rural areas. The ERF for high risk structure fires shall also be capable of: establishing command; providing an uninterrupted water supply; advancing an attack line and a backup line for fire control; complying with the Occupational Safety and Health Administration (OSHA) requirements of two-in and two-out; providing for the safety of responders; completing forcible entry; searching and rescuing at-risk victims; ventilating the structure; controlling utilities; performing salvage and overhaul; placing

elevated streams into service from aerial ladders; providing additional personnel for truck operations; and additional personnel for fire attack. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all special-risk structure fires, the total response time for the arrival of the ERF, staffed with 25 firefighters and officers, shall be: 10 minutes and 20 seconds in urban areas; and 14 minutes and 20 seconds in rural areas. The ERF for special risk structure fires shall also be capable of: establishing command; providing an uninterrupted water supply; advancing an attack line and a backup line for fire control; complying with the Occupational Safety and Health Administration (OSHA) requirements of two-in and two-out; providing for the safety of responders; completing forcible entry; searching and rescuing at-risk victims; ventilating the structure; controlling utilities; performing salvage and overhaul; placing elevated streams into service from aerial ladders; providing additional personnel for truck operations; and additional personnel for fire attack. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

Emergency Medical Services – First Arriving Unit Benchmark Statement

For 90 percent of all EMS responses, the total response time for the first-arriving unit, staffed with 2 firefighters and 1 officer, shall be: 6 minutes and 00 seconds in urban areas; and 8 minutes and 00 seconds in rural areas. The first-arriving unit shall be capable of: establishing command; assessing scene safety; sizing-up the situation; conducting an initial patient assessment; obtaining vitals and patient's medical history; initiating mitigation efforts within one minute of arrival; providing first responder medical aid including automatic external defibrillation (AED); and assisting transport personnel with packaging the patient.

Emergency Medical Services – Effective Response Force (ERF) Benchmark Statement

For 90 percent of low-risk EMS response incidents, the total response time for the arrival of the ERF, staffed with 2 firefighters and 1officer, shall be: 6 minutes and 00 seconds in urban areas; and 8 minutes and 00 seconds in rural areas. The ERF for low risk shall be capable of: assessing scene safety; sizing-up the situation; conducting a patient assessment; obtaining vitals and patient's medical history; providing appropriate treatment per EMS protocols.

For 90 percent of moderate risk (2-unit) EMS response incidents, the total response time for the arrival of the ERF, staffed with 5 firefighters and officers, shall be: 9 minutes and 20 seconds. The ERF for moderate risk shall be capable of: establishing command; providing for the safety of responders; conducting a patient assessment; obtaining vitals and patient's medical history; providing appropriate treatment per EMS protocols; checking for hazards.

For 90 percent of moderate risk (3-unit) EMS response incidents, the total response time for the arrival of the ERF, staffed with 6 firefighters and officers, shall be: 8 minutes and 00 seconds in urban areas; and 10 minutes and 00 seconds in rural areas. The ERF for moderate risk shall be capable of: establishing command; assessing scene safety; sizing-up the situation; completing patient assessment; providing cardio-pulmonary resuscitation; performing AED; managing the airway; and providing intravenous (IV) access-medication administration.

For 90 percent of special risk EMS response incidents, the total response time for the arrival of the ERF, staffed with 15 firefighters and officers, shall be: 9 minutes and 00 seconds in urban areas; and 11 minutes and 00 seconds in rural areas. The ERF for special risk shall be capable of: establishing command; conducting triage; requesting additional resources; completing patient assessment; providing appropriate treatment; performing AED; initiating cardio-pulmonary resuscitation (CPR); and providing intravenous (IV) access-medication administration.

Hazardous Materials Services – First Arriving Unit Benchmark Performance Statement

For 90 percent of all hazardous materials response incidents, the total response time for the first-arriving unit, staffed with 2 firefighters and 1 officer, shall be: 6 minutes and 20 seconds in urban areas; and 8 minutes and 20 seconds in rural areas. The first-arriving unit shall be capable of: establishing command; conducting a scene size-up; determining the need for additional resources; determining appropriate PPE; investigating the scene for hazards with instruments; mitigating hazards; and establish exclusionary zones when appropriate.

Hazardous Materials Services – Effective Response Force (ERF) Benchmark Performance Statements

For 90 percent of all low risk hazardous materials response incidents, the total response time for the arrival of the ERF, staffed with 2 firefighters and 1officer, shall be; 6 minutes and 20 seconds in urban areas; and 8 minutes and 20 seconds in rural areas. The low risk ERF shall be capable of; conducting a scene size-up; determining the need for additional resources; determining appropriate PPE; investigating the scene for hazards with instruments; mitigating hazards; and establish exclusionary zones when appropriate.

For 90 percent of all moderate risk hazardous materials response incidents, the total response time for the arrival of the ERF, staffed with 6 firefighters and officers, shall be: 8 minutes and 20 seconds in urban areas; and 10 minutes and 20 seconds in rural areas. The moderate risk ERF shall be capable of; establishing command; providing for the safety of responders; denying entry; conducting an evacuation of occupants; conducting air monitoring; providing medical care; and providing the equipment, technical expertise, knowledge, skills and abilities to mitigate a hazardous materials incident in accordance with department standard operating guidelines.

For 90 percent of all high-risk hazardous materials response incidents, the total response time for the arrival of the ERF including the hazardous materials response team, staffed with 15 firefighters and officers, shall be: 9 minutes and 20 seconds in urban areas; and 11 minutes and 20 seconds in rural areas. The high-risk ERF shall be capable of; establishing command; providing for the safety of responders; denying entry; establishing hot, warm, and cold zones; establishing emergency and technical decontamination (if necessary); conducting air monitoring; and providing the equipment, technical expertise, knowledge, skills and abilities to mitigate a hazardous materials incident in accordance with department standard operating guidelines.

For 90 percent of all aided-response hazardous materials incidents, the total response time for the arrival of the ERF including the hazardous materials response team, mutual-aid personnel staffed with 25 firefighters and officers, shall be: 10 minutes and 20 seconds in urban areas; and 14 minutes and 20 seconds in rural areas. The special risk ERF shall be

capable of; establishing command; providing for the safety of responders; denying entry; establishing hot, warm, and cold zones; establishing emergency and technical decontamination; providing fire suppression (if necessary); determining areas for evacuation or shelter in place; and providing the equipment, technical expertise, knowledge, skills and abilities to mitigate a hazardous materials incident in accordance with department standard operating guidelines.

Rescue Services – First Arriving Unit Benchmark Performance Statements

For 90 percent of all technical rescue incidents, the total response time for the first-arriving unit staffed with 2 firefighters and 1 officer, shall be: 6 minutes and 20 seconds in urban areas; and 8 minutes and 20 seconds in rural areas. The first-arriving unit shall be capable of: establishing command; providing for the safety of responders; calling for additional resources; gaining access to the patient; and providing patient care.

Rescue Services – Effective Response Force (ERF) Benchmark Performance Statements

For 90 percent of low-risk technical rescue incidents, the total response time for the arrival of the ERF, staffed with 2 firefighters and 1officer shall be: 6 minutes and 20 seconds in urban areas; and 8 minutes and 20 seconds in rural areas. The low-risk ERF shall be capable of: providing for the safety of responders; calling for additional resources; gaining access to the patient; and providing patient care.

For 90 percent of moderate risk technical rescue incidents, the total response time for the arrival of the ERF, staffed with 6 firefighters and officers shall be: 8 minutes and 20 seconds in urban areas; and 10 minutes and 20 seconds in rural areas. The moderate-risk ERF shall be capable of: establishing command; providing for the safety of responders; calling for additional resources; conducting a scene size-up; provide vehicle stabilization; conducting patient triage; extricating the patient from the vehicle; removing the patient; and providing patient care both during and after extrication.

For 90 percent of high-risk technical rescue incidents, the total response time for the arrival of the ERF, staffed with 15 firefighters and officers shall be: 9 minutes and 20 seconds in urban areas; and 11 minutes and 20 seconds in rural areas. The high-risk ERF shall be capable of: establishing command; providing for the safety of responders; calling for additional resources; conducting a scene size-up; developing an incident action plan; and providing the technical expertise, knowledge, skills, and abilities necessary to complete a technical rescue incident involving ropes, water, confined space, trench, or structural collapse in accordance with department standard operating guidelines

Performance Objectives – Baselines

The baseline objective is the agency's current performance and reflects five years of data collection (2019-2023). The aggregate of those years is the agency's baseline performance for each area of measurement. The statements and charts in this section are the adopted baseline objectives and performance tables for the Brentwood Fire and Rescue Department.

Call Processing and Turnout Baseline Statements

Fire Suppression – Call Processing Baseline Performance Statement

For 90 percent of all low-risk fires, the call processing time, is: 1 minute and 23 seconds for urban areas; and 1 minutes and 18 seconds for rural areas.

For 90 percent of all moderate risk 2-Unit fires, the call processing time, is: no calls in urban areas and 1 minute and 15 seconds for rural areas.

For 90 percent of all moderate risk 3-Unit fires, the call processing time, is: 1 minute and 09 seconds in urban areas and 1 minute and 23 seconds for rural areas.

For 90 percent of all high-risk structure fires, the call processing time, is: 1 minute and 49 seconds for urban areas; and 1 minute and 51 seconds for rural areas.

For 90 percent of all special risk structure fires, the call processing time is: 1 minute and 33 seconds in urban areas; and 0 minutes and 55 seconds in rural areas.

Emergency Medical Services (EMS) - Call Processing Baseline Statements

For 90 percent of all low-risk emergency medical services (EMS) responses, the call processing time, is: 1 minute and 13 seconds for urban areas; and 1 minute and 14 seconds for rural areas.

For 90 percent of all moderate risk (2-unit) EMS responses, the call processing time, is: no calls in urban areas; 0 minutes and 59 seconds in rural areas.

For 90 percent of all moderate risk (3-unit response) EMS responses, the call processing time, is: 1 minute and 39 seconds in urban areas; 1 minute and 20 seconds in rural areas.

For 90 percent of all high-risk EMS responses, the call processing time, is: there were no high risk EMS incidents during 2019-2023.

Hazardous Materials – Call Processing Baseline Performance Statements

For 90 percent of all low-risk hazardous materials response incidents, the call processing time is: 1 minute and 55 seconds for urban areas; and 1 minute and 46 seconds for rural areas.

For 90 percent of all moderate risk hazardous materials response incidents, the call processing time is: 2 minutes and 00 seconds in urban areas; 2 minutes and 20 seconds in rural areas.

For 90 percent of all high-risk hazardous materials response incidents, the call processing time, is: there were no high risk incidents during 2019-2023

For 90 percent of all special risk hazardous materials response incidents, the call processing time, is: there were no special risk incidents during 2019-2023.

Rescue Services – Call Processing Baseline Performance Statements

For 90 percent of all low-risk technical rescue incidents, the call processing time is: 2 minutes and 01 seconds for urban areas; and 2 minute and 11 seconds for rural areas.

For 90 percent of all moderate risk technical rescue incidents, the call processing time, is there were no moderate risk technical rescue incidents in urban areas for 2019-2023; and 1 minute and 02 seconds for rural areas.

For 90 percent of all high-risk technical rescue incidents, the call processing time, is: there were no high-risk incidents during 2019 – 2023.

Fire Suppression – Turnout Time Baseline Performance Statement

For 90 percent of all low-risk fires, the turnout time is: 2 minutes and 15 seconds for urban areas and 2 minutes and 05 seconds for rural areas.

For 90 percent of all moderate risk 1 fires, the turnout time, is: there were no calls for urban areas and 1 minute and 24 seconds for rural areas.

For 90 percent of all moderate risk 2 fires, the turnout time, is: 1 minute and 41 seconds for urban areas and 1 minute and 22 seconds for rural areas.

For 90 percent of all high-risk structure fires, the turnout time is: 2 minutes and 06 seconds for urban areas and 1 minute and 38 seconds for rural areas.

For 90 percent of all special risk structure fires, the turnout time, is: 2 minutes and 03 seconds in urban areas and 1 minute and 31 seconds in rural areas.

Emergency Medical Services (EMS) Turnout Time Baseline Performance Statements

For 90 percent of all low-risk EMS responses, the turnout time, is: 1 minute and 50 seconds for urban areas and 1 minutes and 51 seconds for rural areas.

For 90 percent of all moderate risk (2-unit) EMS responses, the turnout time, is: no calls in urban areas and 1 minute and 53 seconds for rural areas.

For 90 percent of all moderate risk (3-unit) EMS responses, the turnout time, is: 1 minute and 48 seconds for urban areas and 1 minute and 34 seconds in rural areas.

For 90 percent of all high-risk emergency medical services (EMS) responses, the turnout time, is: there were no high EMS emergencies during 2019-2023.

Hazardous Materials – Turnout Time Baseline Performance Statements

For 90 percent of all low-risk hazardous materials response incidents, the turnout time, is: 2 minutes and 52 seconds for urban areas and 1 minute and 58 seconds for rural areas.

For 90 percent of all moderate risk hazardous materials response incidents, the turnout time, is: 1 minute and 09 seconds in urban areas and 1 minute and 20 seconds in rural areas.

For 90 percent of all high-risk hazardous materials response incidents, the turnout time, is: there were no high-risk incidents during 2019-2023.

For 90 percent of all special risk hazardous materials response incidents, the turnout time, is: there were no special incidents during 2019-2023.

Rescue Services – Turnout Time Baseline Performance Statements

For 90 percent of all low-risk technical rescue incidents, the turnout time, is: 1 minute and 50 seconds for urban areas; and 1 minutes and 33 seconds for rural areas.

For 90 percent of all moderate-risk technical rescue incidents, the turnout time, is: there were no moderate risk technical rescue incidents for urban areas; and 1 minute and 54 seconds for rural areas.

For 90 percent of all high-risk technical rescue incidents, the turnout time, is: there were no high-risk incidents during 2019 – 2023.

Fire Suppression Services – First - Arriving Unit Baseline Performance Statements

For 90 percent of all low-risk fires, the total response time for the first arriving unit, with a minimum of 3 firefighters is: 7 minutes and 24 seconds in urban areas; and 10 minutes and 11 seconds in rural areas. The first arriving unit is capable of: conducting a scene size-up; requesting additional resources; providing a minimum of 500 gallons of water and 1,500GPM pumping capacity; providing for the safety of responders; advancing an attack line, flowing a minimum of 150 GPM; extinguishing the fire; and performing salvage operations. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all moderate risk (2-Unit) fires, the total response time for the first arriving unit, with a minimum of 2 firefighters and 1 officer is: there were no moderate risk fires in urban areas; and 8 minutes and 25 seconds in rural areas. The first arriving unit is capable of: establishing command; conducting a 360-degree scene size-up; requesting additional resources; providing 500 gallons of water and 1,500 gallons per minute (GPM) pumping capacity; advancing an attack line, flowing a minimum of 150 GPM; or rescuing at-risk victims. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all moderate risk (3-Unit) fires, the total response time for the first arriving unit, with a minimum of 2 firefighters and 1 officer is: 5 minutes and 31 seconds in urban areas; and 7 minutes and 50 seconds in rural areas. The first arriving unit is capable of: establishing command; conducting a 360-degree scene size-up; requesting additional resources; providing 500 gallons of water and 1,500 gallons per minute (GPM) pumping capacity; advancing an attack line, flowing a minimum of 150 GPM; or rescuing at-risk victims. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all high-risk fires, the total response time for the first arriving unit, with a minimum of 2 firefighters and 1 officer is**:** 9 minutes and 44 seconds in urban areas; and 10 minutes and 18 seconds in rural areas. The first arriving unit is capable of: establishing command; conducting a 360-degree scene size-up; requesting additional resources; providing 500 gallons of water and 1,500 gallons per minute (GPM) pumping capacity; advancing an attack line, flowing a minimum of 150 GPM; or rescuing at-risk victims. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all special risk fires, the total response time for the first arriving unit, with a minimum of 2 firefighters and 1 officer is**:** 9 minutes and 46 seconds in urban areas; and 6 minutes and 44 seconds in rural areas. The first arriving unit is capable of: establishing command; conducting a 360-degree scene size-up; requesting additional resources; providing 500 gallons of water and 1,500 gallons per minute (GPM) pumping capacity; advancing an attack line, flowing a minimum of 150 GPM; or rescuing at-risk victims. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

Fire Suppression Services – Effective Response Force Baseline Performance Statements

For 90 percent of all low-risk fires, the total response time for the arrival of the ERF, staffed with a minimum of 3 firefighters, is: 7 minutes and 28 seconds in urban areas; and 10 minutes and 13 seconds in rural areas. The ERF for low risk is capable of; establishing command; conducting a scene size-up; requesting additional resources; providing a minimum of 500 gallons of water and 1,500 GPM pumping capacity; providing for the safety of responders; advancing an attack line, flowing a minimum of 150 gpm; extinguishing the fire; and providing for the safety of responders. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all moderate risk (2-Unit) fires, the total response time for the arrival of the ERF, staffed with 5 firefighters, is: there were no moderate risk (2-Unit) fires in urban areas and 11 minutes and 01 seconds in rural areas. The ERF for moderate risk is capable of: establishing command; conducting a scene size-up; providing an uninterrupted water supply; advancing an attack line and a backup line for fire control; and performing salvage and overhaul. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all moderate risk (3-Unit) fires, the total response time for the arrival of the ERF, staffed with 7 firefighters and officers, is: 9 minutes and 55 seconds in urban areas; and 12 minutes and 32 seconds in rural areas. The ERF for moderate risk is capable of: establishing command; conducting a scene size-up; providing an uninterrupted water supply; advancing an attack line and a backup line for fire control; and performing salvage and overhaul. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all high-risk structure fires, the total response time for the arrival of the ERF, staffed with 18 firefighters and officers, is: no ERF established for high-risk fires in urban areas during 2019-2023; and 18 minutes and 15 seconds in rural areas. The ERF for high-risk is capable of: establishing command; providing an uninterrupted water supply; advancing an attack line and a backup line for fire control; complying with the Occupational Safety and Health Administration (OSHA) requirements of two-in and two-out; providing for the safety of responders; completing forcible entry; searching and rescuing at-risk victims; ventilating the structure; controlling utilities; performing salvage and overhaul; placing elevated streams into service from aerial ladders; providing additional personnel for truck operations; and additional personnel for fire attack. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all special risk structure fires, the total response time for the arrival of the ERF, staffed with 25 firefighters and officers, is: there were no special risk incidents in 2019-2023 that established an ERF. The ERF for special risk structure fires is capable of: establishing command, safety, and accountability; conducting a scene size-up; providing an uninterrupted water supply; advancing an attack line and a backup line for fire control; complying with the OSHA requirements of two-in and two-out; completing forcible entry; searching and rescuing at-risk victims; ventilating the structure; controlling utilities; performing salvage and overhaul; placing elevated streams into service from aerial ladders; providing additional personnel for truck operations; and additional personnel for fire attack. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

Emergency Medical Services – First - Arriving Unit Baseline Performance Statements

For 90 percent of all low-risk emergency medical services (EMS) responses, the total response time for the first arriving unit, with a minimum of 2 firefighters is: 7 minutes and 10 seconds in urban areas; and 9 minutes and 25 seconds in the rural areas. The first-arriving unit is capable of: assessing scene safety; sizing-up the situation; conducting a patient assessment; obtaining vitals and patient's medical history; providing appropriate treatment per EMS protocols.

For 90 percent of all moderate risk (2-unit) EMS responses, the total response time for the first arriving unit, with a minimum of 2 firefighters is: no calls in urban areas; and 9 minutes and 25 seconds in the rural areas. The first-arriving unit is capable of: establishing command; assessing scene safety; sizing-up the situation; conducting a patient assessment; obtaining vitals and patient's medical history; providing appropriate treatment per EMS protocols.

For 90 percent of all moderate risk (3-unit) EMS responses, the total response time for the first arriving unit, with a minimum of 2 firefighters is: 6 minutes and 52 seconds in the urban areas; and 8 minutes and 03 seconds in rural areas. The first-arriving unit is capable of: establishing command; assessing scene safety; sizing-up the situation; conducting a patient assessment; initiating CPR and AED; providing appropriate treatment per EMS protocols.

For 90 percent of all high-risk EMS responses, the total response time for the first arriving unit, with a minimum of 2 firefighters is: there were no high-risk EMS incidents in 2019-2023. The first-arriving unit is capable of: establishing command; assessing scene safety; sizing-up the situation; calling for additional resources; beginning triage; conducting a patient assessment; obtaining vitals and patient's medical history; providing appropriate treatment per EMS protocols.

Emergency Medical Services – Effective Response Force Baseline Performance Statements

For 90 percent of all low-risk EMS response incidents, the total response time for the arrival of the ERF, staffed with a minimum of 2 firefighters is: 7 minutes and 10 seconds in urban areas; and 9 minutes and 25 seconds in rural areas. The ERF for low risk is capable of: assessing scene safety; sizing-up the situation; conducting a patient assessment; obtaining vitals and patient's medical history; providing appropriate treatment per EMS protocols.

For 90 percent of moderate risk (2-unit) EMS response incidents, the total response time for the arrival of the ERF, staffed with a minimum of 5 firefighters is: no calls in urban areas; and 11 minutes and 34 seconds in rural areas. The ERF for moderate risk is capable of: establishing command; providing for the safety of responders; conducting a patient assessment; obtaining vitals and patient's medical history; providing appropriate treatment per EMS protocols.

For 90 percent of moderate risk (3-unit) EMS response incidents, the total response time for the arrival of the ERF, staffed with 6 firefighters and officers is: 10 minutes and 08 seconds in urban areas; and 13 minutes and 09 seconds in rural areas. The ERF for moderate risk shall be capable of: establishing command; assessing scene safety; sizing-up the situation; completing patient assessment; providing cardio-pulmonary resuscitation; performing AED; managing the airway; and providing intravenous (IV) access-medication administration.

For 90 percent of high-risk EMS response incidents, the total response time for the arrival of the ERF, staffed with 15 firefighters and officers, is: there were no high-risk calls during 2019-2023. The ERF for special risk shall be capable of: establishing command; conducting triage; requesting additional resources; completing patient assessment; providing treatment per EMS protocols; performing AED; initiating cardio-pulmonary resuscitation (CPR); and providing intravenous (IV) access-medication administration.

Hazardous Materials Services – First - Arriving Unit Baseline Performance Statements

For 90 percent of all low-risk hazardous materials incidents, the total response time for the first - arriving unit, with a minimum of 2 firefighters is: 7 minutes and 34 seconds in urban areas; and 10 minutes and 52 seconds in the rural areas: The first-arriving unit is capable of: providing for the safety of responders; identifying a hazardous material; denying entry; providing the equipment, technical expertise, knowledge, skills and abilities to mitigate a hazardous materials incident in accordance with department standard operating guidelines.

For 90 percent of all moderate-risk hazardous materials incidents, the total response time for the first - arriving unit, with a minimum of 2 firefighters is: 5 minutes and 20 seconds in urban areas; and 8 minutes and 01 seconds in rural areas. The first-arriving unit is capable of: establishing command; providing for the safety of responders; identifying a hazardous material; denying entry; providing the equipment, technical expertise, knowledge, skills and abilities to begin the mitigation of a hazardous materials incident in accordance with department standard operating guidelines.

For 90 percent of all high-risk hazardous materials incidents, the total response time for the first - arriving unit, with a minimum of 2 firefighters is: there were no high-risk hazardous materials incidents during 2019 – 2023. The first-arriving unit is capable of: establishing command; providing for the safety of responders; identifying a hazardous material; denying entry; providing the equipment, technical expertise, knowledge, skills and abilities to begin the mitigation of a hazardous materials incident in accordance with department standard operating guidelines.

For 90 percent of all special-risk hazardous materials incidents, the total response time for the first - arriving unit, with a minimum of 2 firefighters is: there were no special risk hazardous materials incidents during 2019 -2023. The first-arriving unit is capable of: establishing command; providing for the safety of responders; identifying a hazardous

material; denying entry; providing the equipment, technical expertise, knowledge, skills and abilities to begin the mitigation of a hazardous materials incident in accordance with department standard operating guidelines.

Hazardous Materials Services – Effective Response Force Baseline Performance Statements

For 90 percent of all low-risk hazardous materials response incidents, the total response time for the arrival of the ERF, staffed with 2 firefighters is: 7 minutes and 34 seconds in urban areas; and 10 minutes and 52 seconds in the rural areas. The low-risk ERF is capable of; providing for the safety of responders; identifying a hazardous material; denying entry; providing the equipment, technical expertise, knowledge, skills and abilities to mitigate a hazardous materials incident in accordance with department standard operating guidelines.

For 90 percent of all moderate risk hazardous materials response incidents, the total response time for the arrival of the ERF, staffed with 6 firefighters and officers: 11 minutes and 21 seconds in urban areas; and 11 minutes and 32 seconds in rural areas. The moderate risk ERF is capable of; establishing command; providing for the safety of responders; denying entry; conducting an evacuation of occupants; conducting air monitoring; providing medical care; and providing the equipment, technical expertise, knowledge, skills and abilities to mitigate a hazardous materials incident in accordance with department standard operating guidelines.

For 90 percent of all high-risk hazardous materials response incidents, the total response time for the arrival of the ERF, staffed with 15 firefighters and officers is: there were no high-risk hazardous materials incidents that achieved an ERF during 2019-2023. The high-risk ERF is capable of; establishing command; providing for the safety of responders; denying entry; establishing hot, warm, and cold zones; establishing emergency and technical decontamination (if necessary); conducting air monitoring; and providing the equipment, technical expertise, knowledge, skills and abilities to mitigate a hazardous materials incident in accordance with department standard operating guidelines.

For 90 percent of all special risk hazardous materials response incidents, the total response time for the arrival of the ERF, staffed with 25 firefighters and officers including the hazardous materials response team is: there were no special hazardous materials incidents in 2019-2023. The special risk ERF is capable of; establishing command; providing for the safety of responders; denying entry; establishing hot, warm, and cold zones; establishing emergency and technical decontamination; providing fire suppression (if necessary); determining areas for evacuation or shelter in place; and providing the equipment, technical expertise, knowledge, skills and abilities to mitigate a hazardous materials incident in accordance with department standard operating guidelines.

Rescue Services – First - Arriving Unit Baseline Performance Statements

For 90 percent of all low-risk technical rescue incidents, the total response time for the first - arriving unit, with a minimum of 2 firefighters is: 8 minutes and 03 seconds in urban areas; and 09 minutes and 54 seconds in the rural areas. The first-arriving unit is capable of: establishing command; conducting a scene size-up; providing for the safety of responders; calling for additional resources; gaining access to the patient; and providing patient care.

For 90 percent of all moderate-risk technical rescue incidents, the total response time for the first - arriving unit, with a minimum of 2 firefighters is: there were no moderate risk technical rescue incidents in urban areas; and 7 minutes and 29 seconds in the rural areas. The first-arriving unit is capable of: establishing command; conducting a scene size-up; providing for the safety of responders; calling for additional resources; preparing for extrication; and providing patient care (access dependent).

For 90 percent of all high-risk technical rescue incidents, the total response time for the first - arriving unit, with a minimum of 2 firefighters is: there were no high technical rescue incidents for 2019-2023. The first-arriving unit is capable of: establishing command; conducting a scene size-up; providing for the safety of responders; calling for additional resources; preparing for special operations; and providing patient care (access dependent).

Rescue Services - Effective Response Force Performance Statements

For 90 percent of all low-risk technical rescue incidents, the total response time for the arrival of the ERF, staffed with 2 firefighters is: 8 minutes and 11 seconds in urban areas; and 9 minutes and 54 seconds in rural areas. The low-risk ERF is capable of: conducting a scene size-up; providing for the safety of responders; calling for additional resources; gaining access to the patient; and providing patient care.

For 90 percent of all moderate risk technical rescue incidents, the total response time for the arrival of the ERF, staffed with 6 firefighters and officers is: there were not moderate risk technical rescue incidents in urban areas; and 11 minutes and 36 seconds in the rural areas. The moderate risk ERF is capable of: establishing command; conducting a scene size-up; providing for the safety of responders; calling for additional resources; provide vehicle stabilization; conducting patient triage; extricating the patient from the vehicle; removing the patient; and providing patient care both during and after extrication.

For 90 percent of all high-risk technical rescue incidents, the total response time for the arrival of the ERF, staffed with 15 firefighters and officers is: there were no high technical rescue incidents in 2019-2023. The high-risk ERF is capable of: establishing command; conducting a scene size-up; providing for the safety of responders; calling for additional resources; developing an incident action plan; and providing the technical expertise, knowledge, skills, and abilities necessary to complete a technical rescue

G. Compliance Methodology

Compliance Team / Responsibility

The accreditation process places a high level of importance on the evaluation of current operations leading to continuous improvement for the organization. It is, therefore, fundamental to the process of developing a compliance team responsible for ensuring that the standards of cover remains relevant to the dynamic nature of both the city and agency. The compliance team will consist of the accreditation manager, assistant accreditation manager, administrative staff, and response program managers (i.e., fire suppression, EMS, technical rescue, hazmat). This group will be responsible for continuously evaluating previously identified risks, as well as new or potential risks which may impact the agency. In addition, the compliance team will also evaluate baseline performance and provide strategies for meeting benchmark objectives. The standards of cover (SOC) is not a stand-alone document, but also supports, and is supported by,

the self-assessment manual (SAM) which includes an analysis of all programs and department operations. The SOC and SAM review process are linked specifically regarding programs such as suppression, fire prevention, public education, fire investigation, technical rescue, hazardous materials, EMS, and domestic preparedness. In addition, the SAM also requires an annual review of apparatus placement, functions, and equipment all of which are included in the SOC review process. The compliance team will use the review process to ensure that both documents remain current, accurate, and relevant.

The community risk assessment will be ongoing with annual updates on progress provided to stakeholders. The process will examine any changes to previously identified risks found during annual fire inspections, preplanning, call volume trending, and emergency preparedness activities. In addition, new or forecasted risks will be identified through planning/zoning updates, plan reviews, and long-term planning tools such as the city's 2030 plan. Changes in the community risks and hazards will be examined to determine the agency impact and the response necessary to mitigate incidents that may occur at each risk. The compliance team will continue to utilize the probability/consequence model to appropriately categorize risks.

Members of the compliance team will also have the responsibility of evaluating the baseline performance objectives and overall system performance. Included in the review will be a summary of results of the service level objectives, a comparison of current results to previous results and calculations of the difference in results between time periods. To aid in the collection and presentation of this information, the compliance team works as a group to assemble all required information and assist the administrative staff in the interpretation of data and considerations for improvement towards achieving benchmark objectives.

Emergency Response Categories

During the review process, each of the major response categories will be evaluated by the compliance team. Baseline performance evaluation for each response category will include: alarm handling time, turnout time, first-arriving travel time, first-arriving total response time, effective response force (ERF) travel time, and ERF total response time. In addition, critical tasks for each response category will be evaluated to ensure consistency, effectiveness, and relevance to the assigned risk category. Critical task evaluation will include incident analysis and training evolutions which will provide the best indicator for efficiency and effectiveness involving task completion.

Fire Suppression

The compliance team will monitor baseline performance for fire suppression emergencies. In addition to the baseline performance measures, the agency will also evaluate the fire risk categories and ensure that risks are appropriately matched with the level they have been assigned. To further enhance risk versus response, fire suppression critical tasks should also be evaluated. This will be especially important in the high/special risk category which was developed as part of the standards of cover process. This risk level includes the need for mutual/automatic aid and will need frequent evaluation to ensure that the critical tasks meet the risk level and that the ERF total response times are within the agency defined parameters. Another portion of the fire suppression evaluation will include physical resources as well as critical resource delivery systems such as water supply. As the agency continues to become more sophisticated in data analysis and its ability to match resources to risk level demands, the

benefits of monitoring system performance will continue to aid in the recognition of performance gaps and opportunities for improvement.

Emergency Medical Service

EMS represents the most frequent service request and places the highest demand on department resources. The compliance team will continually monitor EMS responses for baseline performance as well as the impact upon distribution and concentration of resources. As part of the ongoing review process, critical tasks as well as risks will be evaluated to ensure adequate staffing is available to meet response needs. The agency will also continue to monitor documentation procedures, skill competency, and certification compliance to ensure personnel are prepared to provide the expected level of service.

Hazardous Materials Response

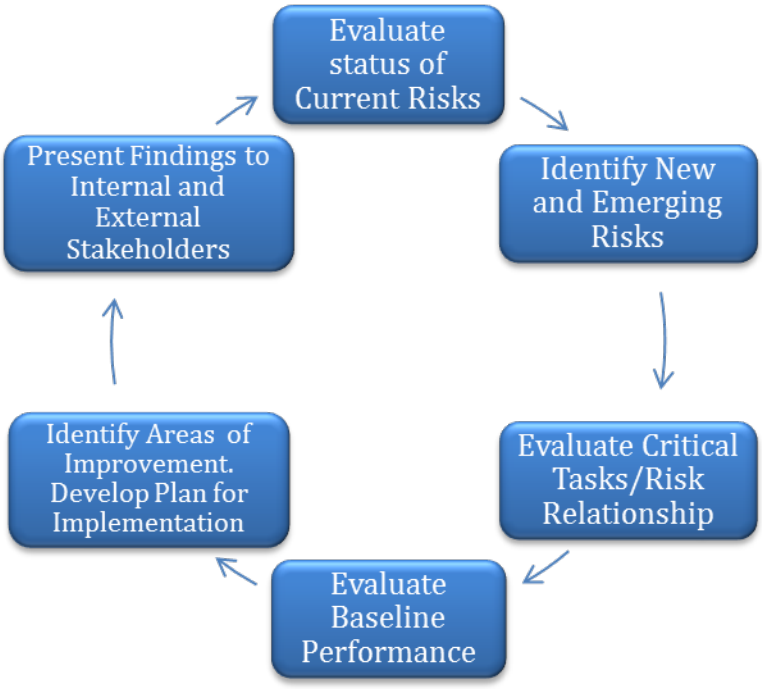
Hazmat response will be monitored to ensure that responses to hazardous materials incidents are within the baseline performance objectives adopted by the agency. A critical component of an effective hazmat response plan is risk identification. Through the standards of cover process, the agency has both identified and classified the risks related to hazardous materials. These risks will be evaluated annually for any changes which may impact response or critical tasking needs. In addition, the agency will continue to monitor personnel competency through annual in-service training, hazardous materials response team exercises, and full-scale exercises.

Technical Rescue Response

Baseline performance measures will be monitored to ensure compliance with the objectives adopted by the agency. Technical rescue represents a wide variety of service needs including: vehicle extrication, water rescue, trench rescue, confined space rescue, and structural collapse. While each of the disciplines fall under the umbrella of technical rescue, they each have unique risks and response needs. The standards of cover process have enabled the agency to identify the risk in each discipline and develop critical tasking charts to ensure department staff can complete the tasks necessary to mitigate an incident. The compliance team will review identified risks for technical rescue to ensure that department resources maintain response readiness for each discipline.

Emergency Management

In addition to the four core response areas, emergency management and planning will also be evaluated and updated appropriately. Emergency management planning can include any or all of the major response categories for large scale events. Incidents that may require the need for emergency management include, but are not limited to, weather events, domestic preparedness, large-scale hazardous materials release, or mass casualty incidents. A city-wide emergency operations plan (EOP) has been developed and will be evaluated on an annual basis as part of the SOC process. The evaluation should include frequency of EOP training, evaluation of resource needs and availability, identification of new or potential risks, and implementation of the National Incident Management (NIMS) standards during large scale incidents. Furthermore, the agency will continue to evaluate and train with other departments within the city as well as mutual-aid partners that may be needed to fully implement the EOP.



Compliance Evaluation Cycle

Evaluation Timeline

The timeframe outlined below represents a calendar year review process. The timeframe for the Standards of Cover review process has been designed to include this data and allow sufficient opportunities for a thorough review.

SOC Evaluation Timeline

Tasks
Review Current Risks – During this time officers should update any changes to inspections. Ensure all data (i.e. fire alarm, fire suppression systems) are entered correctly into Fire RMS. **Identify New and Emerging Risks** – The compliance team, as well as company officers, will be responsible for assessing new risks in the community. **Physical Resource Evaluation** – The compliance team will review current physical resource allocation, deployment issues, and future needs.
Critical Task Analysis – Analyze current critical tasks in each response category. Update where needed. **Analyze Risk Classifications**- Update or change risk classifications where needed. **Analyze Response for each Risk Classification** – Is the agency providing the appropriate number of resources to risks in each category? Update company officers on risk/critical tasks analysis. This will include any training updates or changes that need to be made as the result of the critical task evaluation.
Provide update to company officers regarding baseline performance measure expectations and benchmark objectives Evaluate Baseline Performance of Fiscal Year Evaluate Distribution, Concentration, Reliability, Comparability
Update department members on actual baseline performance, concentration, and reliability. Discuss areas for improvement needs Seek input for improvement from company officers and line personnel. Develop Goals for new calendar year Provide stakeholders with updated data and improvement goals

Summary

The goal of becoming an accredited agency is rooted in a desire for self-improvement and the pursuit of excellence. As part of this process, the development of a method for maintaining compliance is critical to ensuring the agency continuously improves. The review methodology has been designed to encompass all areas of the SOC and the portions of the SAM that require an annual review. As a cyclical review process, the agency will revisit all these areas each year which will build in a redundancy factor for review and compliance. As the agency continues to improve, the role of compliance and review will be fundamental in ensuring that the agency progresses towards excellence.

H. Overall Evaluation and Conclusion Recommendations

Evaluation Methodology and Determinations

Evaluation Methodology

The SOC process consisted of multiple evaluations including: community demographics, risk analysis, population density, critical task analysis, baseline performance, and system performance (distribution, concentration, reliability, and availability). All these components were used to develop both baseline and benchmark performance objectives. This process is part of the final decision-making framework consisting of four levels of review: technical, operational, financial, and policy.

Technical Level: This level includes who, what, when, where, why, how, how well, and the expectations of analysis. This began in the early stages of the SOC process and will continue to be used as the SOC is updated and areas of improvement are identified.

Operational Level: At this level, the agency seeks to determine the feasibility of field operations for newly identified levels of improvement or change. Furthermore, this level seeks to identify organizational support, agency impact, training and operational guideline needs, effects upon organizational functions, and realistic implementation based upon historical response. In other words, do the stakeholders benefit from changes or perceived improvements that were developed at the technical level?

Financial Level: A cost/benefit analysis is conducted for changes to response or agency resources. This analysis includes short and long-term financial impacts as well as financial sustainability.

Policy Level: The policy level plays a critical role in final decision making. This level includes multiple areas of review including: relevance to the organizational mission and values, how the proposed change will affect the current level of service, impact of growth and development, community demographic needs, and which alternatives can be eliminated due to potential negative impacts. After each of these areas of review has been completed, the decision makers are better prepared to draw an informed conclusion.

The SOC process provides critical information used at all levels within the decision-making framework. The data and information gathered from the SOC document will continue to play a pivotal role in agency response, community risk analysis, and the identification of methodologies for performance improvement.

Evaluation and Performance Determinations

The evaluation of the standards of cover components has resulted in a broader understanding of community risks and the response required for mitigating the hazards associated with each risk. During the analysis, the agency was able to categorize risks for each response category and connect each of those risks with appropriate critical tasking and resource response. The community risk assessment also identified areas where additional resources may be needed, or where a reduction in resource commitment may be practical, depending upon the critical tasks involved. The agency possessed an awareness of risk and resource needs prior to the SOC, however the SOC development process provided a more practical, in-depth, and defensible analysis and organization of specific risk types.

Deployment performance was also analyzed as part of the process. Areas of measurement included: call processing, turnout time (first arriving/ effective response force (ERF)), travel time (first arriving/ ERF), and total response time (first arriving/ ERF). As with the previous Standards of Cover, the agency will continue to work towards improving both call processing and turnout time performance. The agency continues to see improvements in the call processing performance measurement and will work toward continuing this improvement in the future. Interaction with the ECC has enhanced the agency's access to communications processes and has enabled the agency to spearhead improvements including a heightened awareness of call processing times, greater dispatcher understanding of fire department response procedures, and enhanced quality assurance. For turnout time improvements, the agency has installed turnout time clocks in each station bay. These clocks increase awareness in hopes of improving response time for line personnel.

The SOC process also allowed the agency to gather and display data on GIS maps, therefore creating an improved awareness of incident locations and travel time expectations. While developing the SOC, the agency separated areas of the city based upon population density into suburban and rural response zones. Incident location and priority travel time data has provided the necessary information needed to ensure that areas with high levels of service demand are receiving an appropriate response based upon call frequency and risk assessment. In addition, this information also shows areas that should expect prolonged travel times due to location or limited access. Analysis will continue regarding service demand, incident location, and travel time to make certain the agency provides the expected level of service to all members of the community.

Conclusions

The standards of cover, community risk assessment, and self-assessment processes have provided the agency with an abundance of data and statistical information necessary to develop methods for continuous improvement. Through detailed analysis, which includes both quantitative and qualitative results, the department is now better equipped to identify areas for immediate improvement and recognize issues that may require consideration in the future. Areas of risk identification, performance measurement, performance outcomes, and planning all have improvement potential. Below is a list of recommendations that have been identified as the result of completing the standards of cover.

Recommendations

Performance Measurement

1. The agency should continue to utilize monthly data analysis and consider a broader data assessment quarterly that examines the deeper trends and better identifies areas for improvement.
2. The agency should do a better job of communicating the findings from data analysis for the whole department. Developing a better awareness of performance and ways to improve would help members better understand the process.
3. With increased staffing, the department needs to review auto-aid dependency and review the response process for high-risk structure fires.
4. The agency should review data from planning zones more frequently.

Risk Analysis/Critical Tasks

The agency should monitor the continued development of large home subdivisions throughout the city. Additionally, a review of critical tasks based on enhanced staffing should be evaluated as new personnel are added.

Performance Outcomes

The agency completed a response data analysis for 2019-2023. This process resulted in data for call processing, turnout time, travel time first unit, travel time ERF, total response time first unit, and total response time ERF. As part of this analysis, the agency set both baseline (current performance) and benchmark objectives (future goals) necessary to facilitate continuous improvements. Benchmark objectives were developed by balancing national standards, baseline results, and achievable goals. The recommendations below outline the areas which have been identified as areas of needed improvement.

1. The agency should continue to work with the ECC Supervisor to improve the call processing time.
2. The agency should continue to work towards improving turnout times for all response categories.
3. The agency should monitor call volume and response performance for each planning zone more frequently.

I. Exhibits

Exhibit A City of Brentwood Zoning Map

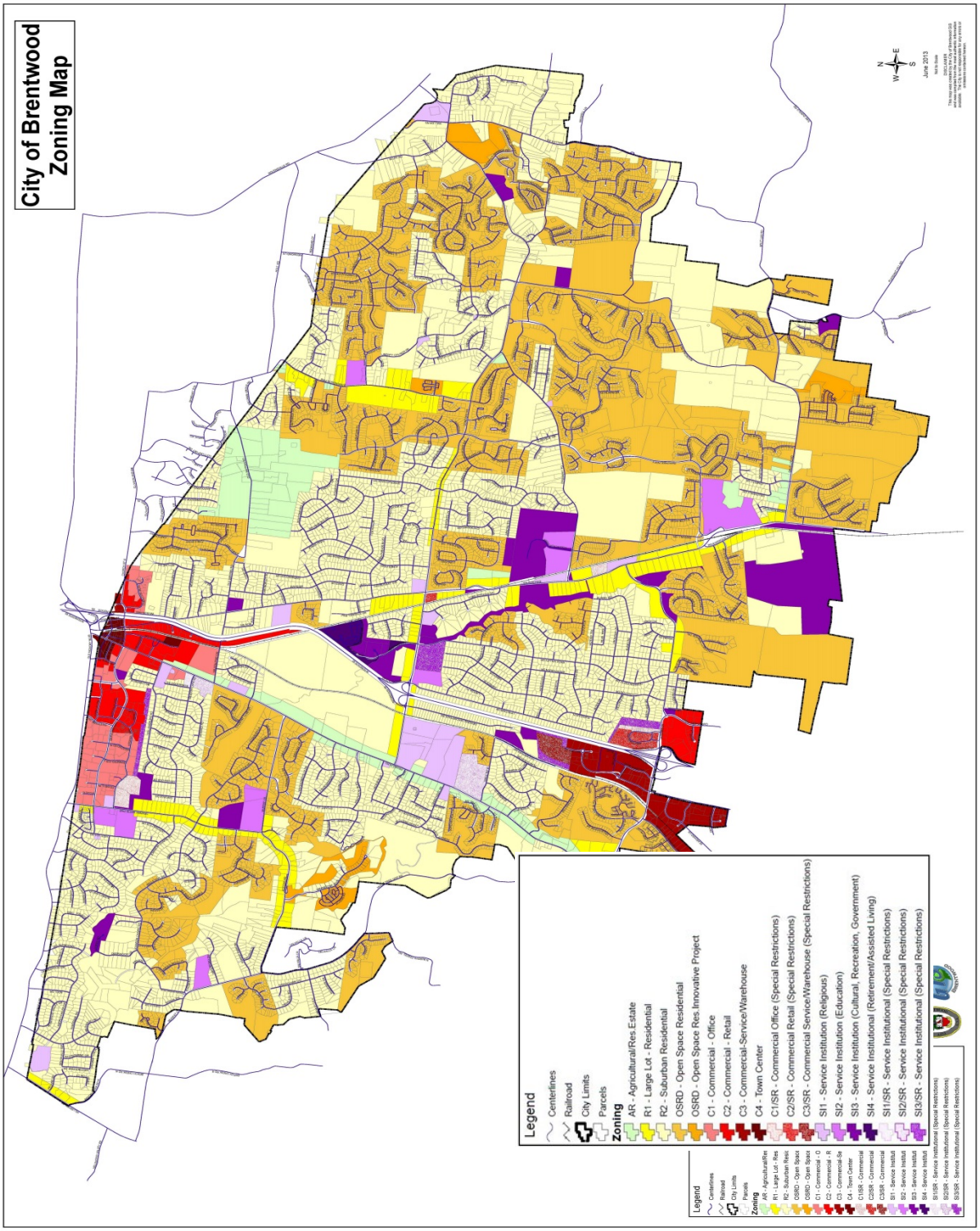


Exhibit B City of Brentwood Water Mains, Surface Water, and Hillside Protection

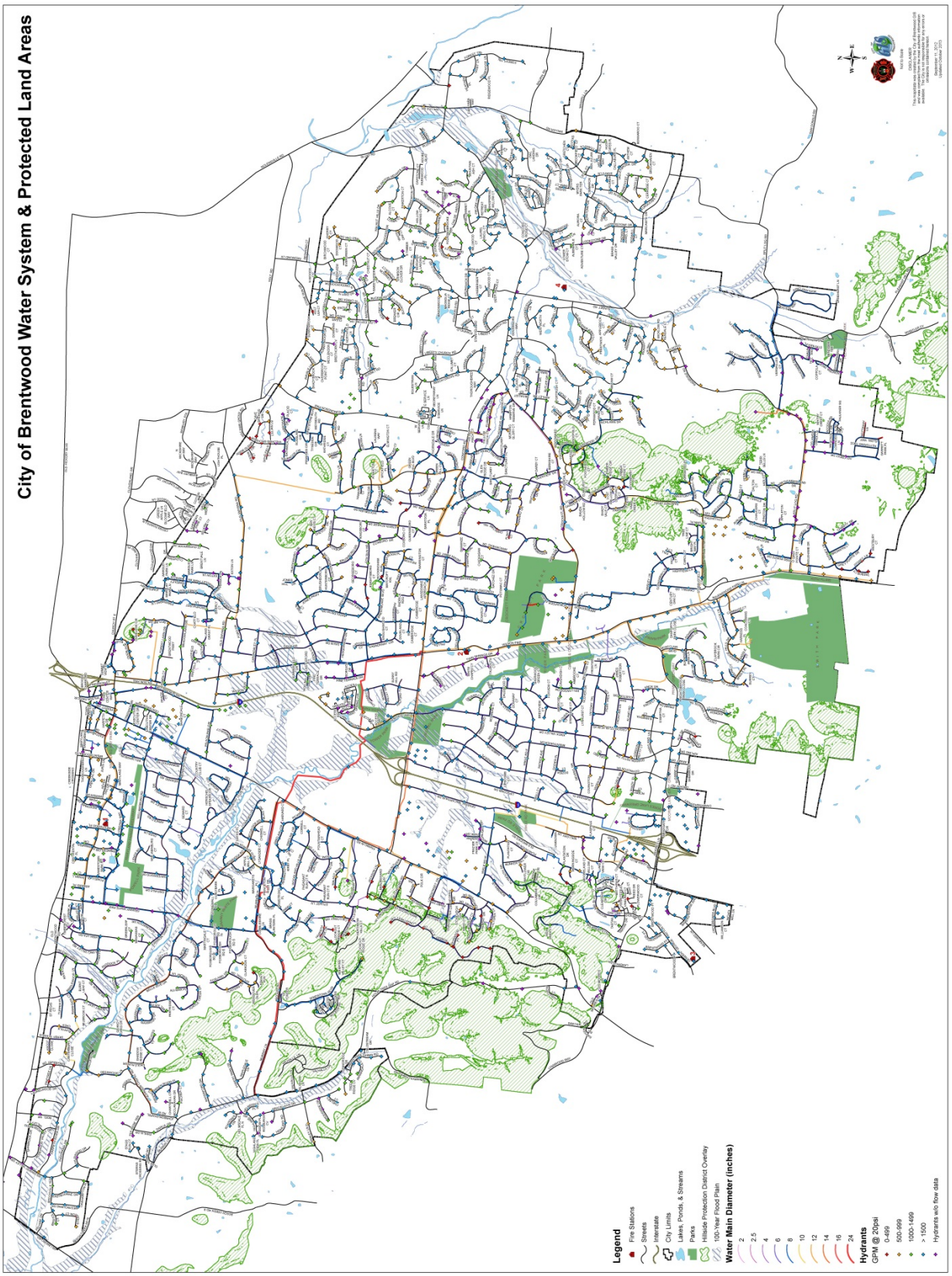


Exhibit C City of Brentwood Utility Districts

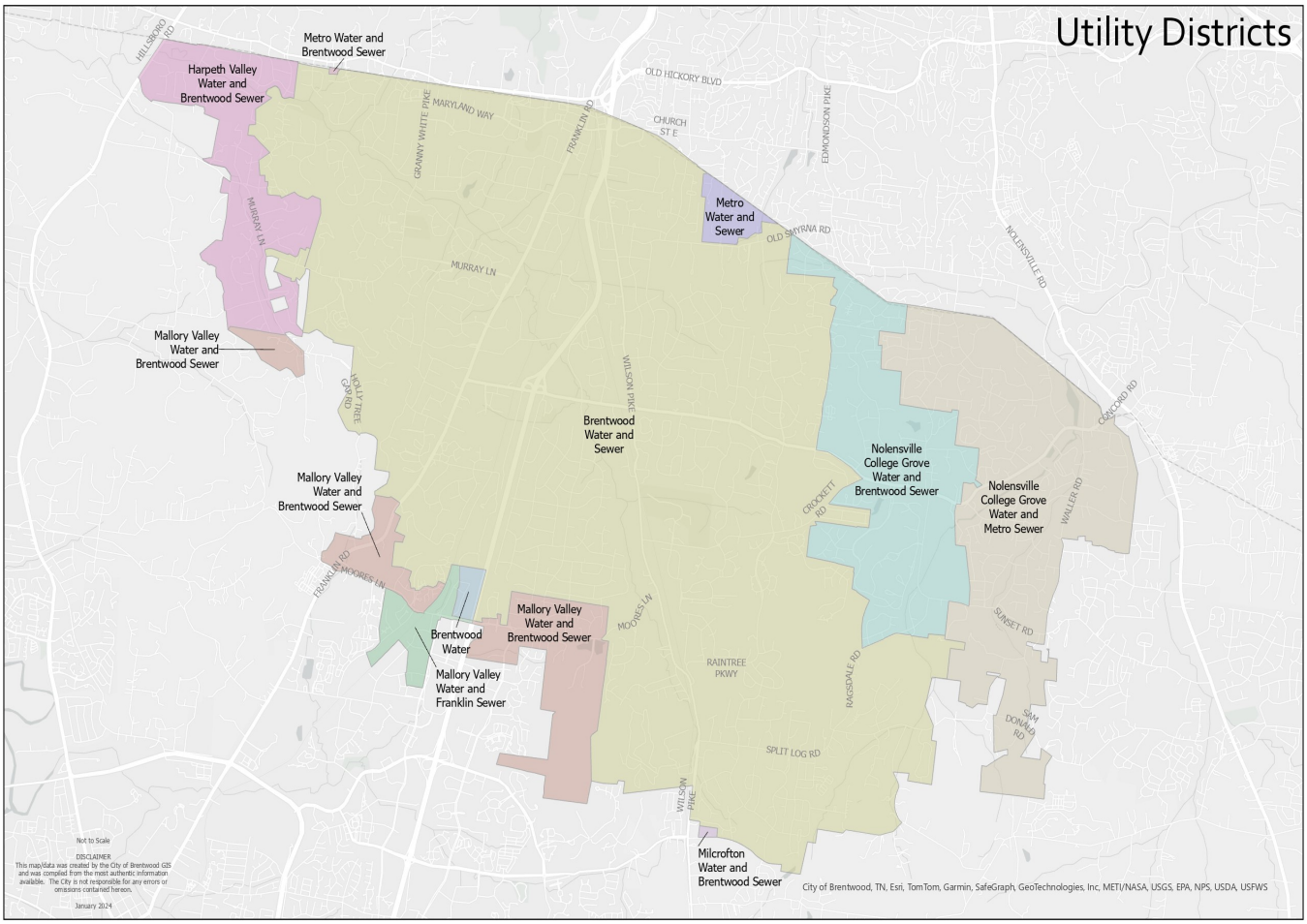


Exhibit D City of Brentwood Automatic Aid Zones Map

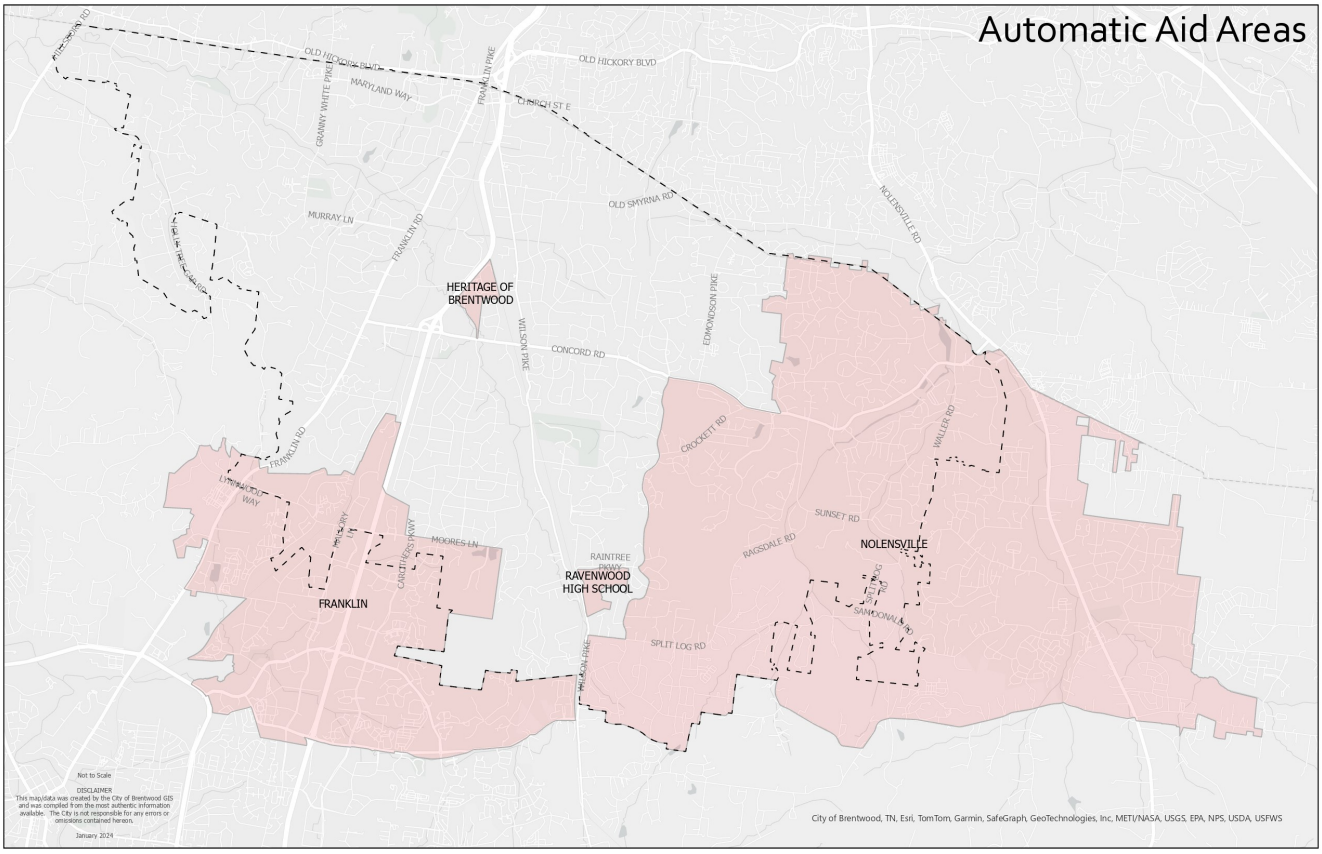


Exhibit E City of Brentwood Five-Year Historical Response - Fire

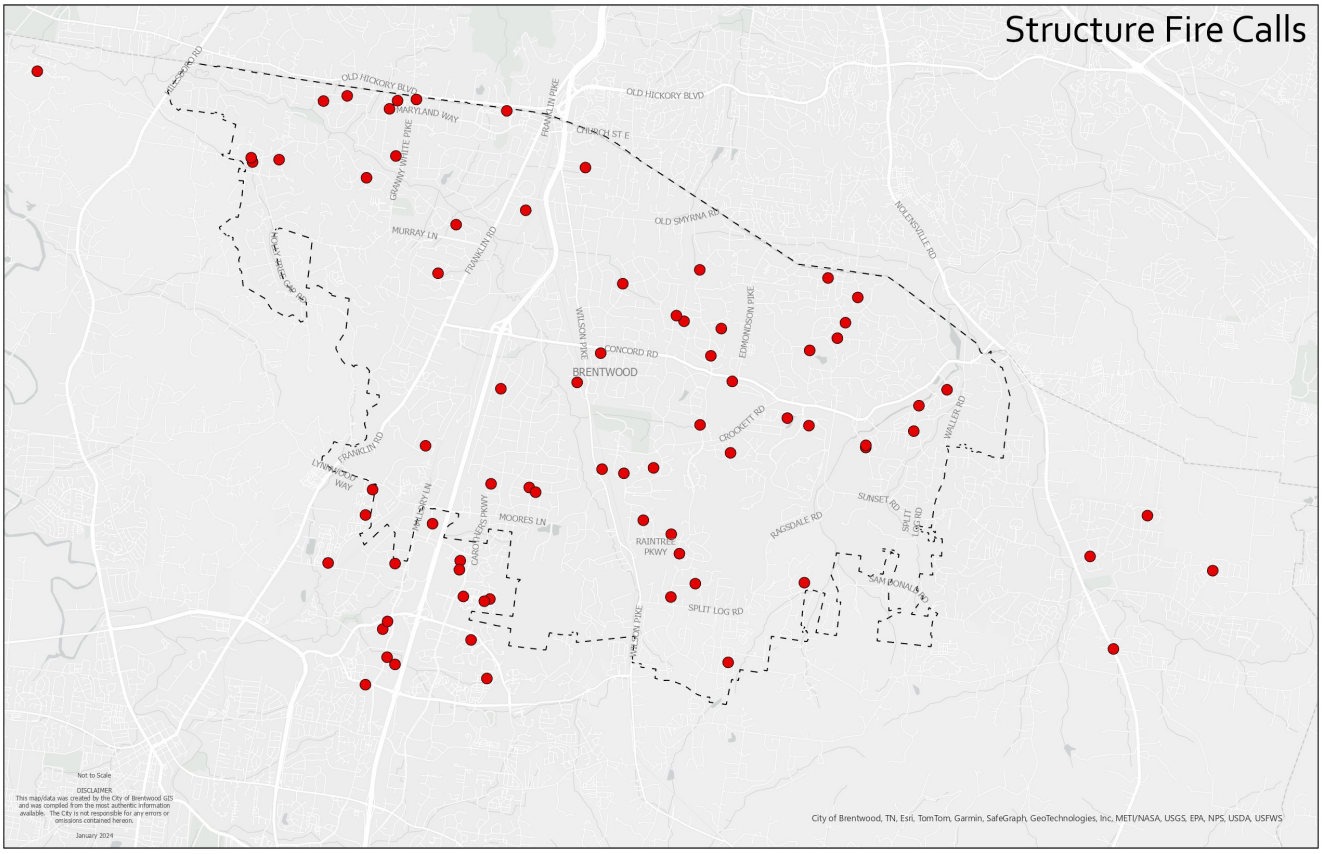


Exhibit F City of Brentwood Five-Year Historical Response - EMS

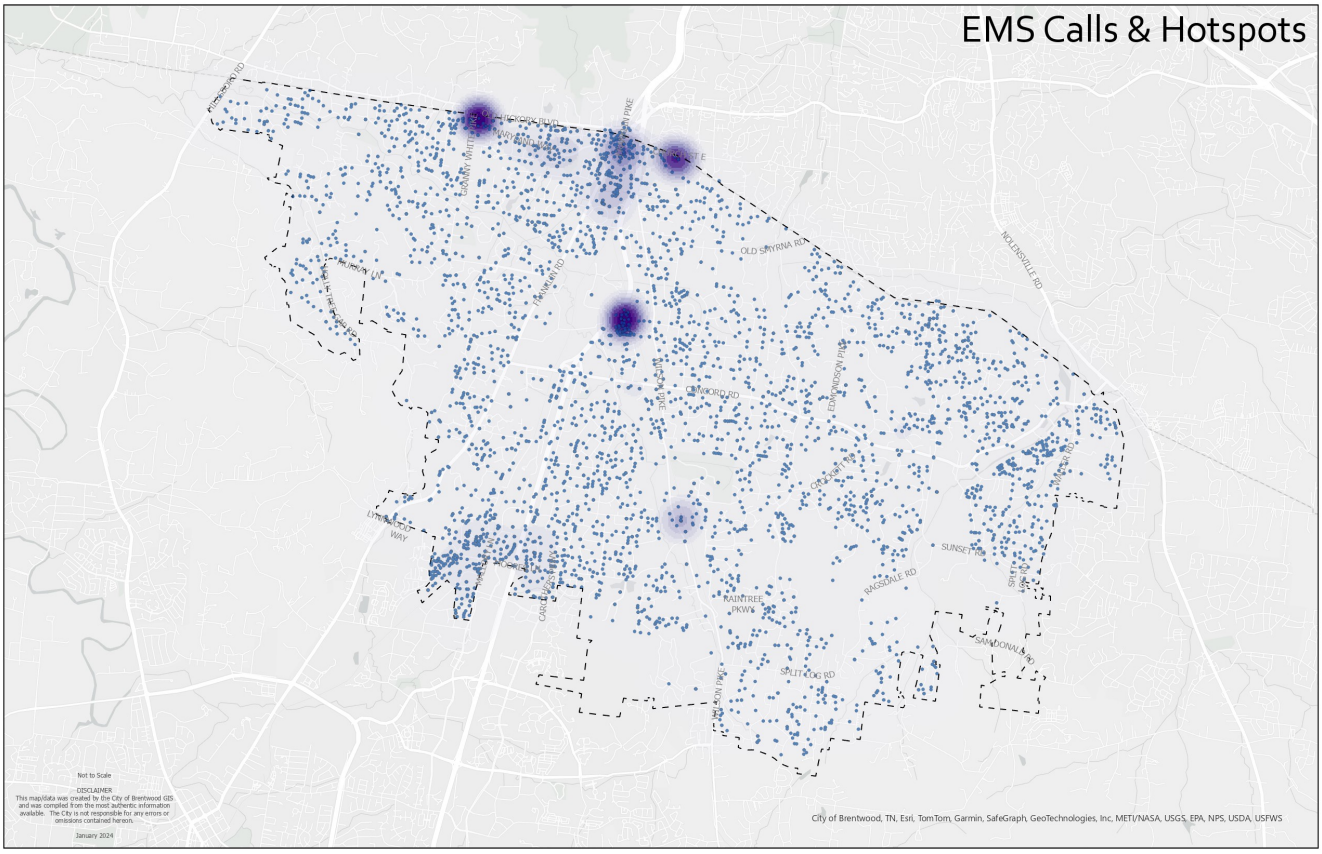


Exhibit G City of Brentwood Five-Year Historical Response - Hazardous Materials

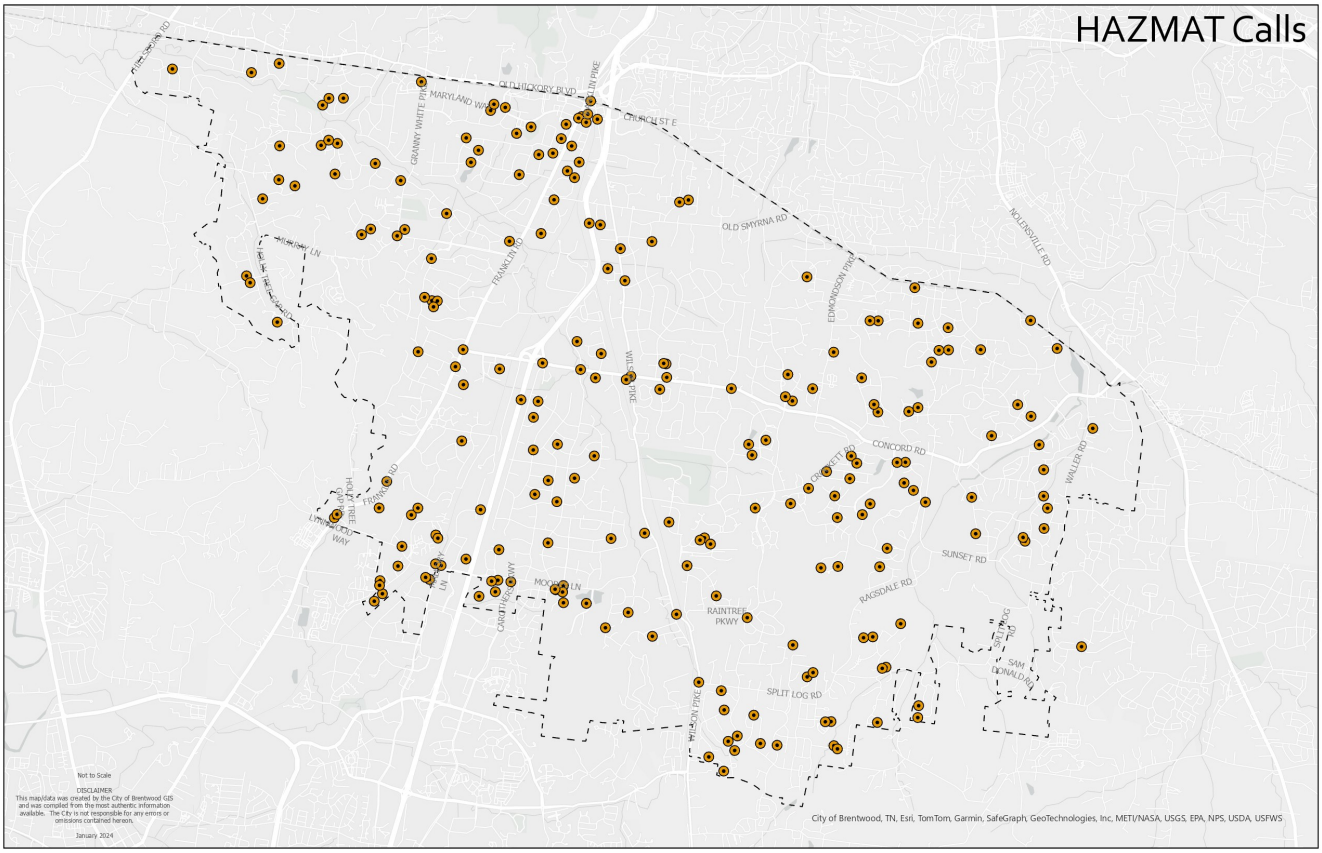


Exhibit H City of Brentwood Five-Year Historical Response - Technical Rescue

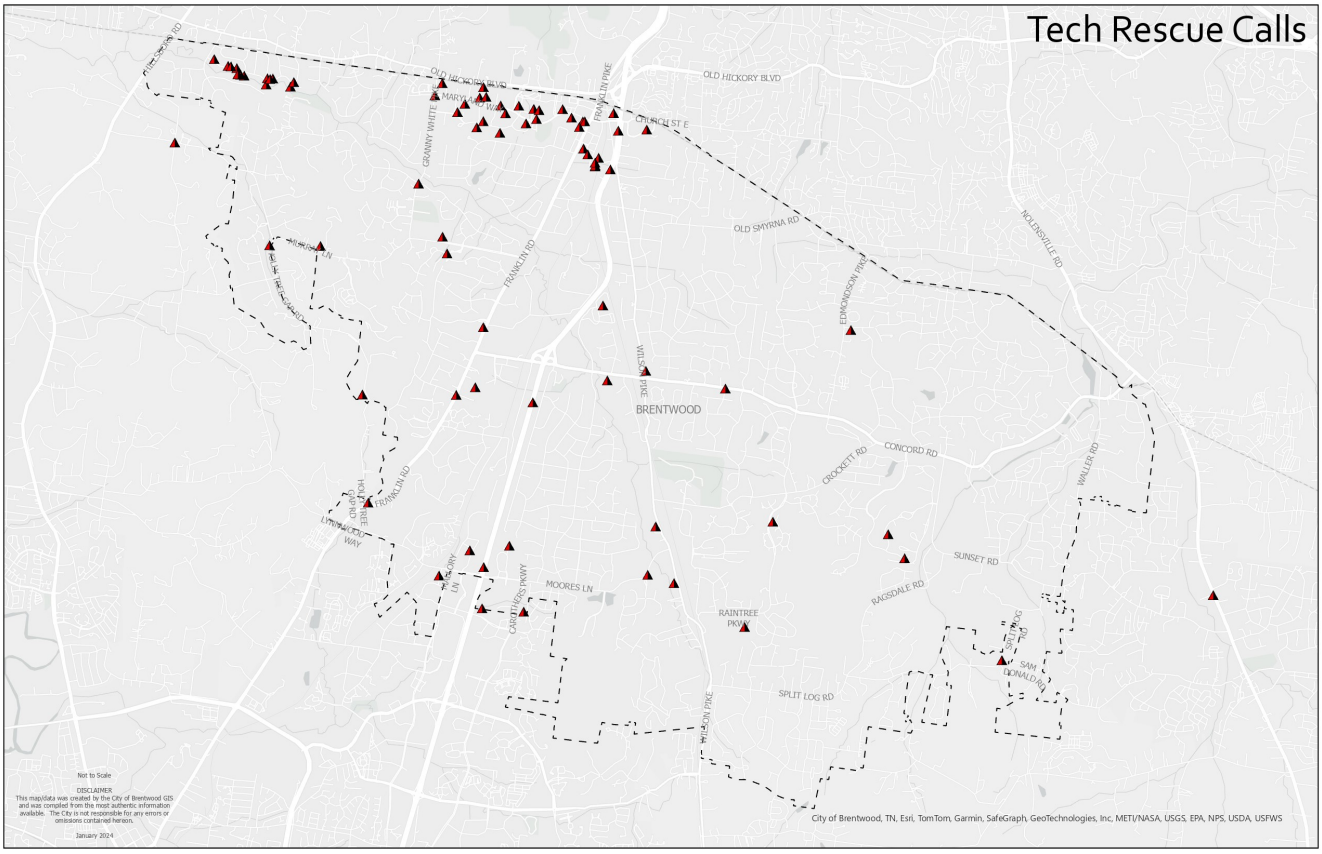


Exhibit I Interstate 65 and CSX Rail Lines

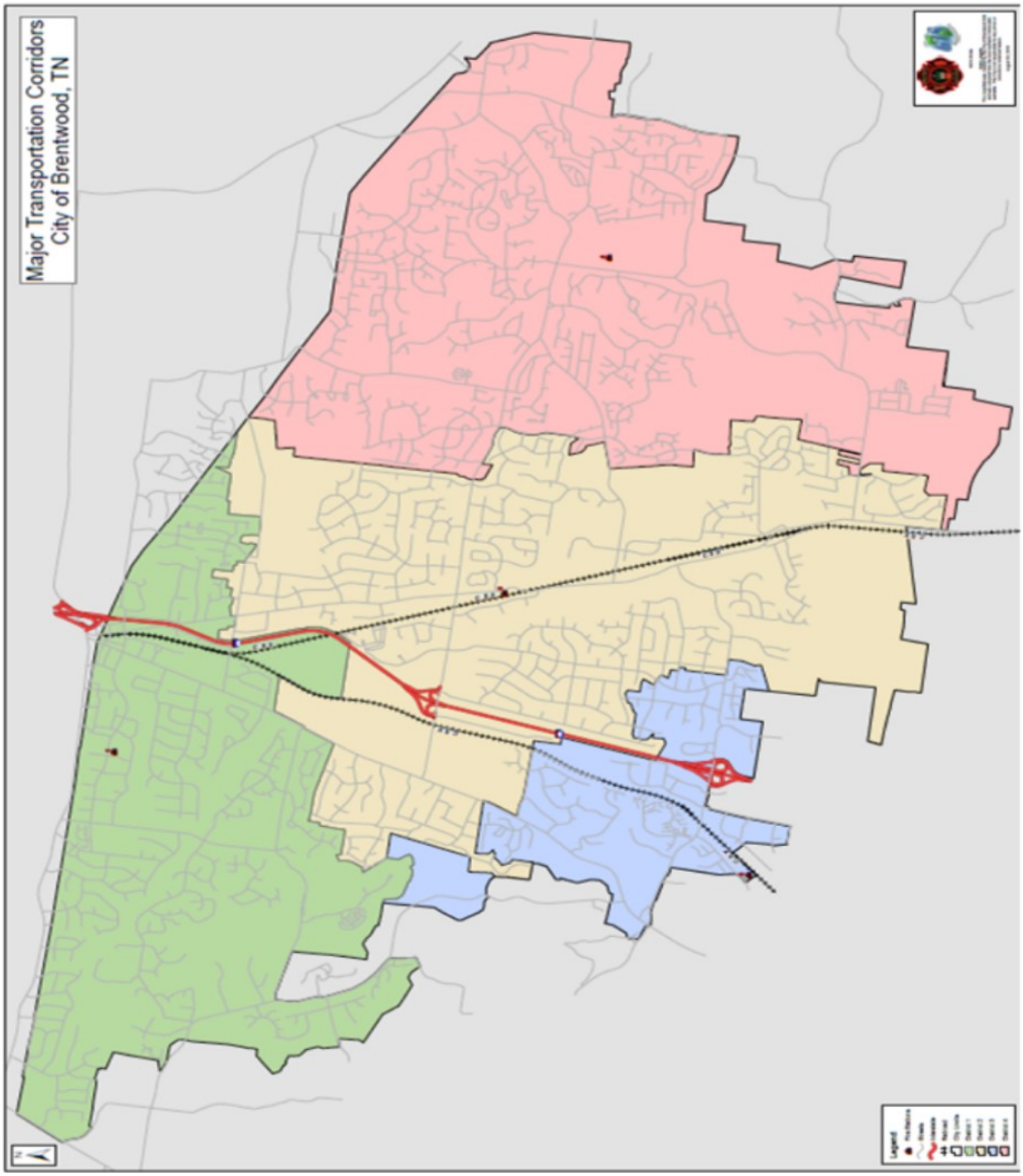


Exhibit J Hillside Protection Areas

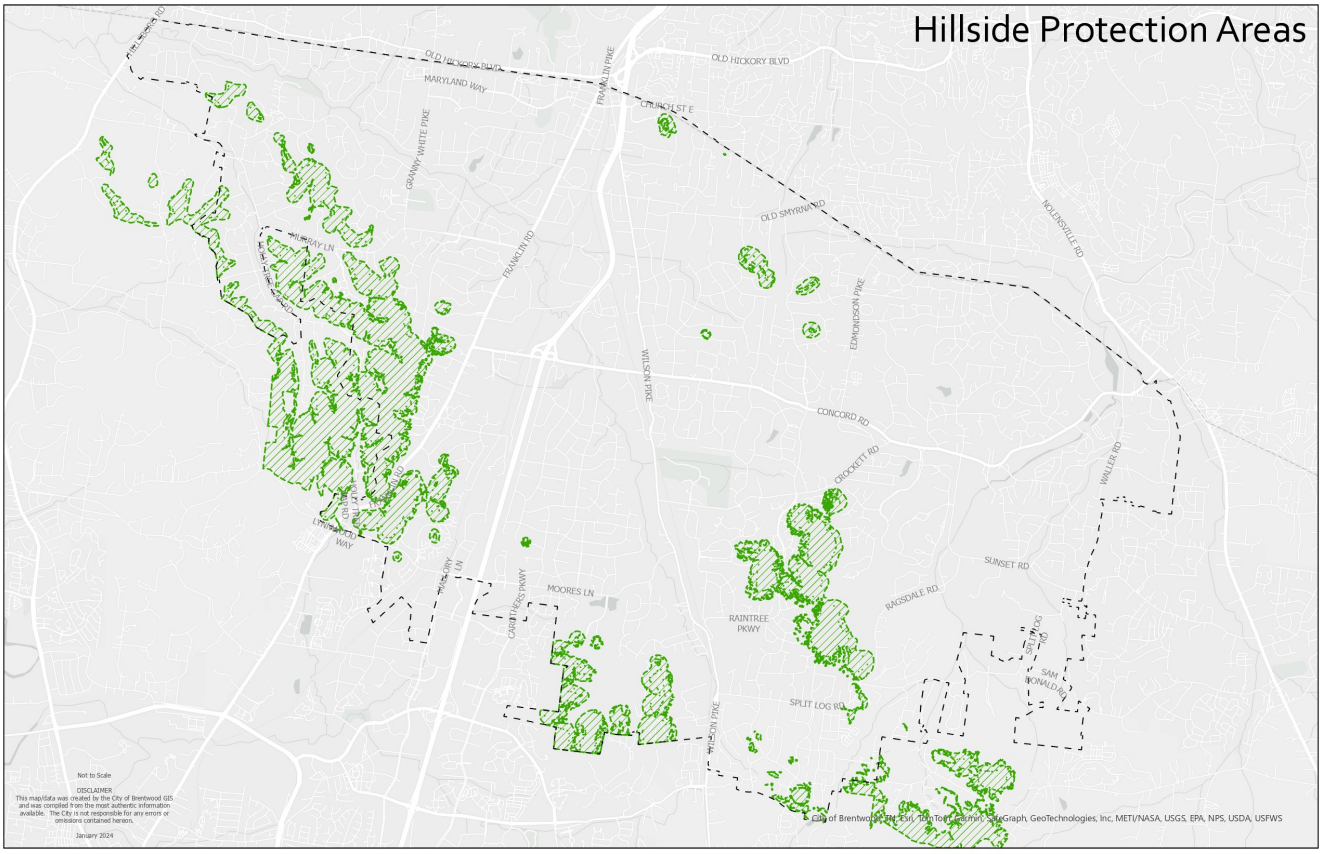


Exhibit K Flood Plains

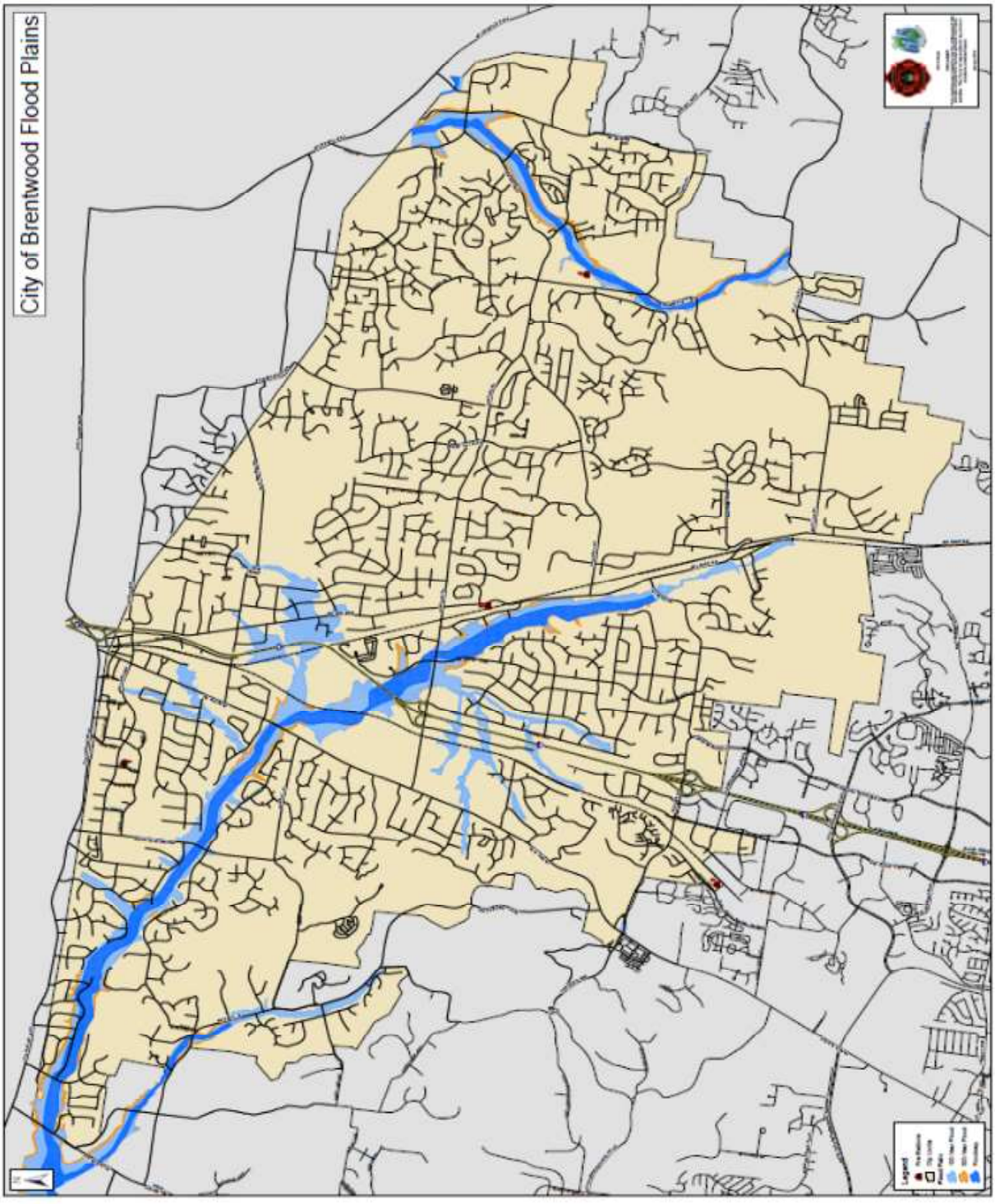


Exhibit L Per Square Mile Population Density Map

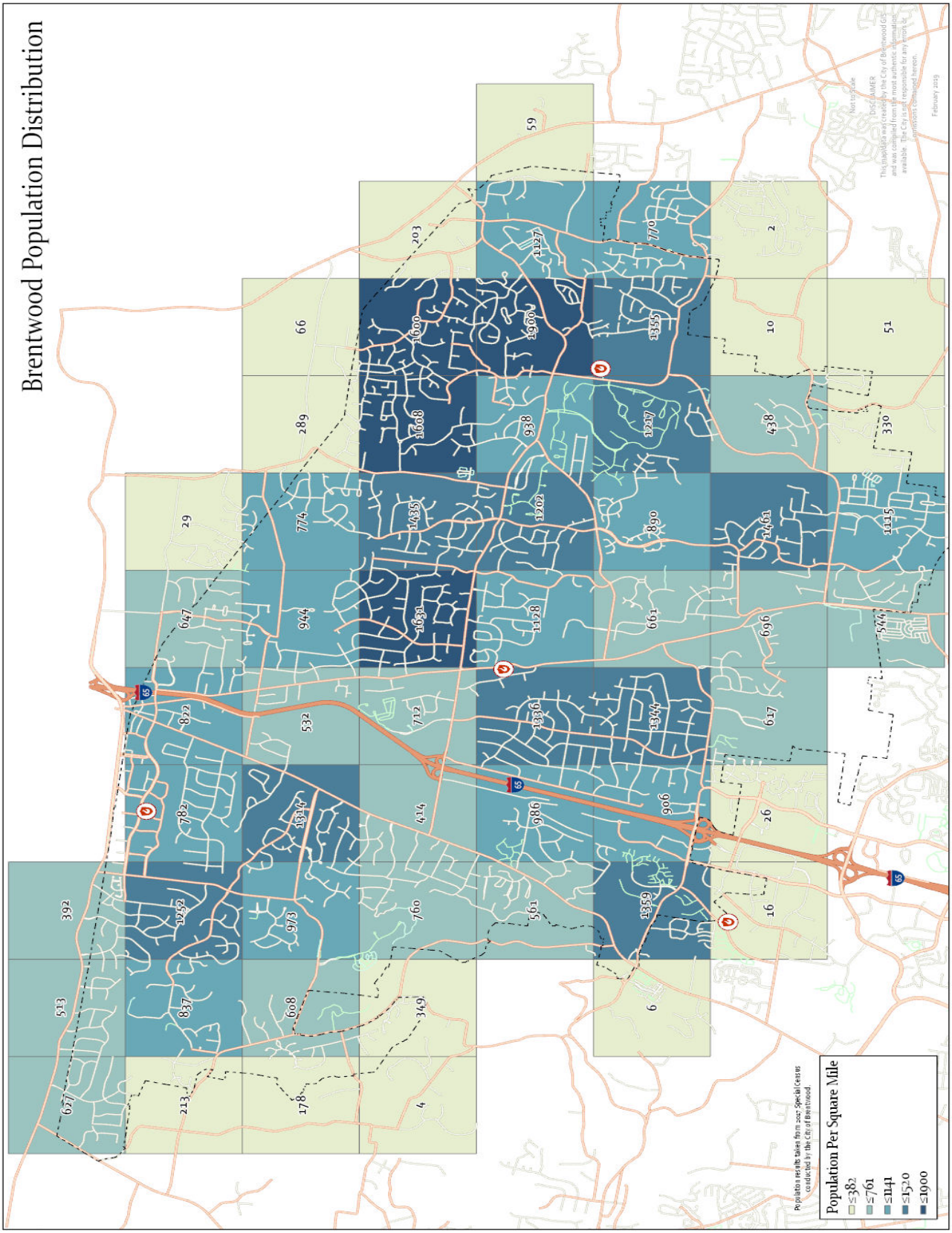


Exhibit M Suburban Response Zones

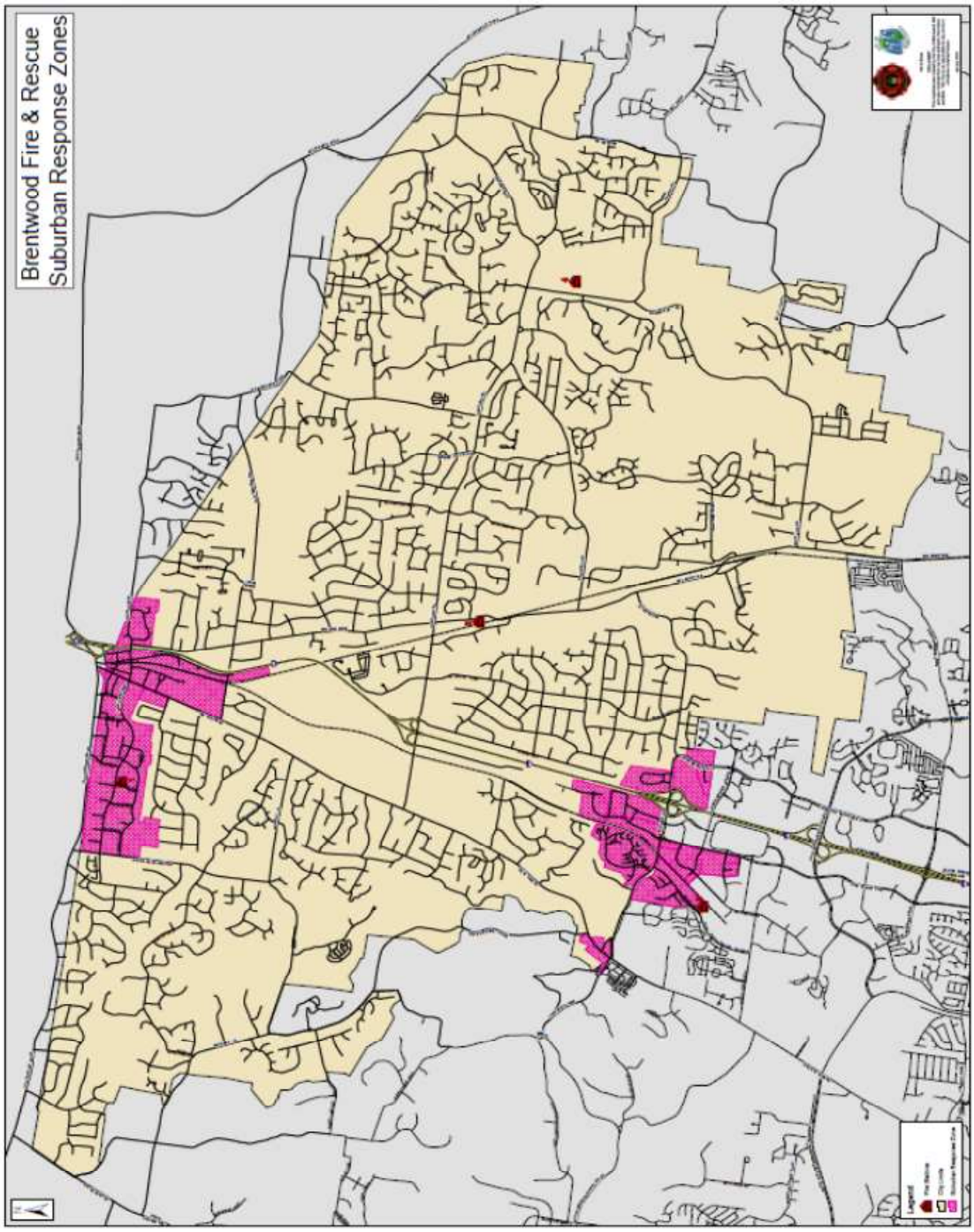


Exhibit N Priority Response Travel Time Map

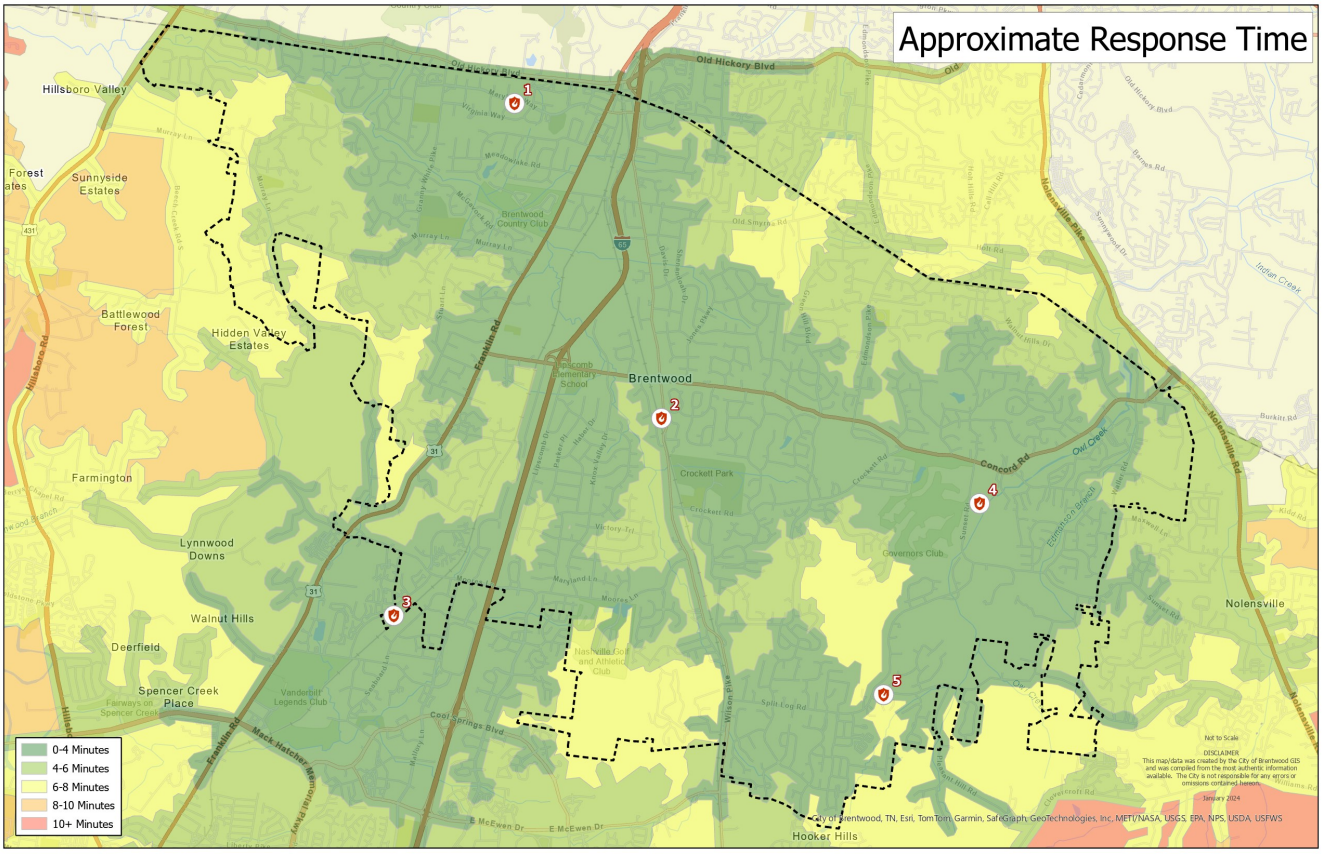
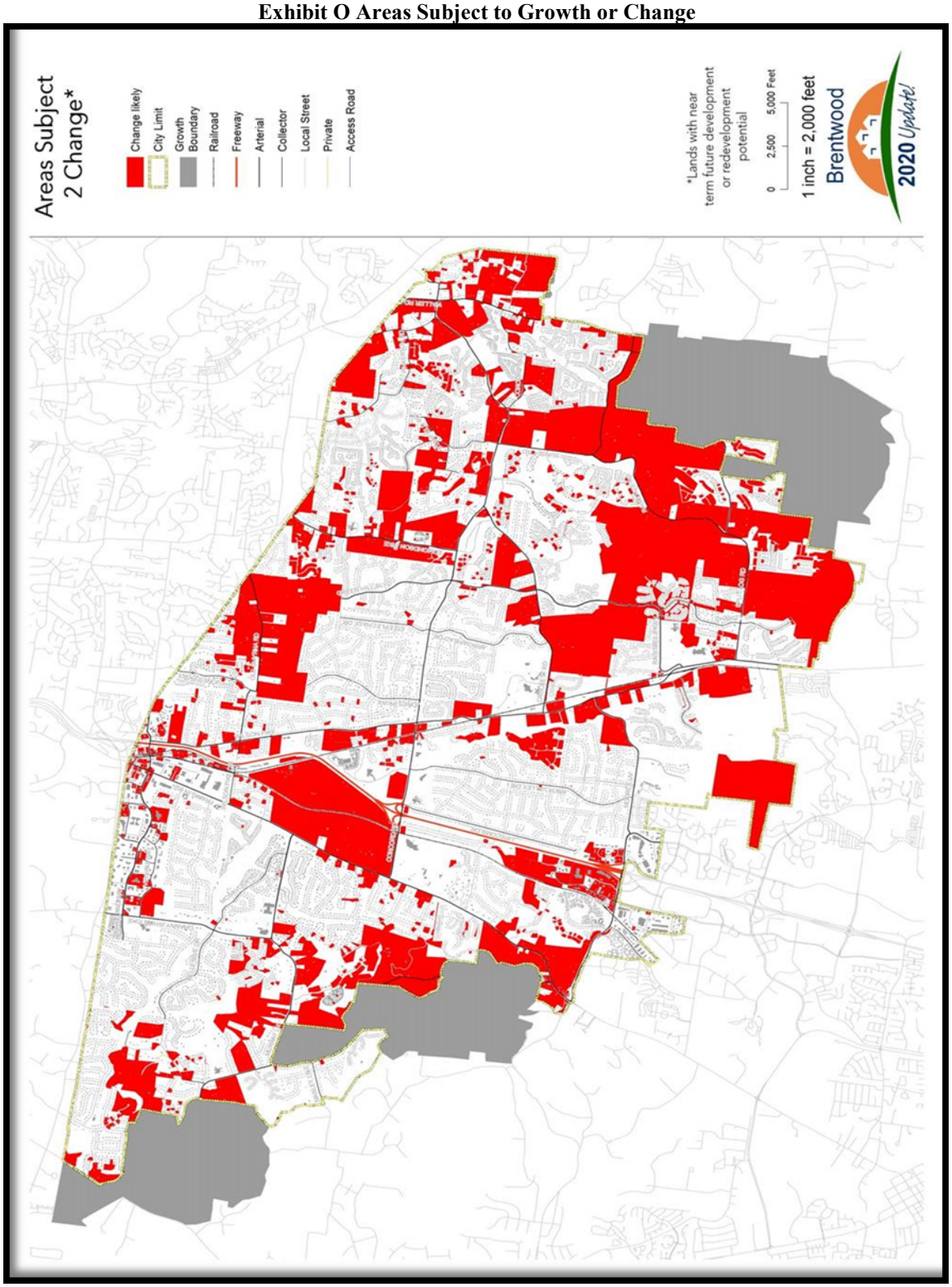
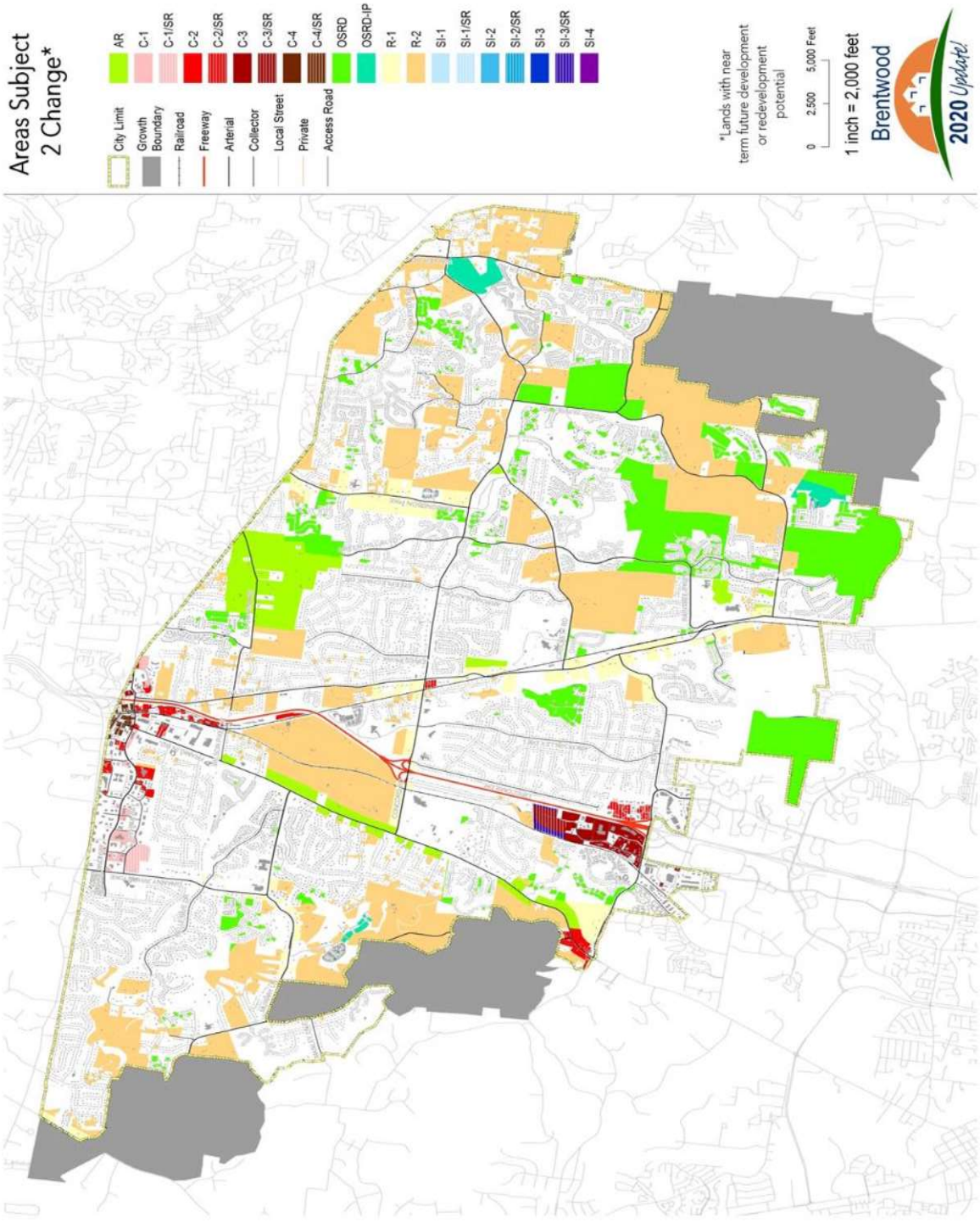
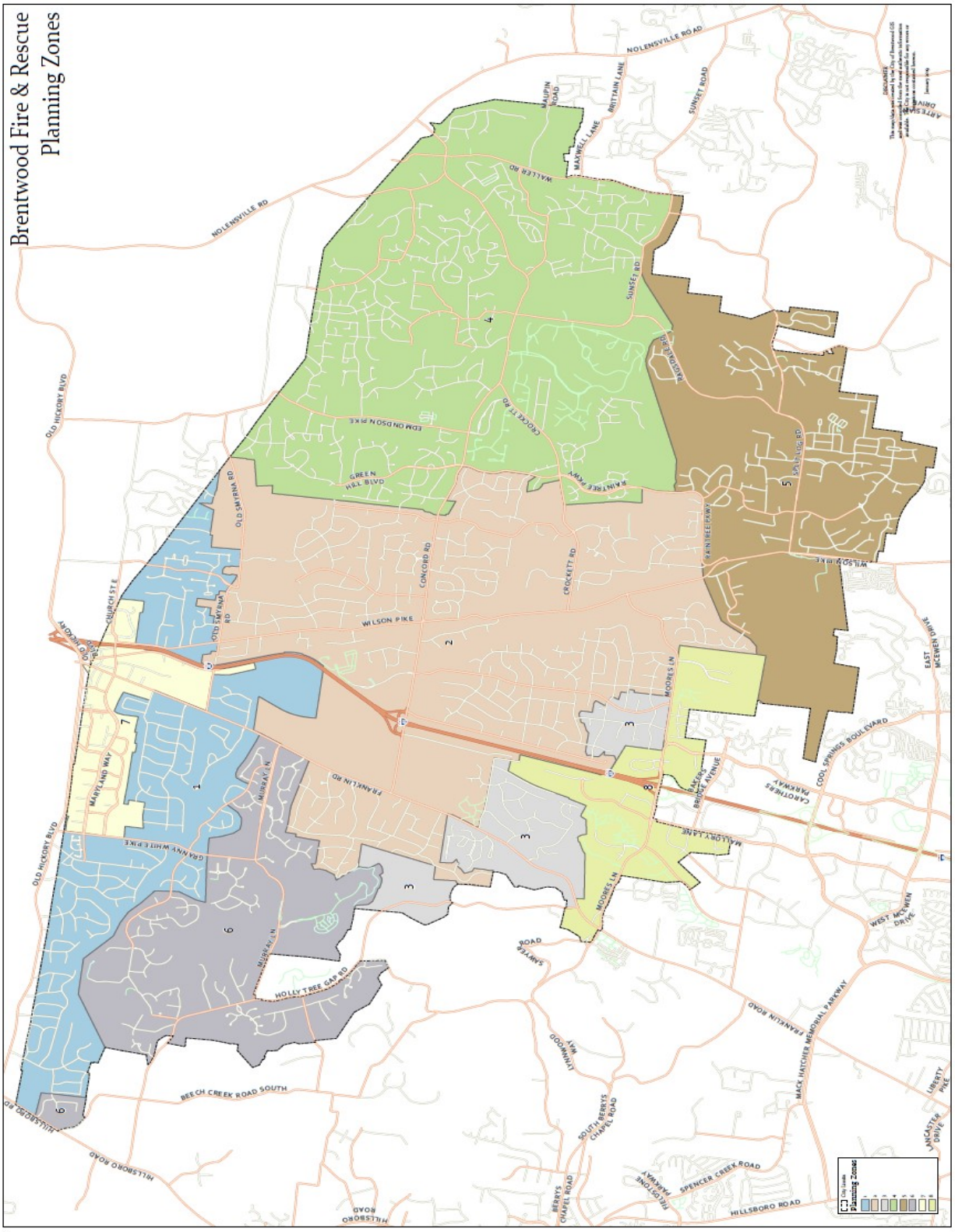


Exhibit O Areas Subject to Growth or Change

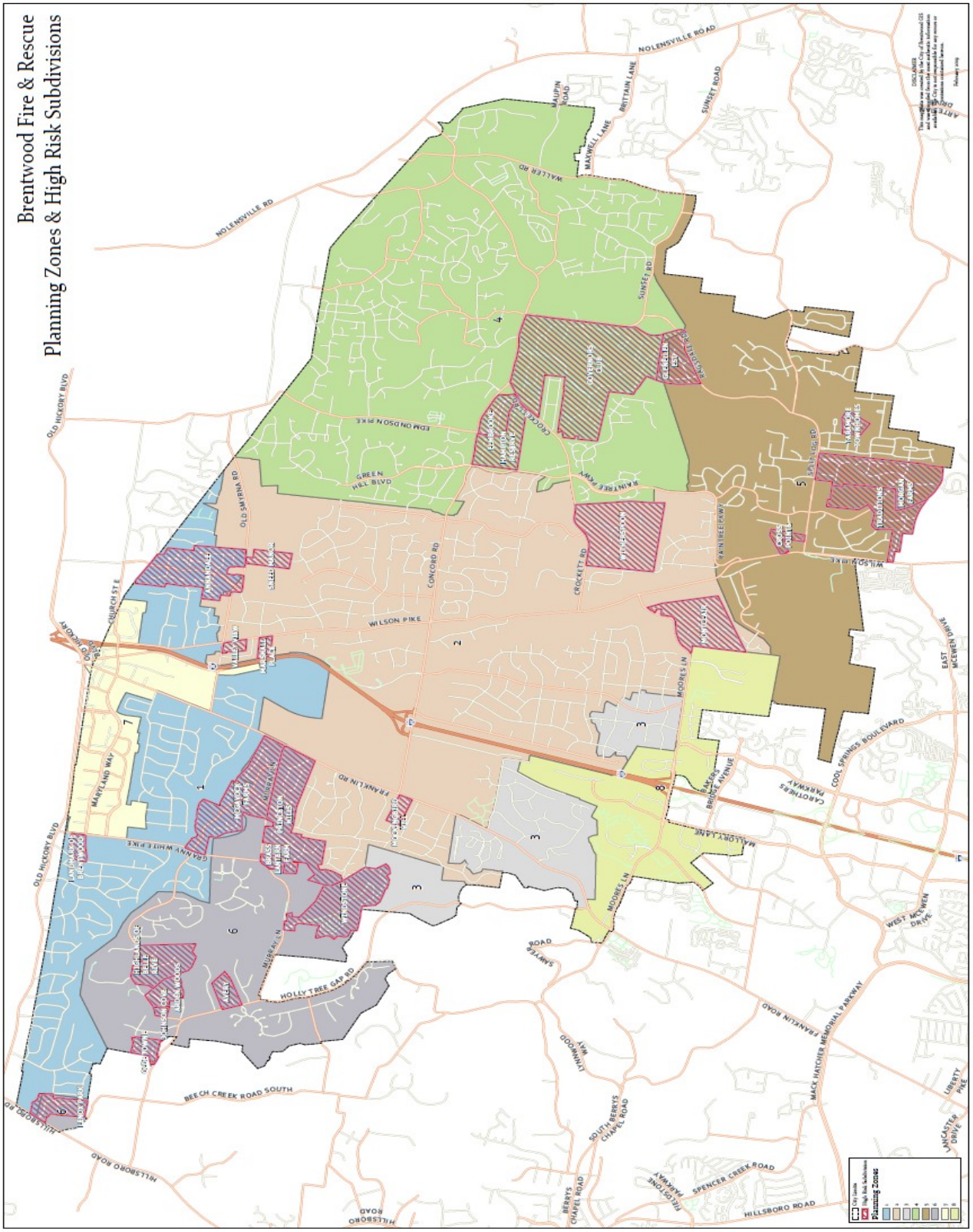


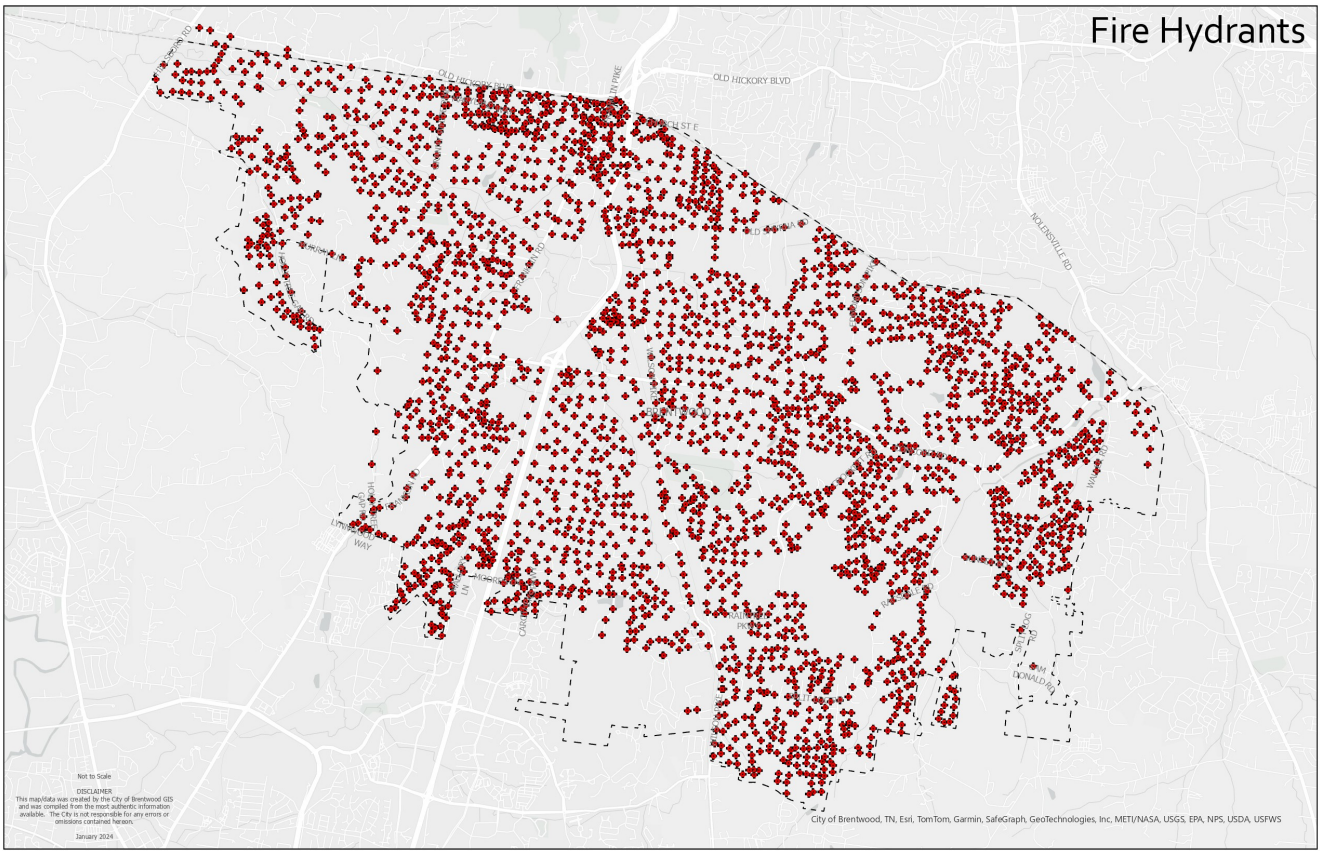

Areas Subject
2 Change*
AR
C-1
C-1/SR
C-2
C-2/SR
C-3
C-3/SR
C-4
C-4/SR
OSRD
OSRD-IP
R-1
R-2
SI-1
SI-1/SR
SI-2
SI-2/SR
SI-3
SI-3/SR
SI-4
City Limit
Growth Boundary
Railroad
Freeway
Arterial
Collector
Local Street
Private
Access Road
*Lands with near term future development or redevelopment potential
0
2,500
5,000 Feet
1 inch = 2,000 feet
Brentwood
2020 Update!

Brentwood Fire and Rescue Planning Zones



High Risk Subdivision Locations




Fire Hydrants
OLD HICKORY BLVD
NOLENSVILLE RD
Not to Scale
DISCLAIMER
This map/data was created by the City of Brentwood GIS and was compiled from the most authentic information available. The City is not responsible for any errors or omissions contained hereon.
January 2024
City of Brentwood, TN, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS