Bluffton Township Fire District
Bluffton, South Carolina

Community Risk Assessment: Standards of Cover
2018

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Executive Summary

Since its inception some 40 years ago the Bluffton Township Fire District has provided constant service to the Bluffton community. The organization has grown over the years to an all-hazard emergency response department with eight (8) fire stations and a staff of 149 skilled and dedicated professionals with a guiding mission to *efficiently protect the lives and property of our community in a kind and professional manner*. To meet its mission, the leadership of the fire department is committed to a three-part regimen which includes a rigorous process of constant district-wide self-assessment, a detailed analysis of operational performance to include risks to life and property in the Bluffton Fire District, and a community-centered and pro-active strategic planning process.

This document concentrates on the assessment of risks in the community and then identifies the response level benchmarks the leadership of the fire department is establishing for the next five (5) years.

Before we can fully determine the risks, we need to fully understand the community and the District's relationship to it. To do so, we had first to describe our community. In doing so, we reviewed the laws and regulations which created the District and set forth its legal responsibilities. We also reviewed the District's financial structure, including its revenue sources, expenditure rates, and the need to be good stewards of the public's funds. The natural and manmade characteristics of the community were also studied and evaluated. Demographics in population and critical infrastructures such as government facilities, healthcare facilities, schools and transportation systems, and networks were also carefully analyzed to help create a good snapshot of what makes up the community.

In turn, the District also reviewed the services it provides by analyzing current service delivery programs (how many and what type of resources do we send to various emergencies). We also evaluated the way current resources are deployed (where and what type of equipment is deployed throughout the District). Finally, the response history for the community was studied to determine response times and efficiency of the current emergency service system.

To maintain the connection to the community, this document was developed and coordinates with information found in the District's 2018 – 2023 Community Centered Strategic Plan. Since the Standard of Cover delineates response expectations, it is vital to get the community's input so realistic goals for service types and response times can be developed.

The Standard of Cover utilized various risk assessment methodologies to determine hazards to the public in both occupancies and the natural environment of the District. The process also required the District to take a different approach to the way it had previously classified its response areas by creating eight (8) individual but coordinated planning zones. This allowed the staff to provide a narrower focus on the true hazards and suggest solutions to mediate them.

The risks in the community were each evaluated, properly identified, and classed into one of four (4) hazard levels; low, medium, high, and special. The District then conducted a detailed critical task analysis for each hazard level based upon the service types provided by the fire department. This led to the development of standards for what is known as an effective response force (ERF) for the various hazards to which the fire department may respond.

With this information at hand, the District then considered, from a historical perspective, the summary of the current response system's performance to establish a baseline for its response times. This allowed the District to determine its capacity to achieve its required ERF for each hazard and call type. This study utilized the past three (3) years of data and involved many man-hours to compile. The District's baseline was then compared to the national consensus standards for suitable response times. Response standards from neighboring fire departments were also considered. From this comparison, the District developed its benchmarks (goals) to improve response times and efficiency over the next five (5) year period.

Please continue to read the document below to better understand and learn about your fire department. We believe you will find the information useful and will shed light on how and why the fire department makes decisions for new equipment, personnel, and fire station locations. As always, the District appreciates the community's support and is always working to better serve our citizens. This document and the process that was undertaken to develop it is one of the ways the District continues to improve for our community.

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1. Description of Community Served:

History and Organization of the District: The area that makes up the Bluffton Township Fire District, South Carolina, dates back to the 16th and 17th centuries. The area then was known as Granville County of St. Lukes's Parish. The original inhabitants, the Yemassee Indians, had established 1200 inhabitants and was considered "Indian Lands."[1] In 1715 war broke between the Yemassee and British settlers, and after many years of fighting the Yemassee relocated to Florida, opening up "Indian Lands" to European settlement. Around 1718, the new Lord Proprietors divided up the land into the new baronies, one of which, Devil's Elbow, is now the town of Bluffton.

Eventually, the town of Bluffton was built upon the two adjoining parcels in the Devil's Elbow Barony. Benjamin Walls and James Kirk bought the parcels, and soon after development started in the early part of the 19th century. Approximately in the mid-19th century, the first roads were built, and where the name Bluffton was adopted because of the high banks along the May River.

While the land around Bluffton was known for its cotton plantations, Lowcountry rice, and where the areas near the May River provided cool places to live, the planters become angered due to heavy Federal tariffs on the goods they imported from overseas making the goods unreasonably expensive. From this contention, the "Bluffton Movement" was born. Planters from the area all gathered under what is known today as the "Secession Oak" and where the secessionist movement was born. South Carolina was the first state to secede from the Union.

In 1852, the Town of Bluffton was officially established by the South Carolina General Assembly. Even though the town was only one square mile, it was strategically located right along the May River. In fact, at the end of Calhoun Street was a steamboat landing where it became an overnight stop from Savannah and Beaufort or Charleston.

While Bluffton was the epicenter of the secession movement from the Union, there is one date that stands out in history, June 4, 1863. On that fateful day, Union gunboats steamed up the river from Hilton Head Island carrying 1000 infantrymen to rid once and for all the rebels that made Bluffton its headquarters. The Confederate soldiers attacked, but they were outnumbered and outgunned. After defeating the Confederate soldiers, the Union officer in charge ordered the town to be burned and destroyed. Of the more than 60 structures in the town before the Union attack, there were only the two churches, and fifteen residences left standing.

Because of its location right along the May River, and its proximity to the Atlantic Ocean, the town eventually rebuilt and became more of a vacation spot rather than a business center. Over the years, more development came to Bluffton, and more people came to live in a more comfortable climate. Today, the Town of Bluffton is the 5th largest city by land mass in South Carolina. Presently, the area is residential and light commercial, with no significant heavy industrial attributes.

The Bluffton Township Fire District was formally founded in 1978 (Map) as a special tax overlay district by the Beaufort County Council to provide emergency services in the southern portion of the County and the Town of Bluffton. Initially, the district was made up of three independent volunteer fire departments – Chelsea, Pritchardville, and Bluffton. These local

departments were created by concerned citizens seeing a need for fire and medical services in the area prior to the County, combining them into a single department in 1978. Over the years, the department evolved from a mostly volunteer service to a full-time professional fire department. In 2007, the district became an entirely career oriented department that now serves a population of approximately 60,000 residents with 149 personnel within its 246 square miles.

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Today, the Bluffton Township Fire District is committed to protecting the lives and property of its citizens, while providing proactive all-hazards public safety services to address all its community's risks from eight stations, located strategically throughout its jurisdiction. The district embraces quality service and excellence in all it does.

Like most small cities in the U.S., the District has a mix of occupancies within its boundaries, including but not limited to single and multi-family dwellings, light manufacturing, educational, assembly, institutional and business occupancies. For 2019 a ninth station is planned to be built to keep up with the growth.

Legal Basis:

Beaufort County Council is governed under a council-administrator form of government. The legal basis for the District to operate falls under the jurisdiction of the Beaufort County Council (Council). There are eleven council districts in Beaufort County. Five (5) of those council districts fall totally, or at least partially within the protection zone of the District. The Council appoints a seven-member Fire Board (Board) to provide oversight for the Fire District. One Board member is appointed to represent each of the five (5) Council Districts within the Fire District. The Town of Bluffton appoints one (1) Board member to represent the Town, and one (1) Board member is appointed to an at-large position. Each position is for a four-year term and is staggered to preserve continuity. The current Board is as follows:

Chairman: Mike Raymond (Town of Bluffton) appointed 1/2010

Vice Chairman: Joe Paolo (District 7) appointed 4/2014

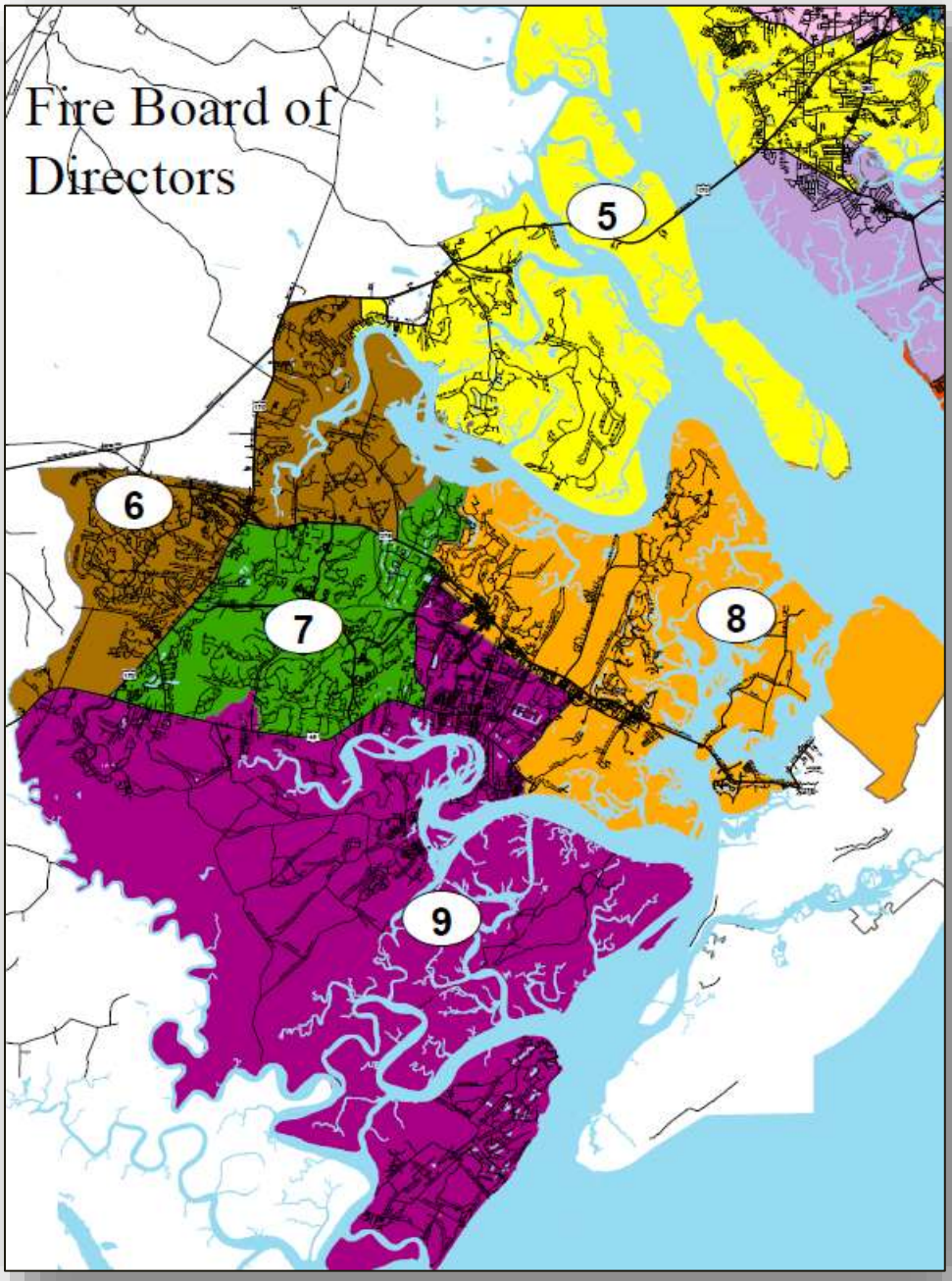
Member: Ed Olsen (At-Large) appointed 3/2009

Member: Louis Poindexter (District 6) appointed 4/17

Member: Thomas Mike (District 5) appointed 4/2014

Member: Elaine Lust (District 8) appointed 5/2015

Member: Paul Hamilton (District 9) appointed 3/16


Fire Board of Directors
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Financial Basis:

The Bluffton Township Fire District operates under a Charter granted by the Beaufort County Council. In essence, the charter is another term for an operating ordinance. Operating funds for the District are generated predominantly from ad valorem tax revenues. Citizens living and owning businesses in the District pay a separate fire tax above and beyond that assessed for the county and school district operations and debt. However, the Board does not have the ability to set the tax millage (tax rate). The Board only recommends operating, and debt service budget amounts to the Beaufort County Council who under South Carolina law has the authority to set millage and tax the citizens who live within the District's boundaries. The County tax year operates on a fiscal year basis (January 1 – December 31) while the annual operating and debt service budgets operate on a fiscal year basis (July 1 – June 30). In March of each year the District receives documentation from the Beaufort County Chief Financial Officer as to the projected revenues the District can anticipate for its upcoming budget year. The District prepares an annual budget based upon this data as well as any trend data gathered over the years. The Fire Chief makes budget recommendations to the Board, using the documentation from the County. The Board debates, in open session, the budget proposal from the Fire Chief then votes and approves a recommended budget to be presented to Beaufort County Council for funding approval. The Council then advertises, debates, and approves the budget before July 1 each year in accordance with South Carolina state law.

The Fire District's funds are collected by the County Treasurer and remain in a pooled cash account with the County. The account is divided into four funds from which the District operates. The first fund is the general fund and all personnel costs, benefits costs, and day to day operating costs are pulled from this fund. Any revenues remaining upon the conclusion of the fiscal year remain in the fund (general fund balance) and are available to offset budget deficiencies and costs associated with natural disasters and other emergency needs for funds for the District. The use of these funds is restricted until approved by the Fire Board and Beaufort County Council. The second fund is the debt service fund. This fund is restricted to payments to service the Fire Board and Beaufort County Council approved debt of the District. The third fund is the impact fee fund. This fund is also restricted in that purchases must meet strict

statutory requirements. The fees are collected during the building permit fee process for all construction occurring in the District. Impact fees can only be used for capital items, which will improve the District's response readiness in response to growth and must have a cost of greater than $100,000. Typically, this includes a new fire apparatus as the District grows, new facilities, and other related equipment. Impact funds cannot be utilized for personnel, benefits, or daily operational costs.

2. Area Description

As part of the Community Risk Assessment and Standard of Cover, 6th edition (CRA-SOC) and keeping within the objectives it sets, it is essential to understand the area served and appreciate the physiography, geology, climate hazards, and risks it presents within each planning zone.

It may seem harmless, but a natural characteristic of Bluffton is that it is situated in a very low-lying area. In fact, it is famously known as the Lowcountry. This unique characteristic includes all of Beaufort, Colleton, Hampton, and Jasper counties. There are no hills that occur naturally, very little ground that's considered high ground, and when it rains, it is not uncommon to have localized flooding. Furthermore, being in a low area along the coast of South Carolina, another well-known problem is hurricanes. As the season is six months long, starting June 1st and ending November 30th, the exposure to a near or direct hit is high. In fact, the District has responded to four (4) hurricanes within the last three (3) years.

Another weather-related, and well-known phenomenon, is severe thunderstorms. These storms are rife with lightning and heavy rain and occur almost daily in the summer months. It is not uncommon for the District to go to a one engine response instead of responding an entire effective response force (ERF) for activated fire alarms as a result of the storms rolling through the area. For this reason, the amount of fire alarm activations across the district, at similar times, makes it impossible to respond to all of them with an ERF. As a result, when severe weather events occur, the District transitions to "Storm Mode"; whereby, the District is capable of responding to multiple alarms strategically with one engine.

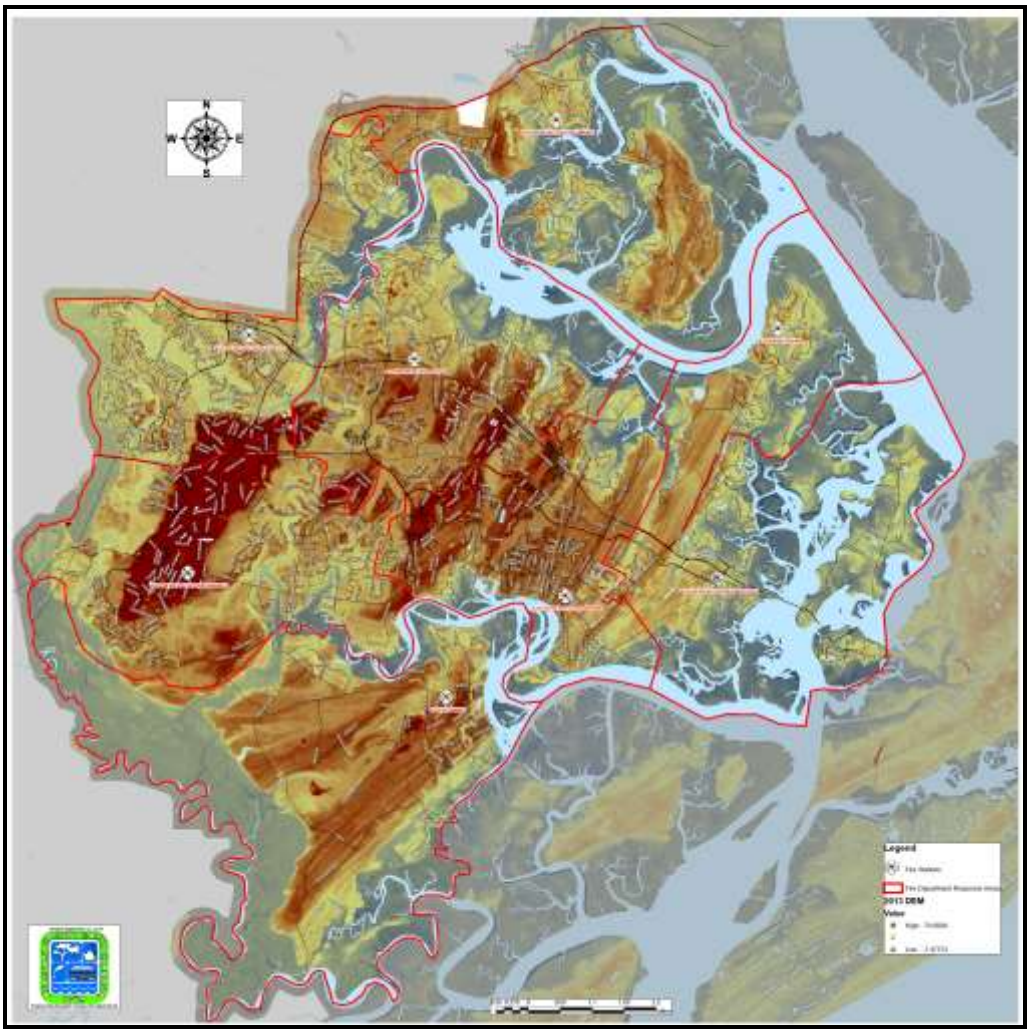
It is also important to understand the characteristics of the population that reside and work in the District. A lot can be discovered by following the population and looking at historical data to help identify where the call volume and type occur.

Topography:

The District is mostly flat and low lying with the highest point about 80 feet above sea level. The western portion of the District, along SC Highway 170 just south of US 278 and south to SC Highway 46, is the highest point. As stated earlier, the District is bordered on three sides by

water, and it is also near the Atlantic coast. As a result, severe weather like hurricanes, or severe thunderstorms can affect the area that includes localized flooding and numerous lightning strikes.

Also, minimal impact on the environment is a high priority for both the Town of Bluffton and Beaufort County. There are plantations where there is little to no open green space; instead, homes are built in harmony with the environment. Plantations such as Spring Island and Palmetto Bluff regularly conduct prescribed burns to keep the underbrush to manageable proportions. Along with Spring Island and Palmetto Bluff, Pinkney Island National Wildlife Refuge also has a land management program to keep the land manageable, reducing wildland fires.



Bluffton's climate is one to enjoy. Its average annual temperature of 65.6 °F and with 217 days of sunshine makes it a popular and enjoyable place to live.

However, like many towns that are situated close to the coastline, severe weather could be a great danger. As mentioned earlier, hurricanes are an example of severe weather for the area, and it is a difficult event to mitigate without a well-prepared plan. The hurricane season is from June 1st through November 30th. Historically, Beaufort County has fared well with hurricanes over the past decade. However, Hurricane Matthew in November 2016 caused extensive damage although it did not hit Beaufort County directly. The estimated cost to Beaufort County was $52 million[2]. Equally important, are summer thunderstorms, frequent and are rife with lightning that on occasion, hit residential homes and business. These types of storms force the District to operate in *storm mode* to mitigate fire alarm activations.

Demographics:

With a favorable climate and attractively low tax rate, the Bluffton area exploded in the early 2000s. Beaufort County is the 13th fastest growing county in the nation according to the *Island Packet*. *Forbes Magazine* placed Bluffton on its list of "Best Places to Retire - 2016"[3].

The District utilized Census data to create a variety of maps to include: population, income, property value, and diversity to understand better and document the District's demographics. By doing so, the District then utilizes its computer-based records management system (RMS) data to create layered maps of the four services provided, Fire Suppression, EMS, Rescue, and Hazardous Material Incidents (Hazmat) to help identify trends in each planning zone. By following this methodology, the District can isolate problems, identify issues, and create a plan for solutions.

2016 Census estimates: Zip Code 29910 and 29909		
	29910	29909
Total Population	37,915	18,769
Median Income	$64,896	$68,727
Under 5 years	5.9%	1%
Over 65 years	14.1%	63%
White Population	79.7%	95%
Black Population	9.1%	2.1%
Hispanic or Latino	20.1%	2.8%

3. Critical Infrastructure:

Transportation

The District has four main road corridors that are traveled heavily on a daily bases; US Highway 278, SC Highway 170, SC Highway 46, and Bluffton Parkway. US Highway 278 is the main east-west connector. It brings local traffic from I-95 east to Hilton Head Island. Bluffton Parkway parallels US 278 from SC Highway 170 east to the Hilton Head Bridges, (Karl Bowers

Bridge and J. Wilton Graves Bridge) to Hilton Head Island. It is a new road developed to help alleviate local traffic on US Highway 278 and to provide an additional hurricane evacuation route. SC Highway 46 is a two-lane road that connects to SC 170 and US 278. SC Highway 46 also parallels, to the south, US 278 and Bluffton Parkway and is used to travel to Savannah, Georgia. (Map)

The District approves all new roads through the plan review process with both the Town of Bluffton and Beaufort County. Existing roads are inspected biennially for access issues by the Fire Prevention Division. Neighborhoods and private gated communities that have electronic gates are required to have emergency override devices installed that are approved by the District. The District inspects and tests these devices biannually to ensure functionality.

Services and Utilities

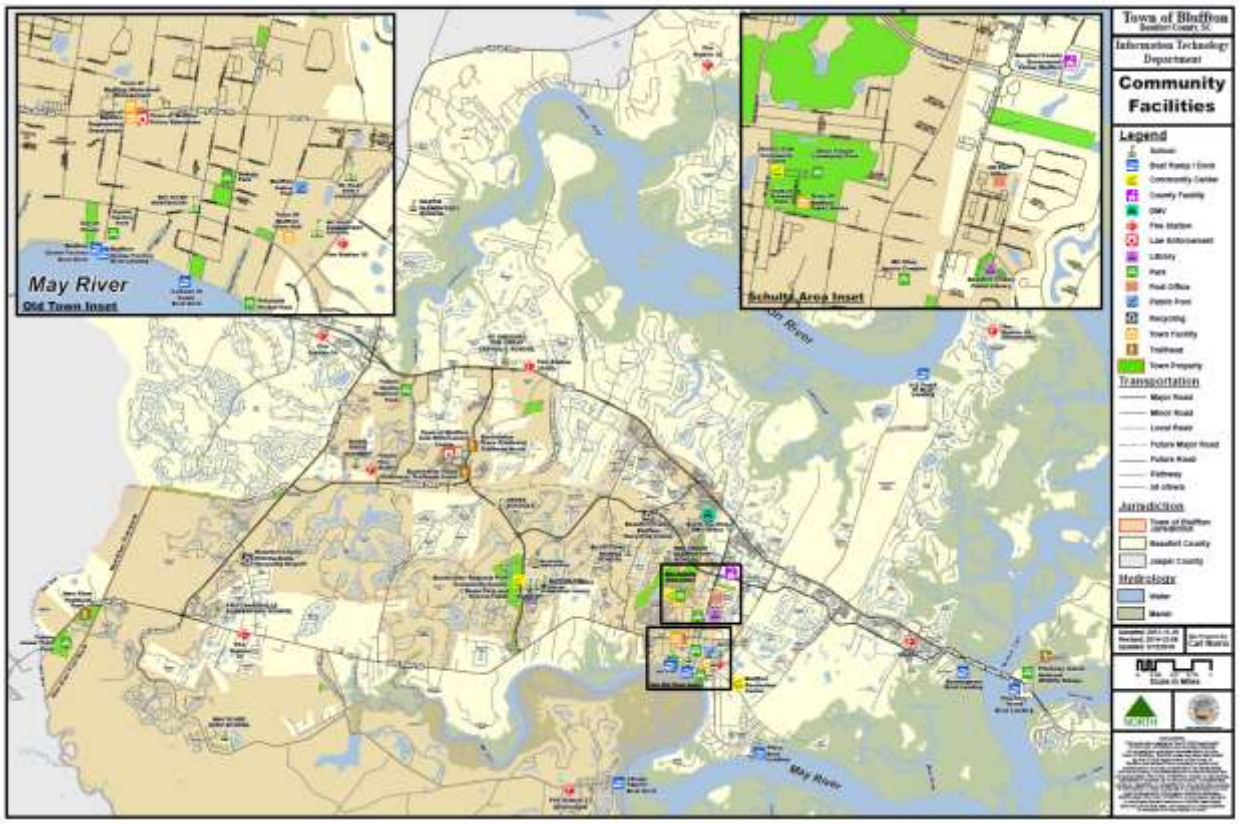
The District has two electrical providers: South Carolina Electric and Gas (SCE&G) and Palmetto Electric. For areas that do not have natural gas, propane is used and is provided by several local companies. The District's water and sewer provider is Beaufort Jasper Water and Sewer Authority (BJWSA). BJWSA conducts all hydrant inspections annually. In addition, the District inspects and maintains the area around the fire hydrants two times a year. Surface and storm drainage is addressed at the time of development with either the Town of Bluffton or Beaufort County.

Communications

The District's leading phone, internet, and cable provider is Hargray Communications. Hargray has about 90 percent of the market share of all cable subscribers in the District. Time Warner provides cable only and has about 10 percent market share. The District has several cellular towers from various major providers. The Fire Marshal Office conducts inspections of the cell tower and phone utility buildings annually.

Recreational

The District has several parks and trails. These trails are maintained by the Town of Bluffton and Beaufort County respectfully.



4. Service Milestones:

Plantations- It was not until the early 1980's that the District began to see a measurable increase in building and population growth. From 1980 to the mid-1990's residential plantations started to dot the landscape along highways US 278 and US 170. Rose Hill, Belfair, Colleton River, Moss Creek, Callawassie Island, and Spring Island Plantations (neighborhoods) were all developed over the next few decades and continue to grow today (Map).

Sun City- In June 1993 Del Web Communities, Inc. purchased land from Union Camp to build Sun City Hilton Head. In November 1994, 25 homes sold on the first day and by the end of 1997, 1000 homes were sold. Today, 14,000 people are living in Sun City. With a projection of 8,600 homes at build-out; Sun City's population will top out at approximately 17,000 residents.

Continued growth- In the early 2000s, the District continued to see an unprecedented amount of growth in its community both in construction and in population. According to the Town of Bluffton from the 2000 Census to the 2010 Census, the population grew 911.22%[4]. The Town of Bluffton not only grew in population but also grew in land size to be the fifth largest city in the state when it annexed Palmetto Bluff.

Palmetto Bluff – In the early 1990s, the Town of Bluffton annexed Palmetto Bluff creating the 5th largest city in the state. Palmetto Bluff is approximately the size as Hilton Head Island in land mass; however, the development will only be a fraction of Hilton Head with only 4000 homes at build-out.

Modernizing the District – In 2011 the District planned to relocate station 30 and add a training center and maintenance shop to the new location. In 2013 Station 30 was completed, and a new "used" Pierce aerial platform truck was purchased to replace the Sutphen aerial. In 2014 station 33 had a significant renovation completed. In 2015 the District replaced its entire fleet of engines with 2015 Class A Pierce Enforcer enigines.In 2017 the maintenance and training facilities were completed. In 2017 station 36 was moved to its new location outside the back gate of ColletonRiver Plantation. Finally, in 2019 the District added a heavy rescue and quint to its fleet.

5. Services Provided:

The District provides four primary services to its stakeholders: Fire Suppression, Emergency Medical Service, (Basic Life Support-BLS and Advanced Life Support-ALS), Hazardous Materials response, and Technical Rescue. Furthermore, the District provides additional support services such as community risk reduction programs, life safety programs, and community charity events.

Fire suppression:

The District has a split ISO Class rating of 2 and 2X. Where hydrant water is available and where a fire station is within five road miles, the District has a rating of 2, and for areas that do not have hydrant water and the fire station is outside of five road miles, the rating is a 2X. For these non-hydrant areas, the District relies on static water sources and water shuttles for water supply.

The District utilizes eight stations to protect 246 square miles (Map). It uses the fixed deployment operational model for each planning zone (Response area) to respond. Each station responds one of eight (8) identical 2015 Class A Pierce Enforcer pumpers with 1500 gallon per minute pump capacity, 750 gallons of water with 5-inch large diameter supply hose (1000 feet). The District also has one-100-foot platform aerial (TRK 335), a new (2019) 107-foot quint (L333) and one new (2019) heavy rescue (R335) in service daily. The District has one brush/pumper that carries 250 gallons of water that is a four-wheel drive to access remote or hard to reach wooded areas. In addition, the District utilizes a 3000-gallon water tender in the areas without fire hydrants.

Emergency Medical Service (EMS):

The District is a non-transport agency that provides two levels of Emergency Medical Service (EMS): Basic Life Support (BLS) and Advanced Life Support (ALS). The District operates three ALS engines from Stations 31, 36, and 35. The ALS stations provide overlap coverage from the BLS stations where Beaufort County EMS (ALS) is housed. By the District providing

ALS engines and being strategically placed, it provides enhanced coverage for immediate life-threating sickness or trauma to the community. All firefighters are trained to the National Registry Basic Life Support (BLS) level. There are 14 paramedics trained to the National Registry ALS provider level. Beaufort County EMS is the transporting agency for the county.

Technical Rescue:

The District has an established Special Operations Division. This team is compromised by firefighters trained in Rope Rescue, Trench Rescue, Confined Space Rescue, Collapse Rescue, Water Rescue and Vehicle, and Machinery Rescue. The District has the equipment to handle most complex rescues except trench rescue for which Hilton Head Island Fire Rescue would assist the District.

Personnel from the District along with personnel from Hilton Head Island Fire & Rescue comprise one of the State's Regional Search and Rescue Response Rescue Teams (RRT-4). The combined personnel team is deployable to incidents in the local area, statewide, and nationwide if requested.

Hazardous Material Response:

District personnel have been trained to the National Fire Protection Association (NFPA) NFPA 472 Operations level, **Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents**. Twenty-five District personnel have been trained to meet NFPA 472 at the Hazardous Material Technician level.

Every District engine company has the ability to manage a small hazardous chemical spill, i.e., 55 gallons or less of gasoline, diesel fuel, propane or natural gas (Level 1). All other equipment needed to manage a large spill (55 gallons or more) is stored on R335. When deemed necessary, the on-scene company officer can request the response of on-duty Hazardous Materials (HAZMAT) Technician level personnel through the Battalion or Duty Officer, to assist with the mitigation of any hazardous chemical incident (Level 2).

If needed, Hilton Head Fire Rescue (HHFR) can be requested to respond to an incident in Bluffton, bringing more Hazmat Technicians and HAZMAT 2 (Level 3). HAZMAT 2, which is

housed out of HHIFR station 6, carries all of the equipment needed to deliver the capability of a FEMA-equivalent Type I HAZMAT team.

The District and the Town of Hilton Head Island Fire and Rescue (HHIF&R), as a team, are recognized and serve as a regional (SCHM4) HAZMAT and WMD response team through the South Carolina Mutual Aid Agreement. SCHM4 is one of five (5) Regional Response Teams that serve and protect our immediate communities and can also be called anywhere throughout the State of South Carolina or nation.

6. Current Deployment of Fire and Emergency Services Resources: (Core Competency 2A.3 Map)

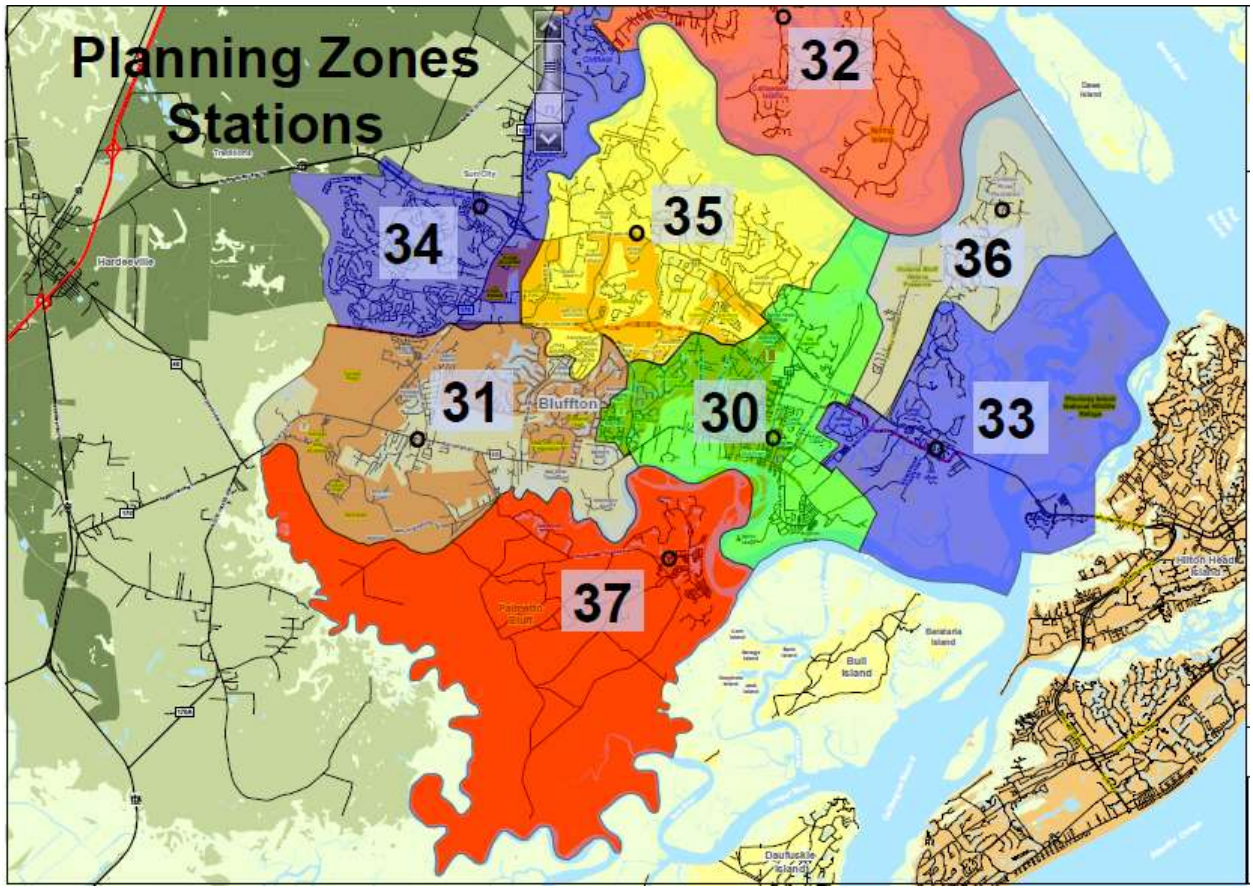
As stated earlier, the District utilizes the fixed deployment operational model to deploy its human and physical resources from individual stations (Distribution). There are a total of eight stations located around the district to provide maximum coverage. Seven stations deploy, at a minimum, three highly trained personnel to respond to emergencies. In addition to these seven stations, the District's headquarters station, Station 35, deploys at a minimum, ten specialized personnel, and physical resources to respond district-wide for all emergencies that require special equipment and expertise if needed. District map

Fire Stations:

Deployment per Station				
Station	Address	Apparatus	Minimum Staffing	Specialty
Station 30	199 Burnt Church Rd.	Engine 330	3 Personnel	BLS Engine
Station 31	178 May River Rd.	Engine 331 Tanker 341	3 Personnel	ALS Engine
Station 32	155 Callawassie Dr.	Engine 332	3 Personnel	BLS Engine
Station 33	12 Buckingham Plantation Dr.	Ladder 333 Boat 390	3 Personnel	Water Rescue BLS Engine
Station 34	25 William Pope Dr.	Engine 334	3 Personnel	BLS Engine
Station 35	357 Fording Island Rd.	Engine 335 Truck 375	10 Personnel	Rescue Hazmat

		Rescue 355 Brush 335		ALS Engine Brush Fire
Station 36	254 Sawmill Creek Rd.	Engine 336	3 Personnel	ALS Engine
Station 37	1 Oak Tree Rd.	Engine 337	3 Personnel	BLS Engine

Furthermore, operating as a fixed station deployment model and having limited resources, the command staff recognized the need to have specialized human and physical resources centralized within the district to optimize its response district-wide. Also, Station 35 personnel must possess the necessary training required to participate in all rescue operations, including hazardous material-technician level certification (See map below).



Likewise, the District conducts an in-depth District-wide review of all of its service programs (EMS, Fire suppression, Hazmat, and Rescue) on an annual basis. With consideration to

demographics, socio-economic factors, and in conjunction with the budget planning period, the District uses response data, critical tasking, after-action reports (AAR), community risk reduction analysis and the response SOG to determine if the District is providing consistent service to its customers. (CC 2C.1) Similarly, the District conducts the same analysis as above, but at the planning zone level on an annual basis. (CC 2C.2)

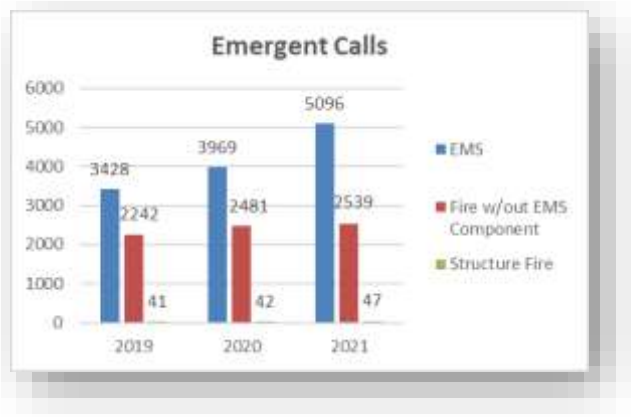
Resources:

For the District to provide fire suppression, emergency medical service, rescue, and hazardous materials services to its citizens on a 24/7/365 basis, the District's command staff determined the minimum daily staffing will not go below 31 personnel. Conversely, 42 personnel is the goal for every-day staffing; however, with personnel being absent for various reasons, it is rare to be fully staffed consistently (SOG. 101.02). There are three shifts and eight stations. Each shift has a battalion, and each station has a captain or lieutenant complemented by a driver (senior firefighter) and a jump-man to meet the minimum staffing level. Three of the stations are advanced life support (ALS), while five are basic life support (BLS).

Number of Apparatus	Type of Apparatus	Personnel Minimum/Full
1	Battalion	2
8	Engines	24/32
1	Truck	2/4
1	Rescue	3/3
1	Duty Officer	1/1
Total		32/42

Community Response History: **(CC 2A.4)**

Each response area is a geographical planning zone, or referred to as Planning Zones (PZ Map). By creating these planning zones, the District can analyze each zone by utilizing population density, identify commercial properties with a risk level (District risk tool), and number and type of calls; thereby, an all-hazard risk assessment can be established. Consequently, by understanding all of the data, the District's command staff can determine if the right response level with human and physical resources (Concentration) is appropriate for each PZ.



The following chart shows the call volume district-wide for three years: 2017 through 2019. The chart depicts a steady upward trend for all service types; EMS, fire response, and structure fires. The District uses the same methodology for each PZ to identify gaps in service and to determine if the appropriate response level with human and physical assets is adequate.

Moreover, all calls that are analyzed and measured for time are considered **emergent calls** (lights and siren). "Fire without EMS component" response includes the following type of emergencies: fire alarms, rescue, service calls, and weather-related calls. In addition to the collection of emergent call data, the District collects **non-emergent** call data as well and where it is analyzed, identifying standout trends. For example, the District monitors "Lift and Assist" service calls due to the number of requests it receives from Sun City and assisted living communities.

Saved vs. Loss (Life and Property):

The District has been very fortunate not to have any loss of life or has experienced any serious injuries to its citizens or its personnel due to fire over the last three years (2016-2018). Likewise, over the same period, the District had approximately $20,879,778 of property threatened, $18,289,449 saved and $2,590,329 lost. The chart below depicts the total sum of property threatened vs. total sum saved, vs. total sum lost for each planning zone.

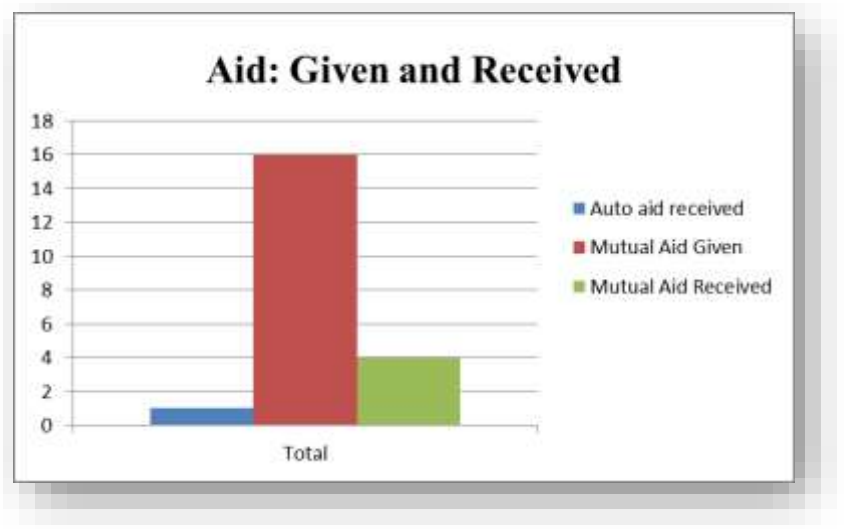
However, it does need to be mentioned the methodology in which property value was estimated was subjective rather than objective. That is, after the value loss analysis was completed, the methodology in which the value of the property was obtained was problematic in that the homeowner or the person writing the report estimated the value. While this methodology produces a quantifiable measurement, it is not an accurate method of establishing a consistent value.

Year	Total Protected	Total Loss	Total Saved	Percentage Loss	Percent Saved
2021	$59,313,212.00	$2,711,032.00	$56,602,180.00	4.57%	95.43%
2020	$86,330,745.00	$2,959,420.00	$83,371,325.00	3.43%	96.57%
2019	$112,835,966.00	$1,138,422.00	$111,697,544.00	1.01%	98.99%

Therefore, the command staff is exploring other options for evaluating the property that will result in a more consistent evaluation methodology.

Aid- Given and Received:

While the District provides fire suppression, rescue, hazardous material incident mitigation, and EMS services to its citizens, the District, at times, is called upon to provide the same services to its bordering neighbors. Over the past three years, the District assisted 16 times for mutual to its neighbors; conversely, it received mutual aid assistance four times over the same period, and one time for automatic aid. Because of the aid agreements, each jurisdiction can be confident that assistance will be provided to mitigate an incident when needed.



7. Community Expectations and Performance Goals:

Community Expectations:

There are three main legs in the accreditation process: Community Risk Analysis: Standards of Cover (SOC), Community Driven Strategic Plan (CDSP), and Fire and Emergency Service Self-assessment (FESSAM). Each of these processes builds off the other to accurately portray a true unbiased performance level. It is the strategic plan that incorporates the community stakeholder participation and is where the stakeholders can express their level of expectations and concerns to the District. For that reason, and with help from the Center for Public Safety Excellence (CPSE), the District rewrote its strategic plan with a diverse cross-section of the community.

As a result, the community stakeholders prioritized the following service programs the District offers: Fire suppression, Public Fire and Life Safety Education, Emergency Medical Service, Fire Investigation Rescue, Emergency Management, Community Risk Reduction, Hazardous Materials Mitigation.

The methodology used by CPSE was straightforward. Each person was asked to make a direct comparison of the services provided by the District and then prioritize them. The program that

scored the highest, and is a top priority, was Emergency Medical Services with a score of 231, and the lowest was Public Fire and Life Safety Education with a score of 74.

As a result, the District has a better knowledge of what the stakeholders' expectations are for the programs provided by the District, and as such, can develop goals to support the new priority list. Below is a chart that describes the results.

Services Offered	Ranking	Score
Emergency Medical Services	1	231
Fire Suppression	2	215
Rescue- Basic and Technical	3	197
Emergency Management	4	155
Community Risk Reduction	5	98
Hazardous Materials	6	93
Fire Investigation	7	85
Public Fire and Life Safety Education	8	74

Moreover, the community stakeholders were asked to write down their expectations, concerns, and any positive comments about the District's performance. The results were transcribed verbatim, in priority order, and can be read in the strategic plan appendix 1. Here below are the top three expectations, concerns, and positive comments respectfully.

Expectations: (Abbreviated)

1. Arrive promptly
2. Maintain up-to-date training
3. Educating the public (CPR classes, fire safety

Concerns:

1. How to handle growth …
2. Enough personnel to handle growth…
3. Not enough taxes are going towards the fire department…

Positive Feedback:

1. High level of professionalism…
2. Amazingly patient in/with individuals who are not polite/respectful…
3. Welcoming and always available to answer questions…

Performance Goals Expectation:

To have success, there needs to be direction and vision within an organization, and the mission statement is made up of the words that will lead to that success. The performance to which the mission statement is achieved is through clear and precise goals and objectives, and the vision statement encompasses it all. This is a proven technique for success, whereby establishing clear goals and objectives, will enable each member no matter rank, to perform to their highest potential.

From the results of the community stakeholder meeting, and three days of internal stakeholder input, the District rewrote its mission statement, values statement, and ultimately set its goals for the next five years. The goals and objectives are dynamic; thus, they will be updated regularly over the next five years.

Mission Statement

The Bluffton Township Fire District's mission is to efficiently protect the lives and property of our community in a kind and professional manner.

Values Statement

Respect	We respect all people in our quest to honor diversity in our community and in our own agency, through dignity, choice, and compassion.
Progressive	Continuous improvement through feedback from our community, through professional development, and community risk reduction.
Leadership	Guiding our community through all aspects of risk hazard reduction.
Dedication	To maintain an attitude and commitment beyond the expectations of our community.
Trust	Establishing and maintaining integrity through professionalism, transparency, fiscal responsibility.

Bluffton Township Fire District's 2024 Vision

is to be widely known as an internationally accredited fire district that protects the lives and property of our community in a kind and professional manner.

Because we care, we will prove our leadership through bolstered work in community risk reduction and emergency management, reducing hazards, and building protections within the district. We will always strive to show we are progressive through our enhancements in EMS and special operations for the betterment of those we serve.

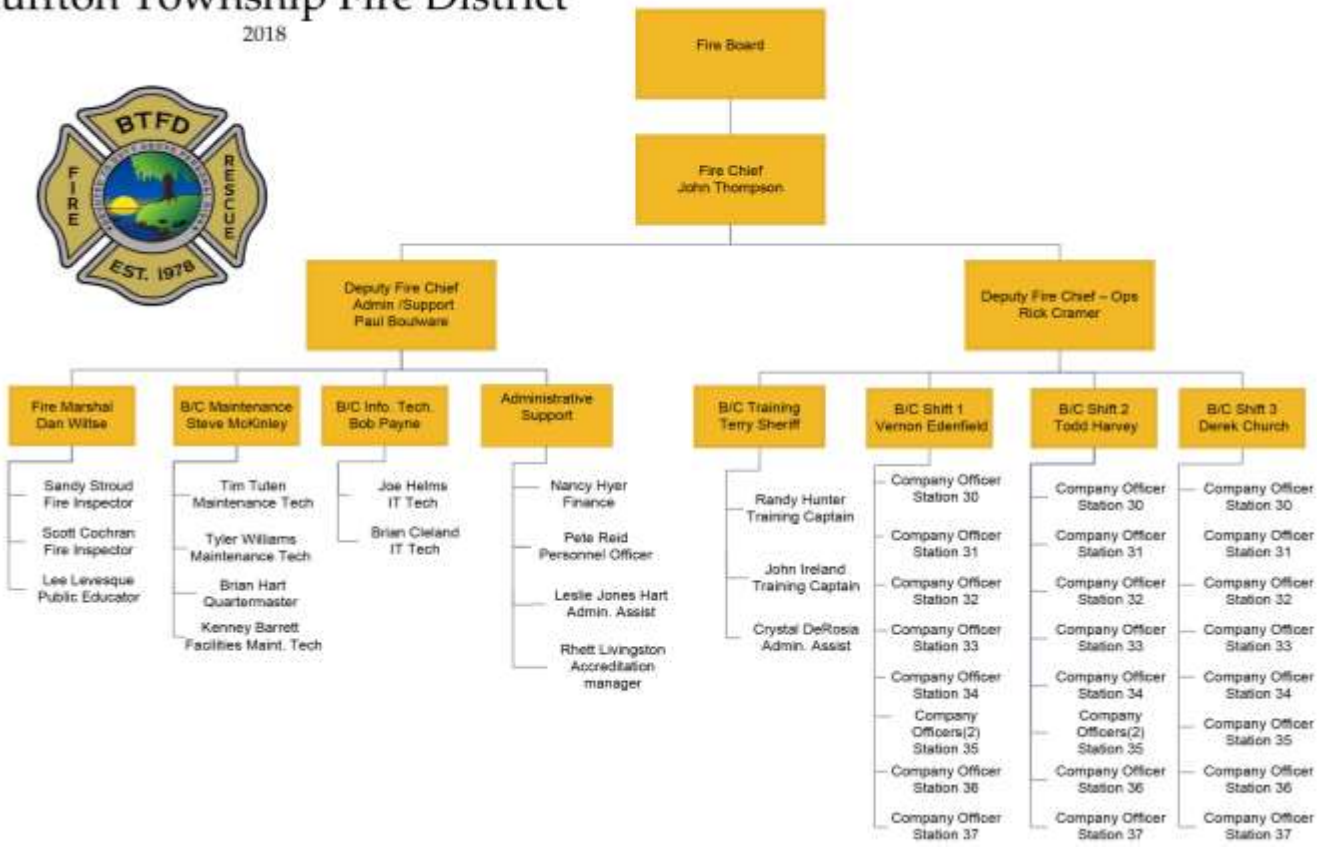
To personify respect and dedication, we will invest in our great assets, our members. By strengthening our workforce planning, we will be ever ready now and, in the future, to answer the call. We will communicate more effectively to ensure the continuity of our messages to unify us further. This will be rounded out by our research and investment into technology that will help us all perform more efficiently.

Furthering our desire to demonstrate that we value trust internally and externally, we will strive to maintain our current infrastructure while developing strategies for growth that are performance-based and fiscally responsible.

Dedicated to continuous improvement and the pursuit of excellence organizationally and personally, we will always remember our past and embrace our futurity by holding each other accountable for fulfilling our mission, living our values, accomplishing our goals, and bringing this vision to fruition.

Bluffton Township Fire District

2018



8. Community Risk Assessment and Risk Levels (CC 2B.1 andCC2B.4)

Risk Assessment Methodology:

Fire suppression:

Within every community in the country, there are inherent risks to fire-related and non-fire related incidents. Therefore, it is imperative for the fire departments serving those communities to recognize the risks and have a methodology in place to quantify the actual risk. Unfortunately, while working through the accreditation process, the District realized there is not one risk methodology model that fits every community.

Recognizing this, the Community Risk Reduction Officer, Operations Chief, IT Chief, and the Accreditation Manager decided to use a two-pronged methodology to identify risks within the District. The first methodology, Risk Analysis Profile, and Target Occupancies and Risk (R.A.P.T.O.R) adopted from the Lawrence Fire Department, is used to assign risk to commercial and multi-family properties. With consideration to call history, demographics, population density, socioeconomic factors, and after-action reports (AAR), the District determined the risk categories low, medium, and high. By doing so, the command staff can quantify fire-related risks within the District down to the planning zone.

The second methodology, Threat and Hazard Identification and Risk Assessment (THIRA) is used to help identify non-fire risks such as tornados, earthquakes, and other man-made and natural disasters within the District. The risk assessments are updated annually.

It should be noted that the District changed RMS systems in October 2018. The new system, FireWorks, has a risk analysis tool called Occupancy Vulnerability Profile (OVAP), which will be utilized in January 2020 when the District changes its methodology in assigning risk categories for commercial properties.

In final considerations to the risk analysis and where a score is not assigned but is recognized, is the District's road system, private gated communities, marshes, and waterways. Throughout the District, there are gated communities that have limited access and road systems that are not laid

out in a grid-like fashion; rather they are designed with long narrow winding roads making it difficult to drive much over the posted speed limit resulting in longer travel times.

Furthermore, Click-to-Enter© is for communities and businesses that have unmanned electronic gates. Though both Beaufort County and the Town of Bluffton require Click-to-Enter© devices to be installed, the system does on occasion malfuction causing a dely. Click-To-Enter© works by line-of-site, whereby the officer in an engine can use a radio frequency to open the gate on their approach, decreasing the time it takes to open the gate. Thereby eliminating a complete stop and exiting the apparatus to open the gate saving time.

The fire suppression risk classification is as follows:

Low-Risk Low impact Low consequences Examples: Fire Alarm, Vehicle, Brush, Dumpster Fire
Medium-Risk: Medium impact High consequences Example: Single Family / Multi-Residence, Detached Garage
High-Risk: High impact Great consequences Example: Assisted Living facilities, Golf chemical storage, and Schools

Hazardous Materials Incidents:

The hazardous material incident (Hazmat) risk was based on historical data (probability and potential consequences), preplans (known chemical storage), and occupancy type, .e.g. industry. Though hazardous materials incidents are less than one percent of the total call volume within the District, there is still potential for an event that can have significant consequences to the citizens of the District. With this knowledge, the District has determined three hazmat risk levels to which it responds. Level one (Low-Risk)- 55gallons or less, outdoor gas leak, Level two (Medium-Risk)- 55 gallons or more, indoor gas leak no immediate threat to life, and Level three (High-Risk)- Spill or of an unknown substance or release of a Toxic Inhalation Hazard (IDLH atmosphere), that poses an immediate threat to life. As it is noted above, the call volume is minimal for hazmat incidents; Moreover, there has not been a level two (Medium-Risk) or three (High-Risk) response in the past three years. However, the District is diligent with hazmat training and preparedness. In fact, the District is part of the Hazardous Material Emergency Response Team (HMERT) where it is referred to as South Carolina HazMat-4 (SCHM-4). The team is one of six in the state that can be called upon for inter and intrastate response to incidents, or to guide responders working in a hazardous materials incident when directed by a lawful request. The team is a collaborative effort between the District and Hilton Head Island Fire Rescue (HHIFR).

It should be mentioned when the District changed its CAD run order to accommodate the new EMS risk component, the District decided to change the run order for hazmat incidents to include the new Rescue. The Rescue is a new single resource that complements Hazmat, technical rescue, and fire suppression with dedicated human and physical resources. Therefore, starting in 2020, the response for a low-risk Hazardous materials incident will include the Rescue.

Before the recent change, the District responded to Hazmat incidents with a single-engine as its ERF. However, once on the scene, the officer could decide to call for more resources if the incident demanded it. Below are the classifications of risk.

Classifications of risk:

Low-Risk Low probability Low consequences Examples: Any spill 55 gallons or less, natural gas or propane odor outside No immediate threat to life.
Medium-Risk: Low probability High consequences Example: Any spill 55 gallons or more, or known substance at dispatch time. No immediate threat to life.
High-Risk: Low probability Great consequences Example: South Carolina HazMat Regional Team 4 response. Spill of an unknown substance of any size, any release of a Toxic Inhalation Hazard (IDLH atmosphere), immediate threat to life.

Technical Rescue:

Risk categorization for technical rescue was based on historical incidents, probability, potential consequences, and training scenarios. Similar to hazmat, the frequency of a technical rescue is infrequent, less than one percent of total call volume. However, the District has recognized the risks and potential impact on the District's personnel and equipment when a significant incident happens. With that information, the District established three levels of risk, Low-Risk, i.e., elevator rescue, a child locked in a vehicle, or pet stuck in a tree, Medium-Risk, i.e., water rescue, basic auto extrication, and High-Risk, i.e., trench rescue, high-angle, below grade, confined space as examples.

Like hazmat, there has not been a High-Risk incident in the past three years for technical rescue. However, the District understands the potential of technical rescue and has prepared for that potential through training and planning. In fact, the District is part of the South Carolina Task Force-4 (SCTF-4). Members are made up of District personnel and Hilton Head Island Fire Rescue. Similar to the South Carolina HazMat Regional Team-4, the SCTF-4 team is a resource that the state can call upon for inter and intrastate response to incidents when directed by a lawful request.

The classifications of risk:

Low-Risk Low probability Low consequences Example: Elevator rescue, child locked in a vehicle,
Medium-Risk: Low probability High consequences Example: Water rescue, basic auto extrication
High-Risk: Low probability Great consequences Example: Trench rescue, confined space, extensive auto extrication

EMS:

The District operates an EMS program that provides the community with a designated level of pre-hospital emergency medical care. The Bluffton Township Fire District has procedures, guidelines, and standing protocols in place that direct EMS response activities to the basic and advanced life support level.

The District historically had two risk levels, low and high. What differentiated the low-risk from high-risk was a mass casualty incidents. Typically, the District would use a single-engine to all medical events that did not have the mass casualty component. Though the District ran BLS and ALS engines, it could not dispatch by BLS or ALS event type. Instead, the District positioned the ALS engines where Beaufort County EMS (BCEMS) did not have an ambulance housed at its stations.

Because the District is not an authorized EMS transport agency, it relies on Beaufort County EMS, which is the licensed EMS transport agency for all Beaufort County, except for the Town of Hilton Head Island. Moreover, to the District's knowledge, BCEMS does not analyze its response performance data.

In light of the challenges outlined above, the District developed an independent methodology for assessing EMS risk. The Deputy Chief of Operations, along with a committee of paramedics and the District's Medical Control Director, determined which call types were immediate life-threatening events by using the Beaufort County Dispatch Center (BCDC) CAD system Nature of Call and the District's new RMS system (Primary Impression). The District categorized those events into three risk-categories, low, medium, and high. From that, the committee conducted a critical task analysis (CTA) to determine the number of personnel to mitigate the incident. The CTA considered, in part, training, experience, and industry "Best Practices."

The risk assessment and CTA analysis led to developing the respective District ERF for emergency medical incidents. Since BCDC does not employ EMD, the District engineered its emergency medical incident response run-order within BCDC's CAD system to implement the

District's EMS risk assessment to ensure a proper ERF deployment. As a result, the District will be able to gather and analyze its data on an annual basis to reassess its EMS risk. Furthermore, to validate the above process, the District has developed an analysis tool, TALON. For every medium and high- risk call type, the Battalion Aid is required to fill out a questionnaire. By doing so, the District will be able to determine the right amount of human and physical resources for each risk level by analyzing the TALON data.

The Data for the years 2017 through 2019 is for a single-engine response. Going forward in 2020, the District will collect data for medium and high-risk call types.

Lastly, the District has drafted and submitted a memorandum of agreement (MOA) with Beaufort County EMS to obtain their data. By doing so, the District intends to include BCEMS into the District's ERF. The District believes by incorporating BCEMS into its ERF, the quality of service will improve for its stakeholders by identifying gaps in service.

The classifications are as follows

Low-Risk Not serious or life-threatening
Medium-Risk: Serious, but not immediately life-threatening
High-Risk: Life-threatening, requiring immediate intervention

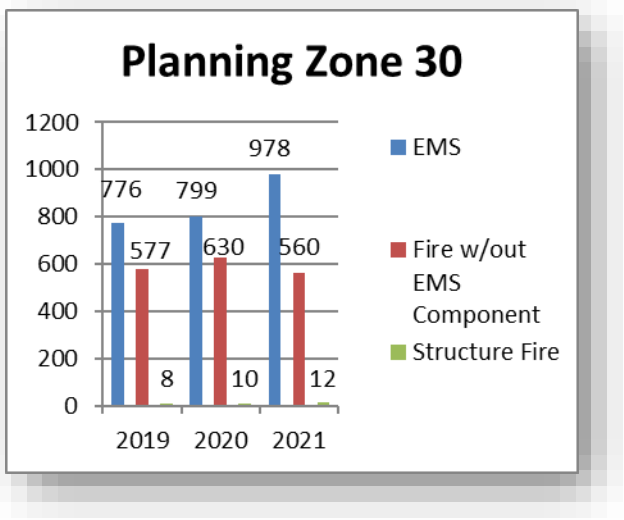
Risk Assessment per Planning Zone

Geographical Planning Zone 30

Burnt Church Road, May River Road, Buckwalter Parkway, Bluffton Parkway, Fording Island Road, Simmonsville Road, Buck Island Road

Area Profile:

Planning Zone 30 (PZ30), or better known as Old Town Bluffton, response area is unique in the aspect that it encompasses a wide range of roads, buildings, and challenges. Depending on the day, each area potentially carries high traffic and a large capacity of people.



The Downtown response area has nine educational facilities ranging from early childhood to high school, including a large number of daycares. Also, PZ30 has an independent living facility with an attached memory care unit, big box stores (such as Home Depot, Walmart, Sam's Club, Target, and other grocery stores), shopping centers or plazas, industry (fuel, wood, chemicals, hazards)- these include Resort Services Cleaning, Year-Round Pools, Golf Courses, large assemblies- such as churches and buildings that can be converted into gathering halls, and multifamily structures (commercial and residential)- we have many apartment complexes in the area.

PZ 30 also has many residential communities within the response area. The majority of the neighborhoods are near commercial areas as well, which could create a great deal of traffic in those areas, both with pedestrian and vehicular traffic, which could slow the response. Downtown Bluffton is unique as well because of the number of festivals, events, and gatherings held in the area along with a Farmer's market every Thursday. These events often cause many roads in the area to be temporarily closed off, which could cause issues in accessing certain areas.

Another unique feature of PZ30 is the amount of waterfront property and boat landings in the area. This possesses a high probability of water emergencies or accidents. One of the boat

landings has a gathering area for events as well near it and has limited access in and out of the area with a high traffic volume, especially during holidays and weekends.

Location Factors:

Planning zone 30's area profile consists of a mix of residential, public schools, and mixed commercial property use such as strip-mall shopping areas.

The residential communities in this area are a mix of a single story and two-story single family residences where most are not in gated communities. There are also a few multi-family, multi-story apartment complexes within the planning zone. However, the Myrtle Island neighborhood has a few long and narrow driveways that have to be negotiated when an emergency dictates there being an engine close to some homes to mitigate an incident effectively.

Like all the other planning zones in the District, US highway 278, Bluffton Parkway, and US Highway 46 run through the planning zone. Depending on what time of year it is, some of the roads can have a significant amount of traffic to consider when responding to emergencies. Also, throughout the year, the downtown area can be very crowded due to monthly events that are held and has to consider when responding to emergencies.

Concerning commercial properties like Home Depot and education facilities, a considerable amount of resources have to be considered when mitigating fire-related emergencies.

RISK ASSESSMENT: SPECIAL

- Bluffton High School – 12 HE McCracken Circle (HOL)*
- McCracken Middle School – 250 HE McCracken Circle (HOL)
- Bluffton Middle School – 30 New Mustang Drive (HOL)
- MC Riley School – 200 Burnt Church Road (HOL)
- Bluffton Elementary School – 160 HE McCracken Circle (HOL)
- Red Cedar Elementary School – 10 Box Elder Street (HOL)
- Bloom @ Belfair - 60 Oak Forrest Road care facilities with long term residents with limitations. (HOL)
- Grayco Building Center – 345 Buck Island Road
- RSI – 336 Buck Island Road (FL)*
- Ferrell Gas – 330 Buck Island Road (FL)
- Timeless Interiors – 4380 Bluffton Parkway (FL)
- Crescent Golf Maintenance – Oak Forest Road (FL)
- Pine Crest Golf Maintenance - HE McCracken Circle (FL)

*High Occupant Load= HOL
*Fuel Load= FL

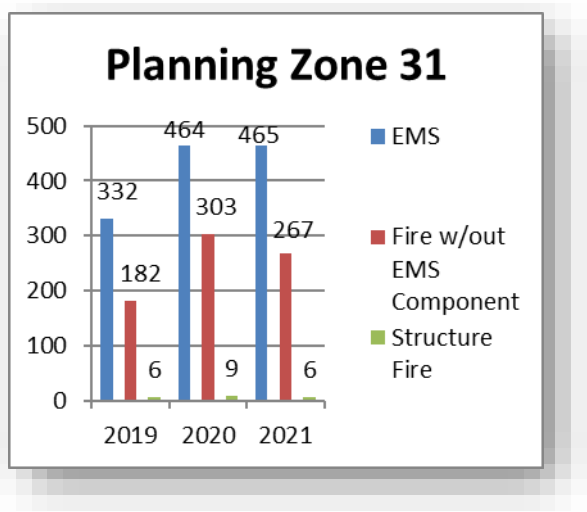
Geographical Planning Zone 31

Pritchardville-May River Plantation-Gascoigne Bluff-New Riverside-Hampton Lake

AREA PROFILE:

This area is also known as Pritchardville and is one of the original areas which comprised the department in 1978 when it was chartered. It is comprised mostly of rural land which includes: large tracks of tree farms, horse farms, and saltwater marsh. In recent years, there has been an explosive growth of residential developments within PZ31. It includes a U.S. DOT rural scenic highway that at one time was the only access to the town of Bluffton from the South, and continues to be the main access road to the city of Savannah, Ga.

Commercial/business areas are limited but include a storage facility, a 5 unit strip mall, one nursing home, one gas station, one fast food restaurant, one retail store, one tree nursery, two public schools, an electric company maintenance yard, and two churches. As the growth continues outward from the Town of Bluffton, Pritchardville already sees the effects which will only increase as time progresses.



Neighborhoods such as The Haven, Southern Oaks, Mid-Point, Alston Park, Cypress Ridge, Palmetto Point, May River Preserve, Lawton Station, Hampton Lakes, Hampton Hall, and Rose Dhu Plantation are large track home neighborhoods that were built within the last 15 years. These homes are built close together and on small to medium size lots.

The Hampton Lakes neighborhood is unique in that it is built around vast man-made lakes. The community is a mix of single family homes, condominiums, and a restaurant. In the event of a water emergency, first responders would need access to privately owned boats that are docked on the lakes.

Hampton Hall Plantation is also unique in that it is built around a large golf course. It is comprised of single family homes, clubhouses, and a restaurant. The homes in this neighborhood are some of the largest in this response area.

The older residential areas include Gascoigne Bluff Plantation and May River Plantation. These plantations were developed over 30 years ago and are characterized by larger lots with limited access.

LOCATION FACTORS:

Fauna common in the Low country such as oak, cypress, and cedar trees, and large vines commonly grow over the roadways. This growth creates a ceiling that makes access for the fire apparatus difficult, particularly on many of the small private roads found in PZ31. The area includes large spans of saltwater marsh, the headwaters of the May River, and natural swamplands. All of which provide limited access for emergency responders.

The roads in this area vary from small dirt roads to state highways. The main roads in this area are S.C. Highway 170, May River Road, Gibbet Road, Old Miller Road, and New Riverside Road. Traffic control devices include a roundabout at the intersection of New Riverside Road, S.C. Highway 170, and May River Road., and a traffic light at the intersection of S.C. Highway 170 and Gibbet Road. Responses must be taken very carefully due to the volume of vehicles on the roadways, which are underdeveloped in size and design. Growth is quickly overtaking the area, and the road network has yet to catch up to the demand.

This district is somewhat isolated, creating a longer than average response time for backup apparatus and ambulances. The western edge of this area is adjacent Jasper County, SC and to the Levy Fire District, a small volunteer fire department to which we have an inter-county mutual aid agreement.

A majority of the commercial buildings, including the schools and nursing home, are protected with modern fire protection features such as automatic sprinkler systems. Unfortunately, the most significant risk for this area is a large number of residences that do not have access to hydrants. Benton Rd., Whittle Ln., Stillwell Rd., Meadows Dr., Barefoot Alley, Cedar Lakes, Grande Oaks, and Gascoigne Bluff Plantation have no access to fire hydrants, and the installed private dry hydrants have not been maintained properly by their owners. Water shuttle operations would be necessary for any significant fire event. The district owns a 3000-gallon water tender that is assigned to Station 31 in Pritchardville; however, it is difficult to drive, and the pump is rated for only 350 GPM. The district is researching both the limited ability of the tender and lack of water supply for possible solutions.

While the District continues to go through the accreditation process, more specifically the comprehensive evaluation of our planning zones, the findings for PZ31 has revealed that a new location for the station would be best for the community. With the economy on the rise and the expansion of existing residential neighborhoods are coming to fruition, the District decided to

relocate station 31 to a better location to serve the growing planning zone. Construction on the new station is expected to begin in April 2020.

RISK ASSESSMENT: SPECIAL

- Pritchardville Elementary at 9447 Evan Way (HOL)*
- May River HS at 601 New River Rd. (HOL)
- Benton House at 8 Hampton Lake Dr. Care facilities with long term residents with limitations. (HOL)
- Hargray building at 18 Gibbet Rd would be our only special Hazard due to materials and equipment that remains in use at this site.

*HOL=High Occupancy Load

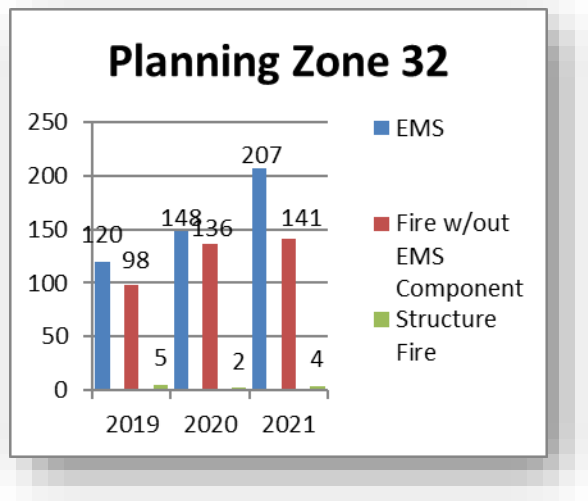
Geographical Planning Zone 32

Callawassie – Spring Island – Oldfield Mews - Various Neighborhoods - Lemon Island Bridge – Okatie Highway/170 Okatee River – Colleton River – Chechessee Creek/River

AREA PROFILE:

This area encompasses private plantations; Callawassie, Spring Island, small scattered neighborhoods including Oldfield Mews apartments, and Chechesse Point-Lemon Island.

A defining characteristic of this area includes its abundant wildlife and undeveloped sections of marsh, woodlands, and wildlands. Pompous grass-laden Lowcountry, river beds and exposed mud and oyster beds that rise and fall with the tides, and then dense and often untouched forestation. Many times these aspects are surrounding these communities or features within golf courses communities are aesthetically pleasing as well as advantageous to preserving a natural look and feel for the populous that call this planning zone home.



There are small pockets of populated neighborhoods within the planning zone, but the most populated area undoubtedly is Callawassie Island. Callawassie Island is similar to many other plantations in the District in that it has a golf course, clubhouse, dotted with ponds, larger homes, and the island is surrounded by marsh and water. The water supply system is well maintained for firefighting needs.

Directly east of Callawassie Island is Spring Island. Spring Island is unique, in that, homes are more substantial than Callawassie, and the lot sizes are much grander, while natural vegetation is the choice of landscaping. The same water system that services Callawassie Island services Spring Island.

Beaufort-Jasper Water and Sewer Authority is just east of the station off of Okatie Highway (SC-170). Also, in the same area is the Beaufort-Jasper health clinic. The clinic is a two-story sprinkled government building that operates under normal business hours.

There is one large apartment complex that sits south of the station just off Okatie Highway (SC-170), called Oldfield Field Mews. The complex has approximately 36 two-story multi-family housing units. Sprinkler systems protect the majority of the units. Furthermore, the entire complex is well protected by hydrants, and accessibility is very good.
Location Factors:

Distance from the station to the farthest point on Spring Island it is more than five miles. Also, some homes are difficult to access due to narrow and winding driveways. Also, there is only one way on and off for both islands, so it is possible that access to the two islands can be compromised in severe weather or due to catastrophic failure of either bridge or causeway.

Another problematic area is the distance to Oldfield Mews apartments. It was recognized that distance was a factor for the first-due engine to travel, so the District converted a mutual aid agreement it had with Hardeeville Fire Department into an automatic aid agreement to help cover the area. By doing so, Hardeeville FD it is now dispatched as part of the effective response force. The area is well watered, and access is very good.

RISK ASSESSMENT: SPECIAL

- Spring Island Golf Course – 6 Golf House Road (Maintenance Building)
- Callawassie Golf Club – 100 Utility Court (Maintenance Building)
- Cheechessee Creek Golf Club – 1 Tucker Point (Maintenance Building)
- Beaufort Jasper Water and Sewer Authority – 6 Snake Road
    - Chlorine Storage – Chlorine is one of the ten highest volume of chemicals manufactured in the US. Even though chlorine is not flammable, it will react explosively with other common substances found in water treatment facilities. If exposed to Chlorine, especially through inhalation, may cause respiratory complications.
    - Exposure to Chemicals, organisms, and raw sewage can result in various conditions. The gases that can be found in some of these buildings or tank storage areas can be harmful to employees and rescue workers in the event of an emergency.
    - Another area of concern for the water treatment and sewage plant is the effect on the community after a major storm. There is a possibility with a large enough storm, flooding may occur, or power outages may cause failures and backups of raw sewage into residential water systems or onto the land surrounding residential properties

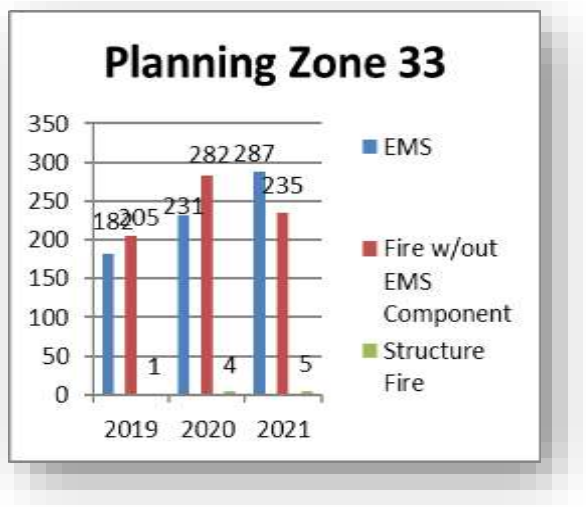
Geographical Planning Zone 33

Moss Creek, Buckingham, Windmill Harbor, Portions of Colleton River Plantation

Area Profile:

This area is best described as a typical suburban area including residential and some light commercial structures. Residential structures vary from apartment and condo complexes to single-family homes. This area also has numerous commercial structures, small businesses, and two golf courses.

The northern section of this Geographical Planning Zone borders the Colleton River. The water of Colleton River is utilized daily by recreational boaters, fishermen and Pinckney Island National refuge. Otherwise, the northern section of this zone (north of Hwy 278) is higher income residential neighborhoods.



The northern section of this zone also has Moss Creek neighborhood and Pinckney Island National Refuge. Moss Creek is a gated community that features larger single-family homes and a golf course. The water system in Moss Creek is sufficient to support all fire operations within the community. Moss Creek also borders the Colleton River. The Pinckney Island National Refuge is governed by the United States Fish and Wildlife Service. The 4,053-acre refuge includes Pinckney Island, Corn Island, Big and Little Harry Islands, Buzzard Island, and numerous small hammocks. The district covers fire protection and medical services for this location.

The southern section of this Geographical Planning Zone is mixed with residential neighborhoods, apartment complexes, light commercial, and a golf course. The majority of the commercial businesses in this zone are larger scale strip malls.

In the southern section of this zone are the two Tanger Outlet Malls. Together these malls house a total of 138 individual retail stores ranging in size from 1,500 to 4,500 square feet. The Tanger Outlet Malls have an adequate water supply, good emergency access, and incorporate current fire protection systems. This area also has Heritage Lakes, Windmill Harbor, and The Gatherings subdivisions. These neighborhoods have adequate water supplies and access for fire and medical

services. Also, the planning zone contains two apartment complexes in Pine Forest and Old South apartment.

LOCATION FACTORS:

This area consists of one main thoroughfare running east and west. Fording Island Road (US 278) is a six-lane highway that splits this zone in half. US 278 is the only access to vacation destination Hilton Head Island. Traffic during vacation dates (Memorial Day to Labor Day) can be extremely heavy, especially on the weekends.

Waterways surround the area. During warmer months, the rivers are teeming with recreational boaters and local fisherman.

A few concerns exist in this planning zone. The two golf courses provide an issue with access to patients on EMS emergencies. Meanwhile, the two apartment complexes create a possibility for substantial loss of life and demand persistent monitoring by the fire department. Another area of concern is the numerous waterways beset with recreational activity. Waterways can create unique emergencies with minimal access.

RISK ASSESSMENT: SPECIAL

- Moss Creek Golf maintenance
- BJWA 115 Forman Hill Rd. (Chemical exposure limited access)
- Hilton Head Harbor RV Resort (Exposure limited access)

Geographical Planning Zone 34

Sun City – Sun City Riverbend - USCB Bluffton – University Park – Old Field – Baynard Park – Park Side – Seagrass Station – Rivers End

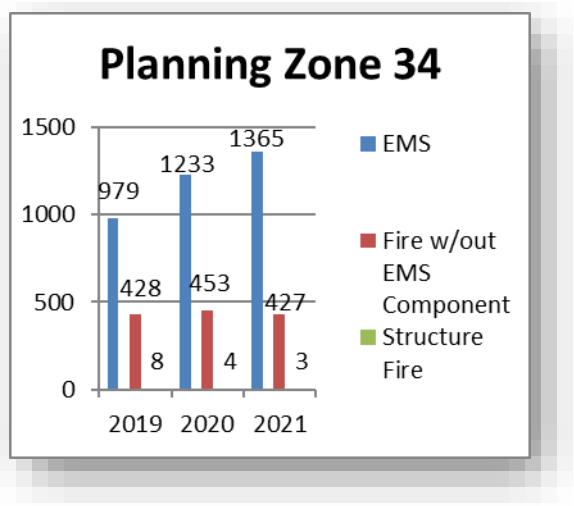
Area Profile:

Planning zone 34 is better known as the Sun City station, and it covers a variety of areas to include commercial properties, educational facilities, and smaller residential areas. PZ34 also includes sections of US Hwy 278 (East/West) and South Carolina Hwy 170 (North/South) which are the main routes of travel for this area.

Also located in Sun City, are many amenities that include a woodworking shop, tennis courts, pickleball courts, softball field, a performing arts theatre, movie theatre, bowling alley, nature trails, lagoons, and many clubs.

On the northern end of the zone, there is another gated community, Oldfield Plantation, which is one of the many gated golfing communities in the area. Oldfield has multiple waterfront properties and offers many amenities, including community pools, fitness centers, golf courses, and equestrian centers.

Other smaller gated communities that are within the planning zone are Sun City's Rivers Bend, Rivers End, Seagrass Station, Parkside and University Park.



On the Western End of the planning zone, lays the 200-acre University of South Carolina-Bluffton campus. It has nine three-story dormitory buildings on site and multiple university buildings. Moreover, there are two full time assisted living facilities in PZ34 with two under construction, and multiple medical facilities that include rehabilitation/assisted living, dialysis as well as numerous commercial properties located on US Highway 170, Okatie Center Blvd North, Okatie Center Blvd. South and William Pope Drive.

The planning zone has Okatie Elementary School and River Ridge Academy (K-8) within its area of coverage and two four-story hotels located just behind the Station.

Location Factors:

While the significant roadways in PZ34 include SC-170, US-278, and Bluffton Parkway, they all have traffic lights that are controlled by preemption devices to allow traffic to clear the intersection before emergency vehicles enter the intersection. Also, the posted speed limits are designed to keep traffic moving smoothly. However, the roads inside Sun City have to be recognized for their speed control measures to slow traffic. For example, the posted speed limit for the majority of the roads is 25mph, and there are numerous stop signs to negotiate while responding to an emergency, all of which slows down the response time.

Significant response considerations in this area include The University of South Carolina-Bluffton campus and assisted living facility.

Because station 34 is located outside of Sun City gates, it presents a problem when responding to emergencies within the community. Even though the furthest address from the station is 3.8 miles, it takes over 8 minutes to travel the distance. Road safety features such as stop signs, narrow winding roads, and low posted speed limits are all factors that contribute to long travel times. Similarly, another problematic area is Oldfield Plantation. It is the farthest plantation in PZ34's service area. Realizing the problem, the District entered into an automatic aid agreement with Hardeeville Fire Department which is located closer to Oldfield Plantation.

It should be duly noted though; the District has a Standard Operating Guideline for emergency response, SOG (107.09) that follows South Carolina Code 56-5-760, "Operation of authorized emergency vehicles." This traffic law allows the authorized driver to exceed the posted speed limit when he or she does not endanger life or property and practices due regard for the safety of others. However, the District has set a strict limit for its personnel not to exceed 10 mph over the posted speed limit when responding to emergencies.

RISK ASSESSMENT: SPECIAL

- The Palmettos 3035 Okatie Highway- This nursing home is considered a high hazard because of the age and condition (memory care) of the patients as well as the number of occupants held within.
- NHC 3039 Okatie Highway- This nursing home is considered a high hazard because of the age and condition of the patients as well as the number of occupants held within.
- Magnolia Hall 118 Sun City Lane- This area is considered a high hazard due to the age and amount of occupants that gather daily. Large groups of people gather in this location to watch movies, plays, and other shows.
- Encompass Health 107 Seagrass Station- This area is considered a high hazard due to the condition of its patients. This facility is used for rehabilitation, and some of the patients are in poor health.

- Ashley Furniture 101 Okatie Center Blvd North– This area is considered a high hazard due to its fire load. This large store is full of highly combustible furniture items. This area is large enough for a person to become easily disoriented during emergency operations.

Geographic Planning Zone 35

Berkeley Hall Plantation-Rose Hill Plantation-Woodbridge-Island-West-Belfair Plantation

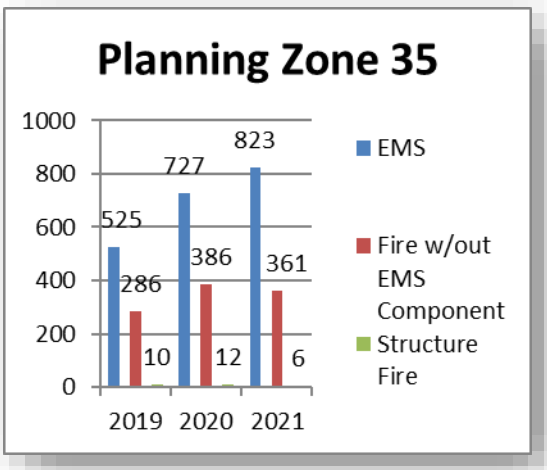
Area Profile:

Planning Zone 35's community is a combination of residential, light commercial, professional offices, including several small strip-type shopping areas.

The residential neighborhoods in this district are comprised of public and private (gated) communities with several multi-family apartment complexes. The commercial property is predominantly one-story offices and retail stores. This area also has two small parochial schools (K-12) within its boundary, creating an increase in traffic at pick-up and drop-off times during the schools' calendar year. Station 35's area also includes a multi-story continuing care facility.

Location Factors

Station 35's area is comprised of a mix of public and private residential roadways. The area is also bisected by US highway 278 (Fording Island Road) with an East/West direction of travel. The topography is generally flat with little to no slope. There are several County controlled intersections (traffic lights) as well as many two, three, and four-way stop intersections. The roadways in the private plantations are mostly residential, with stop signs at the intersections. Hazard response and mitigation in the private communities is provided for by the District.



Significant response considerations in this area include the continuing care facility and the schools.

The continuing care facility's population includes some residents that have limited mobility, and some have dementia/Alzheimer's. The facility has fire protection systems in place, but some doors of the building are locked at all times for the resident's safety and security.

Both of the Schools within Station 35's area have limited emergency vehicle access. The schools are new, protected construction with monitored fire protection systems. During morning and afternoon student drop-off and pick-up, access for emergency vehicles is severely limited, increasing response times.

RISK ASSESSMENT: SPECIAL

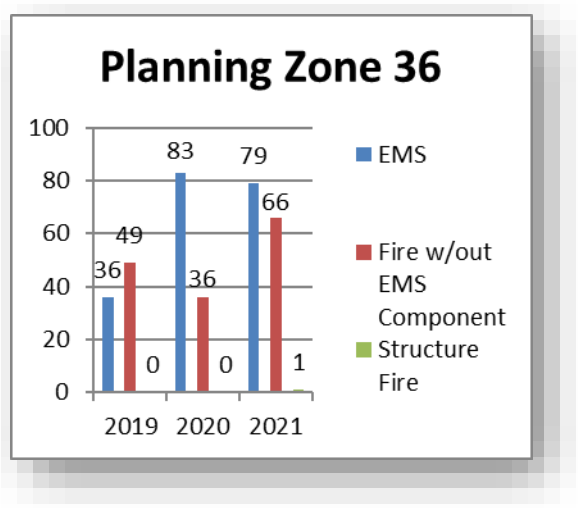
- EVICORE Building 400 Buckwalter Place Blvd and 1 Carecore Dr. (HOL)
- Bloom at Belfair 800 Fording Island Rd (HOL assisted living- Limited access)
- Saint Gregory the Great Catholic School 323 Fording Island Rd (HOL)

Geographical Planning Zone 36

Colleton River Plantation, Moss Creek Plantation,

Area Profile:

Planning zone 36 has a response district that is composed primarily of single-family residences inside of the private communities Colleton River Plantation and a portion of Moss Creek Plantation. Colleton River Plantation Club is a member-owned golf community. The 1,500 acres of Lowcountry land is surrounded by water on three sides and is adjacent to Victoria Bluff Heritage Preserve. A majority of the houses in this district are utilized as vacation or second homes and not occupied throughout the entire year. Most homes range between 2,500 to 4,000 square feet in size with one exception, a 20,000 square foot home that share features with those of commercial structures.



Additionally, this planning zone encompasses two golf clubhouses, golf maintenance facilities, amenities centers, and a restaurant. Access into the community is restricted and permitted only to residents and their guests. Waterfront access on the Colleton River and being the home of one of the top 100 golf courses in the country makes this region a favorable venue for large golf events. In 2015, Colleton River was the host site for the USGA Junior Amateur Championship drawing large crowds and vendors into the community.

As this standards of cover was, station 36 moved from inside Colleton River Plantation to a new location just outside of the back gate of the plantation. This move made it possible for station 36 to cover more areas outside of Colleton River. The new location gives station 36 better access to Moss Creek Plantation as a second-due apparatus. Since the new location of the station has moved, the planning zone now encompasses Tanger One outdoor shopping mall and a small stretch of commercial properties next to it, all of Colleton River Plantation, and a portion of Moss Creek Plantation.

Location Factors:

All access within Colleton River is limited to narrow residential roadways. The roads within the community are winding with sharp curves restricting the speed of responding emergency apparatus. Marked speed in all of the community is 30mph, which is the realistic, safe response

speed for large vehicles. Night time responses pose additional challenges due to the lack of street lights and abundant wildlife (deer).

Many of the homes in the district have automatic notification systems in place for fire protection but are not protected with sprinklers. Though the houses are newer and comply with current building codes, fire conditions could result in a higher chance of "loss of life" and or "loss of personal property" due to their size. As a proactive measure, the district takes every opportunity during the construction phase or during false fire alarms to preplan the larger homes with the residents when permitted. Understanding the layout improves the crew's capabilities and efficiency during emergencies.

RISK ASSESSMENT: SPECIAL

- Waddell Mariculture Research and Development Center
    - This facility has chemicals, tanks, nets, pumping equipment, potential water rescue, no fire hydrants
- Colleton River golf maintenance (Jack Nicklaus & Pete Dye) (Chemical storage)

Geographical Planning Zone 37

Palmetto Bluff

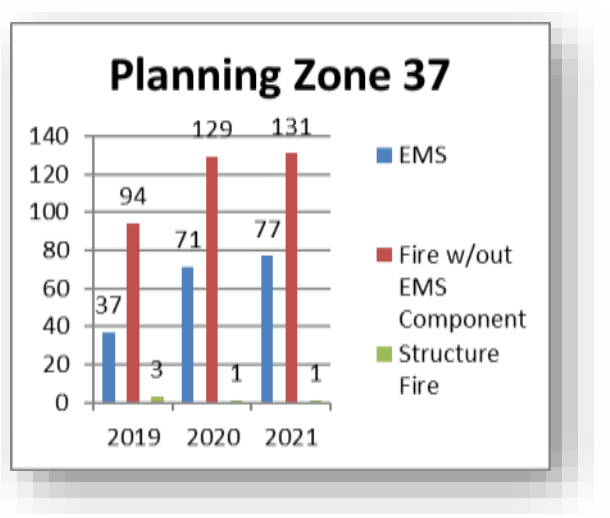
AREA PROFILE:

This planning zone is known as Palmetto Bluff Plantation. It is a private gated community with residential homes as well as commercial buildings. The community itself is an entire planning zone.

The residential homes range from 2500 square foot patio homes to multi-thousand square foot estate homes. There are also private gated communities within the community of Palmetto Bluff. Each of the communities has its amenities facility. The community has a large riverfront residential area as well as multiple resort areas which are also located on the riverfront.

The estate homes range from gated communities with multi-acre home sites, to private gated multi-acre home sites.

The resort areas are equipped with shopping areas, restaurants, tennis courts, and a basketball court. There are multiple resort areas which vary from a large multi-story 5-star spa/resort building to quaint private cottages. There are multiple swimming pools and a bowling alley. Also, within one of the riverfront resort areas are two historical chapels. There is also a large multi-story administrative building equipped with a restaurant, conference rooms, and a wine cellar/lounge.



Palmetto Bluff Plantation also has a world-class equestrian center known as Longfield Stables. Longfield Stables equestrian center is equipped with a boarding facility and a maintenance facility.

Palmetto Bluff Plantation also has a shooting club. This professionally-designed sporting clays course boasted 13 sporting clays stations as well as an elevated and covered five-stand station, and a wobble deck field for a total of 15 shooting sites.

The resort area also includes a dry boat storage facility which includes boat and kayak rental.

Palmetto Bluff Plantation is also a golf community with an 18 hole, "Jack Nicklaus," designed golf course. There is a large clubhouse with a restaurant, pro shop, and golf cart storage building. The community also has a small grocery market equipped with gas pumps.

Palmetto Bluff still has many acres of undeveloped property. The development of homes and commercial buildings is continuously growing and is projected to continue to grow for many years. At this time the fire station, Station 37, is located within the confines of the Palmetto

Bluff Golf Maintenance facility which includes an administrative facility, equipment storage, and gasoline and diesel storage. The fire station is a temporary facility which at the moment is within a 5-mile radius of any of the residential and commercial properties. The permanent station will be built as the community development expands. The responding apparatus at Station 37 is Engine 337.

LOCATION FACTORS:

This area is comprised of 20,000 acres of land which includes 32 miles of riverfront property. The resort riverfront area has narrow streets with sharp turns. There are usually many cars parked impeding access for apparatus. The resort hosts many events with densely populated areas. Some events may host several hundreds of guests.

The resort area also is equipped with what is known as "Tax Payer buildings." These buildings have commercial occupancies on the first floor and residential occupancies on the floors above. The FDC (Fire Department Connection) locations for these buildings are located off of a narrow driveway behind the buildings. The driveway is a very narrow street within the collapse zone of the buildings. Additionally, the Montage hotel is another large high occupancy building that has limited access to the rear of the hotel.

The Boat storage facility is fire protected but still has a significant fire load.

Due to the location of the fire station, the backup engines are potentially 15 minutes away, thus delaying additional resources to assist getting large working fires under control if not extinguished in a reasonable amount of time. Narrow streets will make it difficult at best for elevated master streams to be deployed to protect life and property.

The residential homes within the resort areas are very close to each other, causing a risk of multiple exposures in the event of a structure fire. The estate homes are on large parcels of land with no fire protection, un-marked dark colored hydrant's (very difficult to see) water supply, and narrow, unpaved driveways. Elevated master streams may not be possible because the apparatus may not have access to the residence.

Since the resort hosts many large events, the possibility of a mass casualty incident exists.

There is also, due to our geographical location, a risk of a natural disaster such as a hurricane. Evacuation of the community will be challenging.

RISK ASSESSMENT: SPECIAL:

- Wilson Landing Boat Dry Storage 31 Boat House Street
  - Heavy fuel load
  - 5000 gallons of marine fuel storage
  - 3000 gallons of diesel fuel
  - Accessibility within the collapse zone
- Palmetto Bluff golf maintenance 550, 552, 556, 558 Old Palmetto Bluff Rd.
  - 2000 gallons of fuel
  - 3000 gallons of diesel
  - Chemical storage
- Montage at Palmetto Bluff 477 Mont Pelia Rd.
  - High occupancy load
  - No access to the rear of the building

9. Critical Task Analysis and Effective Response Force (ERF) **(CC 2C.4)**

For every service provided by the District, i.e., fire suppression, emergency medical service (EMS), rescue, and hazardous material incidents (Hazmat), there are inherent risks that have to be considered, and there are tasks that have to be completed to minimize those risks. Therefore, after the District categorized the risks into low, medium, and high for each service provided, the District conducted a *critical task analysis* (CTA). In other words, does the District provide the right amount of trained personnel and physical resources needed to resolve emergencies safely.

Note: On December 3rd, 2018, the command staff decided to create a Battalion Aid position. The position was created for three reasons: public safety: to provide a designated driver to eliminate the potential distracted driver accidents, to provide a designated safety officer and mentorship for new officers.

The results of the CTA are indicated by service and risk type in the charts below. Minimum staffing is three (3) personnel per engine and two (2) personnel for the battalion.

Critical Tasking: Fire Suppression

Low Risk (Fire Alarm, Vehicle, Brush, Dumpster Fire)		
Apparatus	**Tasks**	**CTA**
First Due Engine	Officer- Establish command; size up, initial action plan, Safety Officer	1
	Engineer- Apparatus placement, water supply, operate fire pump to provide desired flow rate for fire attack	1
	Firefighter(s) and Officer- Deploy proper hose line and began an initial fire attack	1
Second Due Engine/ Truck	Crew- Provide water supply for first arriving apparatus	1
	Crew- Assist as directed by Incident Command	2
Critical Task Analysis Staffing	**Total Personnel**	**6**

Medium (Single Family / Multi-Residence, Detached Garage, Commercial Building		
Apparatus	**Task**	**CTA**
First Due Engine	Officer-Scene size up, Command decision, Incident action plan	3
	Engineer- Apparatus placement, water supply, operate fire pump to provide desired flow rate for fire attack	
	Firefighter(s) and Officer- Deploy proper hose line and began initial fire attack or rescue	
Second Due Engine	Ensure water supply, make connections and operate fire pump to supplement buildings fire suppression system	3
	Deploy a secondary attack line	
	IRIC	
Third Due Engine	Establish Rapid Intervention Crew	3
Fourth Due Engine	Perform duties as directed by Incident Command	3
Planning Zone 32 (HFD/BFD)*	Perform duties as directed by Incident Command	4
Planning Zone 34 (HFD/JCFD)**	Perform duties as directed by Incident Command	2
Rescue	Perform duties as directed by Incident Command	3
Truck Company	Officer and Firefighter- Force Entry, Search and Rescue,	2
	Operator and Firefighter- Ground ladders, aerial operations, control utilities, ventilation	
Battalion Chief w/ Aid	Assume Incident Command, Bat Aid Incident safety officer	2
	Evaluate incident action plan and update as needed	
	Consider additional resources	
Critical Task Analysis Staffing	**Total Personnel**	**25**

***Denotes Hardeeville (1 person) and City of Beaufort Fire Department (3 personnel) is part of the ERF for Planning Zone 32.**

****Denotes Jasper County Fire Department (1 person), Hardeeville Fire Department (1 person).**

High Risk (Assisted Living facilities, Golf chemical storage, and Schools)		
Apparatus	**Task**	**CTA**
First Due Engine	Officer-Scene size up, Command decision, Incident action plan, Request additional alarm upon confirmation of a working fire	3
	Engineer- Apparatus placement, water supply, operate fire pump to provide desired flow rate for fire attack	
	Firefighter(s) and Officer- Deploy proper hose line and begin initial fire attack or rescue	
Second Due Engine	Ensure water supply, make connections and operate fire pump to supplement building's fire suppression system	3
	Deploy a secondary attack line	
	IRIC	
Third Due Engine	Establish Rapid Intervention Crew	3
Fourth Due Engine	Perform Duties as directed by Incident Command	3
Fifth Due Engine	Perform Duties as directed by Incident Command	3
Sixth Due Engine	Perform Duties as directed by Incident Command	3
Seventh Due Engine(Planning Zone 32 HFD/BFD)*	Perform Duties as directed by Incident Command	4
Eighth Due (Planning Zone 34 HFD/JCFD)*	Perform Duties as directed by Incident Command	2
Rescue	Perform Duties as directed by Incident Command	3
Truck Company	Officer and Firefighter- Force Entry, Search and Rescue,	2
	Operator and Firefighter- Ground ladders, aerial operations, control utilities, ventilation	
Battalion Chief w/ Aid	Assume Incident Command, Incident safety officer	1
	Evaluate incident action plan and update as needed	
	Consider additional resources	
Safety Officer	Monitor conditions and overall safety of all operations	1
	Establish Safety Group if needed due to incident size or complexity	
Officer	Additional command staff	1
	Additional Safety Officer	
	Total Personnel	**32**

***Denotes Hardeeville (1 person) and City of Beaufort Fire Department (3 personnel) is part of the ERF for Planning Zone 32.**

****Denotes Jasper County Fire Department (1 person), Hardeeville Fire Department (1 person).**

Critical Tasking: EMS

EMS: Low-Risk: Not serious or life-threatening			
Unit	**ERF**	**Critical Task**	**CTA**
First Due Engine Company	3	Command / Safety / Family Liason / Patient Assessment / Patient Care / Handling / Equipment / Documentation / Medical Communications	3
Total Effective Response Force	**3**		**3**

EMS: Medium-Risk: Serious, but not immediately life-threatening			
Unit	**ERF**	**Task**	**CTA**
First Due Engine Company	3	Command / Safety / Patient Assessment / Patient Care / Handling / Equipment / Documentation / Medical Communications	3
Battalion QRV	2	Assume Command / Incident Safety Officer / Family Liason	2
Total Effective Response Force	**5**		**5**

EMS: High-Risk: Life-threatening, requiring immediate intervention			
Unit	**ERF**	**Task**	**CTA**
First Due Engine Company	3	Command / Safety / Triage / Patient Assessment / Patient Care / Handling / Equipment / Documentation / Medical Communications	3
Second Due Engine Company	3	Safety / Triage / Patient Assessment / Patient Care / Handling / Equipment / Documentation / Medical Communications	3
Battalion QRV	2	Assume Command / Incident Safety Officer/ Resource Management / Liason with EMS or LEO.	2
Total Effective Response Force	**8**		**8**

Critical Tasking: Technical Rescue

Technical Rescue Critical Tasking: Low-Risk (Elevator Rescue)		
Apparatus	**Task**	**CTA**
Engine First Due	Assumes Command Recon and Locate Patient	3
Rescue	Performs Elevator Rescue	3
Total Effective Response Force	**Total Personnel**	**6**

Technical Rescue Critical Tasking: Medium-Risk (Water Rescue)		
Apparatus	**Task**	**CTA**
Engine First Due	Assumes Command Recon and Locate Patient	3
Rescue/Boat Asset	Establish Rescue Group Launch Boat and perform rescue	3
Battalion Chief	Incident Command Safety officer	2
Total Effective Response Force	**Total Personnel**	**8**

Technical Rescue Critical Tasking: Medium-Risk (Basic Auto Extrication)		
Apparatus	**Task**	**CTA**
Engine First Due	Assumes Command Recon Patient Care	3
Rescue	Rescue Operations	3
Engine Second Due	Secure Fire Hazards	3
Battalion Chief	Incident Command Safety officer	2
Total Effective Response Force	**Total Personnel**	**11**

Technical Rescue Critical Tasking Continued:

Technical Rescue Critical Tasking: High-Risk Trench Rescue/Confined Space Rescue		
Apparatus	**Task**	**CTA**
Engine First Due	Assumes Command Recon and Locate Patient	3
Second Due Engine	Decon and Manpower	3
Rescue	Establishes Rescue Group Initiates Rescue Operations	3
HHIFR Rescue Truck	Setup Logistics for equipment Assist in Setup and Rescue	3
RRT-4 Callout	Perform rescue Operations as needed	10
Battalion Chief	Incident Command Safety officer	2
Total Effective Response Force	**Total Personnel**	**24**

Critical Tasking: Hazardous Materials Incidents

Level 1 HAZMAT Response* Low Risk (Any spill 55 gallons or less, natural gas or propane odor outside)		
Apparatus	**Task**	**CTA**
First Due Engine	Officer assumes command, performs scene size up, develops an IAP, recognizes the need and calls for additional resources	3
Rescue	Isolate and deny entry, medical triage, initial	3
Critical Task Analysis Staffing	**Total Personnel**	6

Level 2 HAZMAT response* Medium (Any spill 55 gallons or more, or known substance at dispatch time) No immediate threat to life.		
Apparatus	**Task**	**CTA**
First Due Engine	Officer assumes command, performs scene size up, develops an IAP	1
	Entry/Recon	2
Second Due Engine	Back-up/Decon	3
Battalion Chief w/ Aide	Assumes command, reevaluates IAP and makes necessary changes, recognize the need and calls for additional resources	1
	BC Aide assumes the role of Incident Safety Officer	1
Rescue	Isolate and deny entry, medical triage	3
Truck	Assist units on scene as needed	2
Total Effective Response Force	**Total Personnel**	**13**

*A Level 2 response consists of 2 engines and Battalion Chief (BC) w/ aide. The first arriving engine initially assumes the role of IC and Safety. Upon the arrival of BC w/ aide, command and safety are assumed from the first arriving officer. BCEMS provides medical.

Level 3 HAZMAT* High-Risk response: (South Carolina HazMat Regional Team 4) Spill of an unknown substance of any size, any release of a Toxic Inhalation Hazard (IDLH atmosphere), immediate threat to life.			
Positions		**Task**	**CTA**
Incident Command	1	Assumes command of the incident, develops an IAP, communicates with Hazmat Branch, liaison with other agencies if on scene	1
Incident Safety Officer	1	Oversees safety of the entire incident	1
Hazmat Branch	1	Oversees Hazmat side of the incident, communicates back to Incident Command	1
Hazmat Safety Officer	1	Oversees safety of hazmat operations, accountability of hazmat personnel	1
Decontamination Officer	1	Oversees decontamination of personnel	1
Decon Team	4	Sets up decontamination line, performs decontamination of personnel after exiting hot zone	4
Entry Officer	1	Briefs entry personnel	1
Recon Team	2	Establishes control zones, relays information back regarding the incident, reports back to Entry Officer	2
Entry Team	2	Finishes recon if not completed, mitigation of incident, reports back to Entry Officer	2
Back-up	2	Safety for entry team/RIC performs further mitigation if needed, reports back to Entry Officer	2
Medical/Rehab	2	Obtains vitals before and after of entry personnel, sets up rehab	2
Science	1	Works with Safety Officers determining proper PPE, isolation zones, treatment for responders and public	1
Total Effective Response Force		**Total Personnel**	**19**

* A level 3 response will rapidly tax the Districts numbers and off-duty personnel. SCHM4 will likely be requested to respond. The size of the incident will dictate the positions assigned and extra personnel needed

10. Historical Perspective and Summary of System Performance

To create a successful Standards of Cover document it is essential to understand the system performance model. There are two components to the system performance model: distribution and concentration. Both components are measured in time. Distribution relates to the placement of first-due resources (fixed deployment station) for immediate mitigation of an emergency, and concentration refers to the placement of specific resources, i.e., the Truck Company, and rescue to deploy district-wide to assist the first-due resources effectively. This too was determined by historical need and possibility of need. These two factors take into consideration risk levels, critical tasking, and physical and human resources.

Distribution Factors:

The distribution consists of two components; the geographical location of a station and time measurement for how quickly the first-due apparatus will arrive at an incident. For the District, all apparatus respond from fixed station locations. As of this Standards of Cover publication, there are eight response areas from which the District responds. The District does not use the closest apparatus or better known as Automatic Vehicle Locator (AVL) at this time.

As stated earlier, from its inception, the District inherited existing stations that were formerly volunteer stations, and as such, the stations were not always in the ideal locations. First station locations were placed close to the largest population centers; Downtown Bluffton, Pritchardville, and Callawassie. Unfortunately, these stations are miles apart, and as growth in the community continued, the areas between the stations also began to develop. This created the need for additional stations to serve the “infill” areas. At the time, the tax base would not support large expenditures for land and buildings. Therefore, the District was forced to build where it could on donated or county-owned property. This meant that stations were not always in the ideal locations to suit the needs of the District but were made to work. As the District has continued to

grow and as such, so has the tax base for the construction of new facilities to meet the needs of the community are possible.

To this end, and using modern analytical methods, the District identifies areas that have long response times and is planning for new stations. For example, Station 38 is proposed to be built on Hampton Parkway and Bluffton Parkway to alleviate long response time along Hampton Lake and parts of Sun City; furthermore, Station 38 will help with concentration.

Concentration:

Concentration is the spacing of resources within a geographical area so that enough human and physical resources can successfully mitigate an emergency. That is, concentration is the result of all preassigned apparatus arriving on-scene (ERF) to mitigate an emergency. For example, on a structure fire, there is the arrival of the first-due engine on-scene (*distribution)*, and then preassigned complement of resources to arrive after that, i.e., an additional four (4) engines, a truck company, rescue, and a battalion within the prescribed benchmark time to prevent the spread of fire is the *concentration*.

The District currently has one Truck Company, one brush-truck, one new quint, and one new heavy rescue to support engine company operations across the District. The heavy rescue is a versatile piece of apparatus: it can support structure fire operations, water rescue with one inflatable boat on board and the other on a trailer, technical rescue such as extrication, high angle rescues, and hazardous materials incidents.

Both the brush truck and the rescue, with the inflatable boats, are centrally located within the district at Station 35. The third boat is located at station 33 on the eastern portion of the district

where there are three public boat ramps nearby to access the May River and Colleton Rivers.

All of which are limited resources. Thus, these units are centrally located at station 35 so that the concentration of equipment and human resources can arrive within the prescribed benchmark time.

Reliability:

Reliability is the ability for the District to deliver services within performance expectations consistently - Does the District have enough human and physical resources to perform its duty reliably. To accomplish this, the District has procedures in place to keep resource drawdown (Resistance) or out-of-service of first-due engines to a minimum. For instance, when the District is conducting training scenarios, no more than two engines will be out-of-service for an extended period. By doing so, the continuity of service performance and an effective response force will only be slightly affected when such a drawdown of personnel and equipment happens.

Furthermore, during the summer months, severe thunderstorms roll through the area and can wreak havoc for short periods that can stress the capabilities of the District. From a historical point of view relating to weather, the District has in place a "Storm mode" policy to help limit resource drawdown when severe weather events happen. By following the storm mode policy, the District can effectively place resources where they are needed most(Resistance-limiting

resource consumption) based upon the event, and if needed (Absorption: ability to add or duplicate resources), the on-call Duty Officer can issue a "Call-Back" for additional personnel and physical resources (Restoration: ability to return to functionality or normalcy within the system).

Likewise, the District uses historical data to understand resource drawdown. It is imperative of the District to understand the reliability for each planning zone so that the District is adequately covered by human and physical resources when short-lasting significant events like structure fires, severe thunderstorms, and technical rescue incidents happen. (CC2D.1)

For events that are not as common as day-to-day operational incidents, the District relies on mutual and automatic aid agreements with its neighboring departments (Restoration). By having these agreements in place, the District can return to normalcy quicker and still keep reliability high.

Lastly, as the area continues to be developed and population density changes, the District will determine if the service it provides to its stakeholders is effective. How this is done, in part, is by understanding the system performance it provides to its community. The District conducts this analysis on an annual basis. The chart below shows the reliability of 85 percent or above for each planning zone. Therefore, this tells the District command staff that the reliability for each station, and its human and physical resources, are available most of the time; therefore, there is not a need to add additional human and physical resources to any particular station. However, the District does have a threshold to add additional resources when and if it does go below 70% reliability. Once a station drops below this threshold more resources will be assigned accordingly.

	Planning Zone Reliability		
	2017	2018	2019
Station 30	89%	90%	89%
Station 31	93%	92%	93%
Station 32	96%	96%	96%
Station 33	92%	90%	92%
Station 34	92%	92%	92%
Station 35	91%	90%	91%

Station 36	95%	93%	95%
Station 37	85%	90%	84%

11. Performance Objectives and Measurements: (CC2C.5)

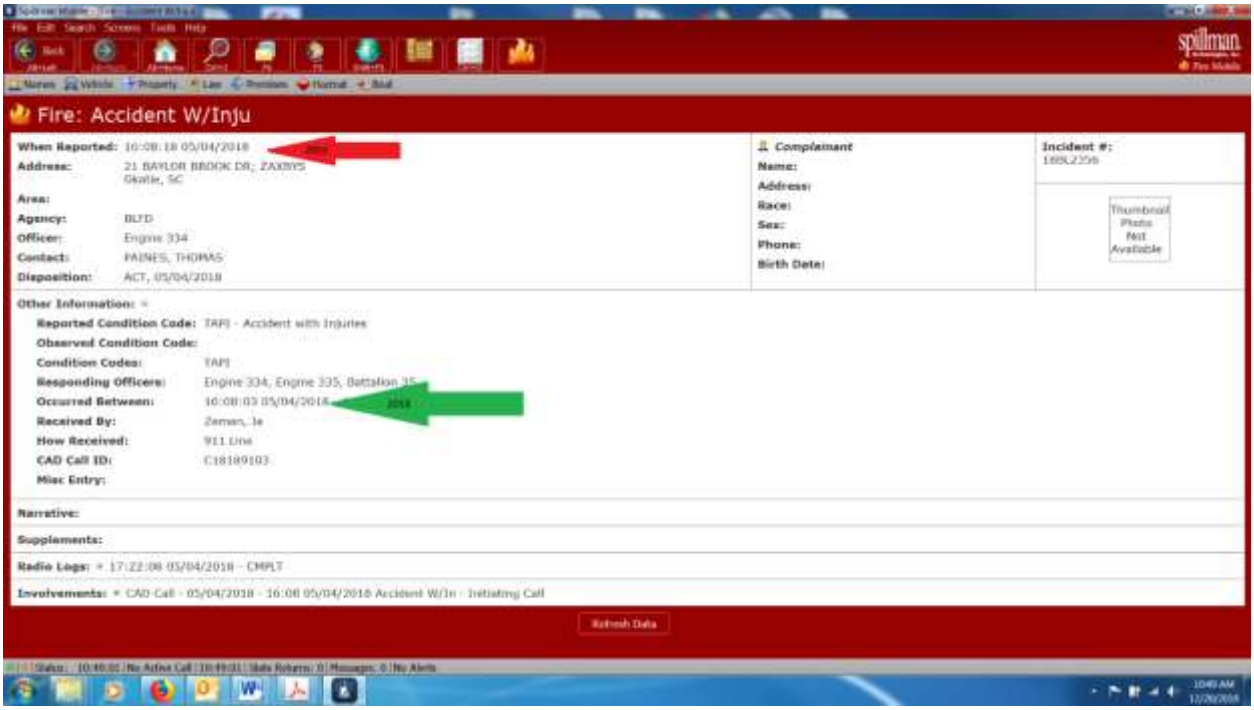
Baseline Performance Statement:

Baseline performance is a measurement of the current time (actual performance). It incorporates the 911 time continuum: Alarm handling (PSAP); Turnout time; Travel time; and Total response time. Within each of the above time segments, data is collected and analyzed to determine baseline performance for each of the services the District provides to its stakeholders: fire suppression, EMS, technical rescue, and hazardous materials incidents. Furthermore, the District collects time data on effective response force (ERF) to thoroughly understand the time it takes to have all human and physical resources on an emergent scene as dictated by the incident.

Baseline performance is then used to set benchmark times. Benchmark times are strived for, or in other words, a goal. The purpose of establishing baseline performance is to understand where the gaps in services are and to investigate the causes and implement corrective action. It is imperative for any fire department to understand its current performance. By completing this segment of analysis, the District can begin to improve its performance in all of the services it provides to its stakeholders. Baseline performance is based on three years of data-2016-2018. **CC2C.**

A note about Baseline data. It was discovered while analyzing the data that the District was collecting the incorrect time segment for alarm handling time. Specifically, when Beaufort County Dispatch started using Spillman CAD interface in 2014, the training that was given to the District by the County, concerning time collection, was incorrect. From the beginning, the county instructed the District to use "When reported time" as 911 pick-up time. This was incorrect. The "Occurred between time" was the time that needed to be collected. See below

diagram:



As a result, starting April 19, 2018, the District collects the "Occurred Between time." Moreover, to understand the time difference between the "When Reported time" and the "Occurred Between time" a data sample size of 400 randomly selected emergency calls were obtained; whereby the median time of 18 seconds was obtained and was added to the "Alarm handling" time segment in the benchmark time tables you will see later in the document.

Lastly, the District upgraded its RMS to FireWorks RMS in October 2018; the time collection error is now moot. Because FireWorks integration into the County's CAD, the correct times are automatically sent to the District's RMS. However, for apparatus outside the District, response time will be copied and input manually into the RMS.

A note about effective response force (ERF) baseline performance: As the District conducted its analysis of ERF data, it was discovered the ERF response was inconsistent concerning code 3 responses (lights and siren) for some call types. That is, the data for brush fires and motor vehicle accidents (MVA), the response was inconsistent when compared to the District's response SOG. In other words, the District responded to some brush fires and MVA's where the first-due engine would respond code 3, but the second-due engine (ERF) would respond code 1,

consequently skewing the ERF data. Therefore, the data set for those incident types are very low.

Benchmark Statement and Methodology:

The District, on an annual basis, analyzes its data to identify opportunities to improve its performance district-wide. The benchmark methodology is part of the annual appraisal of its overall performance. Concerning this analysis, the District's response history is analyzed to identify consistencies, reliabilities, and resiliencies by risk category and incident classification. This methodology is used to establish benchmark times for first-due (Concentration) and ERF (Distribution). (CC 2D.1)

The method follows CPSE's 6th edition of the Community Risk Assessment Standards of Cover which defines total response time as Alarm handling time (PSAP), Turnout time, and Travel time for first-due and effective response force (ERF).

Benchmarks: Performance Objectives

Benchmark statements are performance objectives to strive for (Goal). As mentioned earlier, benchmark objectives pertain to the 911 time continuum for each service provided by the District; fire suppression, EMS, hazardous materials incidents, and technical rescue.

The chart below depicts the National Fire Protection Association (NFPA) NFPA 1710 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire. The chart is used as a comparison to the District actual baseline performance and benchmark statements, which is described in the performance charts later in this document. The intention for depicting the NFPA standard is to show the perspective of the national standard versus the actual baseline performance so that new benchmarks can be established.

Benchmark Performance Objectives			Structure Fires	EMS	Technical Rescue	Hazardous Materials
Alarm Handling (NFPA Recommended)	Pick up to Dispatch	Urban	1:04	1:30	1:30	1:30
Turnout Time (NFPA Recommended)	Turnout Time 1st Unit	Urban	1:20	1:00	1:20	1:20
Travel Time (NFPA Recommended)	Travel Time 1st Unit Distribution	Urban	4:00	4:00	4:00	4:00
	Travel Time ERF Concentration	Urban	8:00	8:00	8:00	8:00
Total Response Time (BTFD Historical Data)	Total Response Time 1st Unit On-Scene Distribution	Urban	11:51	11:12	12:12	12:47
	Total Response Time ERF Concentration	Urban	19:26	11:16	60	60

The command staff discussed the goals for each time segment except for alarm handling. Because alarm handling is out of the purview of the District, the command staff decided to follow NFPA 1221 (7.4.2) Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems. Though the District does not have jurisdiction over the dispatch center, it does monitor it monthly. If there is a concern with alarm handling time, the District will follow the county's policy for dispatch errors.

Fire Suppression Benchmarks:

All Risk Levels: First-Due

For 90 percent of all risk levels, the total response time for the first-due apparatus, consisting of a minimum of 3 personnel, shall be 11 minutes and 50 seconds. The first-due apparatus (Distribution) shall be capable of: establishing command, providing 750 gallons of water with a pump capacity of 1500 gallons per minute (GPM), complete a scene size-up, develop an initial incident action plan, establish a water supply (if possible), deploy proper hose lines flowing a minimum of 150 GPM or rescue. Personnel are expected to follow the District's standard operating guidelines and perform tasks safely for themselves and the public.

Low-Risk ERF

For 90 percent of all low-risk incidents, the total response time for the effective response force (ERF-Concentration), consisting of a minimum of 3 personnel, shall be 15 minutes and 27 seconds. The ERF shall be capable of: establish/assisting with a water supply and help with hose lines or rescue. Personnel are expected to follow the District's standard operating guidelines and perform tasks safely for themselves and the public.

Medium-Risk ERF

For 90 percent of all medium-risks incidents: the total response time for the ERF (Concentration), consisting of a minimum of 25 personnel shall be 19 minutes and 26 seconds. The ERF shall be capable of: establishing a safety officer, establishing rapid intervention team {RIT- OSHA requirement 2 in-2 out: policy 29 CFR 1910.134(g)(4)(i)}, assist with water supply, ladder buildings for second means of egress, assist with ventilation, rescue, hose

management, and perform salvage and overhaul. Personnel are expected to follow the District's standard operating guidelines and perform tasks safely for themselves and the public.

High-Risk ERF

For 90 percent of high-risk incidents: the total response time for the ERF (Concentration), consisting of a minimum of 31 personnel shall be 19 minutes and 26 seconds. The ERF shall be capable of establishing an additional safety officer and deploy resources as needed. Personnel are expected to follow the District's standard operating guidelines and perform tasks safely for themselves and the public.

Below is a table that depicts baseline performance for three years (2017-2019). The table illustrates the 90th percentile of each of the risk classifications and the number of calls for each year. The baseline performance data is the control data that is used to set benchmarks (Goals). The command staff uses the baseline data to compare to the set benchmarks where gaps in service are identified and where the command staff determine the cause. Likewise, within the same chart are benchmarks in which the District will strive. The table is depicted for Fire Suppression, Technical Rescue, Hazardous Materials Incidents, and EMS.

Lastly, the District has not experienced a high-risk incident for Fire Suppression for the data period; therefore, the medium-risk benchmark statement is the same for high-risk.

Baseline Performance: Fire suppression

Fire Suppression - 90th Percentile Times - Baseline Performance First-Due All Risk Levels			2017-2021 Aggregate	2021	2020	2019	2018	2017	Agency Benchmark (Target)
Alarm Handling	Pick-up to Dispatch	Urban	2:54*	2:58	2:55	2:51	2:57*	2:50*	2:36
Turnout Time	Turnout Time 1st Unit	Urban	1:48	1:51	1:57	1:54	1:47	1:58	1:35
Travel Time	Travel Time 1st Unit Distribution	Urban	8:18	9:14	8:21	9:07	9:35	9:50	8:18
	Total Response Time 1st Unit on Scene Distribution	Urban	13:34 n=3265	13:50 n=720	13:46 n=656	13:22 n=601	13:31 n=621	13:27 n=667	10:04

Times are for First Due low, medium, and high-risk structure fires.
***18 seconds added for time input error.**

Low-Risk ERF Fire Suppression - 90th Percentile Times - Baseline Performance			2017-2021	2021	2020	2019	2018	2017	Agency Benchmark (Target)
Alarm Handling	Pick-up to Dispatch	Urban	2:53*	3:03	2:46	2:46	2:47*	2:43*	2:36
Turnout Time		Urban	2:17	2:17	2:25	2:15	2:12	2:29	1:35
Travel time		Urban	13:21	15:04	13:17	12:52	12:12	12:41	8:18
Total Response Time ERF (Concentration)		Urban	19:16 n=589	23:26 n=131	19:15 n=141	17:25 n=121	17:58 n=114	17:59 n=82	15:27

Medium-Risk ERF Fire Suppression - 90th Percentile Times - Baseline Performance			2017-2021	2021	2020	2019	2018	2017	Agency Benchmark (Target)
Alarm Handling	Pick-up to Dispatch	Urban	2:47*	2:14	2:54	2:29	3:05 *	2:38*	2:36
Turnout Time		Urban	2:23	2:15	2:23	2:55	2:17	2:32	1:35
Travel time		Urban	17:36	22:06	16:54	22:49	20:57	18:39	12:12
Total Response Time ERF (Concentration)		Urban	24:42 n=63	27:59 n=12	23:04 n=13	25:42 n=9	24:02 n=12	22:39 n=17	19:26

Emergency Medical Service Benchmark Performance:

EMS Benchmark Statements:

All Risk Levels- First Due

For 90 percent of all risk levels, the total response time for the first-due apparatus (Distribution), consisting of a minimum of three (3) personnel, shall be 10 minutes and 04 seconds. The first-due apparatus, ALS or BLS, shall be capable of: determining if the scene is safe, establish command, form a general impression, conduct an initial patient assessment, obtain vitals, obtain the patient's medical history, and follow the District's standing orders. Once Beaufort County EMS arrives on the scene, and a patient report is given to the paramedic in charge, it is when the patient's care is transferred. The engine crew will then assist Beaufort County EMS with packaging the patient and transport (a driver) if needed. Personnel are expected to follow the District's standard operating guidelines and perform tasks safely for themselves and the public.

Low-Risk ERF:

For 90 percent of all low-risk incidents, the total response time for an ERF (Concentration), consisting of an engine with three (3) personnel, shall be 11 minutes and 16 seconds. The ERF, ALS or BLS, shall be capable of: determining if the scene is safe, establish command, form a general impression, conduct an initial patient assessment, obtain vitals, obtain the patient's medical history, and follow the District's standing orders. Once Beaufort County EMS arrives on the scene, and a patient report is given to the paramedic in charge, it is when the patient's care is transferred. The engine crew will then assist Beaufort County EMS with packaging the patient and transport (a driver) if needed. Personnel are expected to follow the District's standard operating guidelines and perform tasks safely for themselves and the public.

Medium-Risk ERF:

For 90 percent of all medium-risk incidents, the total response time for an ERF (Concentration), consisting of an engine with three (3) personnel and a battalion with aid with two (2) personnel, shall be 11 minutes and 16 seconds. The ERF shall be capable of: determining if the scene is

safe, perform a scene size-up, perform ALS and BLS treatment, assist/setup triage, assist/set up a safe zone, establish a safety officer, and establish a unified command. Personnel are expected to follow the District's standard operating guidelines and perform tasks safely for themselves and the public.

High-Risk ERF:

For 90 percent of all high-risk incidents, the total response time for an ERF (Concentration), consisting of two engines with six (6) personnel and a battalion with aid with two (2) personnel, shall be 11 minutes and 16 seconds. The ERF shall be capable of: determining if the scene is safe, perform a scene size-up, perform ALS and BLS treatment, assist/setup triage, assist/set up a safe zone, establish a safety officer, and establish a unified command. Personnel are expected to follow the District's standard operating guidelines and perform tasks safely for themselves and the public.

EMS Baseline Performance:

--From 2017-2019, there was a single-engine response for all EMS call types.

EMS -90th Percentile Times - Baseline Performance-First-Due All Risk Levels			2017-2021	2021	2020	2019	2018	2017	Target (Benchmark)
Alarm Handling	Pick-up to Dispatch	Urban	2:48*	2:53	2:50	2:46	2:40	2:56	2:33
Turnout Time	Turnout Time 1st Unit	Urban	1:44	1:53	1:43	1:44	1:37	1:41	1:30
Travel Time	Travel Time 1st Unit Distribution	Urban	8:45	8:34	9:07	8:41	8:39	8:38	7:20
Total Response Time	Total Response Time 1st Unit on Scene Concentration	Urban	13:17	13:19	13:50	13:23	12:44	12:34	11:16
			n=16718	n=5018	n=3750	n=3352	n=2375	n=2223	

****ERF Data set will be shown on the Medium and High charts. The District's new deployment model for EMS began January, 2020.**

Single engine response for Low-Risk calls.

EMS -90th Percentile Times – Low-Risk Baseline Performance			2020-2021	2021	2020	2019	2018	2017	Target (Agency Benchmark)
Alarm Handling	Pick-up to Dispatch	Urban	2:52	2:53	2:40	--	--	--	2:33
Turnout Time	Turnout Time 1st Unit	Urban	1:46	1:49	1:45	--	--	--	1:30
Travel Time	Travel Time 1st Unit Distribution	Urban	8:48	8:34	9:05	--	--	--	7:20
Total Response Time	Total Response Time ERF Concentration	Urban	13:30	13:21	13:39	--	--	--	11:16
			n=8521	n=4928	n=3593	--	--	--	

-- Starting January 2020, the District began Low-Medium-and High-risk deployment

--- EMS -90th Percentile Times – Medium-Risk-Baseline Performance			2020-2021	2021	2020	2019	2018	2017	Target (Agency Benchmark)
Alarm Handling	Pick-up to Dispatch	Urban	2:13	3:12	3:14	--	--	--	2:33
Turnout Time	Turnout Time 1st Unit	Urban	1:35	1:34	1:17	--	--	--	1:30
Travel Time	Travel Time 1st Unit Distribution	Urban	6:25	10:45	8:37	--	--	--	7:20
	Travel Time ERF Concentration	Urban	6:01	7:01	13:00	--	--	--	7:17
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	11:31	13:59	11:13	--	--	--	11:16
			n=28	n=14	n=14	--	--	--	
	Total Response Time ERF Concentration	Urban	17:40	15:08	17:27	--	--	---	
			n=7	n=4	n=3	--	--	--	

model. Therefore, there is no ERF data for 2017 through 2019. Prior to the implementation of the new EMS deployment model, the District's responed to all EMS call types with a single-engine.

-- Starting in January 2020, the District began the new Low-Medium-and High-risk

EMS -90th Percentile Times –High-Risk-Baseline Performance			2020-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban	2:25	2:57	2:30	--	--	--
Turnout Time	Turnout Time 1st Unit	Urban	1:46	1:44	2:13	--	--	--
Travel Time	Travel Time 1st Unit Distribution	Urban	7:15	7:39	7:33	--	--	--
	Travel Time ERF Concentration	Urban	10:38	11:09	10:10	--	--	--
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	11:28	10:50	14:24	--	--	--
			n=196	n=112	n=84	--	--	--
	Total Response Time ERF Concentration	Urban	19:13	15:35	19:03	--	--	--
			n=115	n=63	n=52	--	--	--

deployment model. Therefore, there is no ERF data for 2017 through 2019. Prior to the implementation of the new EMS deployment model the District's response to all EMS call types was a single-engine.

Technical Rescue Benchmark Performance:

All Risk Levels:

For 90 percent of all risk levels, the total response time for the first-due apparatus, consisting of a minimum of 3 personnel, shall be 12minutes and 24 seconds. The first-due apparatus shall be capable of: establishing command, completing a scene size-up, determining if the scene is safe, determine if a rescue is necessary, determine if more resources are needed, initiate incident action plan, and provide EMS functions if it is safe to the crew and the public.

Low-Risk ERF

For 90 percent of all low-risk technical rescue incidents, the total response time performance for the ERF (Concentration), consisting of 6 personnel shall be 14 minutes and 36 seconds. The ERF shall be capable of: Establishing if the scene is safe, establish a safety officer, transition command if needed, adjust IAP, and perform rescue operations. Personnel are expected to follow the District's standard operating guidelines and perform tasks safely for themselves and the Public

Medium-Risk ERF (Water Rescue)

For 90 percent of medium-risk with water rescue component, the total response time performance for the ERF (Concentration), consisting of 8 personnel shall be 17 minutes and 24 seconds. The ERF shall be capable of: Establishing if the scene is safe, establish a safety officer, transition command if needed, adjust IAP, and perform rescue operations recognize the need for more personnel and equipment. Personnel are expected to follow the District's standard operating guidelines and perform tasks safely for themselves and the Public

Medium-Risk ERF (Extrication)

For 90 percent of medium-risk with extrication rescue component incidents, the total response time performance for the ERF (Concentration), consisting of 11 personnel shall be 13 minutes and 24 seconds. The ERF shall be capable of: Establishing if the scene is safe, establish a safety officer, transition command if needed, adjust IAP, and perform rescue operations recognize the need for more personnel and equipment. Personnel are expected to follow the District's standard operating guidelines and perform tasks safely for themselves and the Public

High-Risk ERF

For high-risk incidents, there has not been a full deployment of personnel. The District provided the Rescue (Apparatus) and its personnel for a mutual aid incident in Hardeeville, where the crew assisted with a high angle rescue. However, the District has recognized the potential for high-risk incidents; therefore, for 90 percent of all high-risk technical rescue incidents, the total response time performance for the ERF (Concentration), consisting of 24 personnel shall be 60 minutes to muster the entire SCTF-4. The ERF shall be capable of: Establishing if the scene is safe, establish a safety officer, transition command if needed, adjust IAP, secure fire hazards, establish logistics, and perform rescue operations. Personnel are expected to follow the District's standard operating guidelines and perform tasks safely for themselves and the Public

Technical Rescue Baseline Performance: First Due All Risk Levels

***18 seconds added for time input error.**

Technical Rescue - 90th Percentile Times - Baseline Performance First-Due All-Risk Levels			2017-2021	2021	2020	2019	2018	2017	Agency Benchmark (Target)
Alarm Handling	Pick-up to Dispatch	Urban	2:54*	2:56	2:51	2:47	2:15*	3:00*	2:39
Turnout Time	Turnout Time 1st Unit	Urban	1:50	1:44	1:41	2:00	1:51	1:46	1:39
Travel Time	Travel Time 1st Unit Distribution	Urban	9:06	8:58	8:12	6:24	11:00	7:53	7:10
	Total Response Time 1st Unit on Scene Distribution	Urban	14:37 n=97	20:19 n=26	12:36 n=28	12:02 n=15	14:47 n=13	14:02 n=15	12:24

Technical Rescue Low-Risk ERF

***18 seconds added for time input error.**

Low-Risk ERF Technical Rescue - 90th Percentile Times - Baseline Performance			2017-2021	2021	2020	2019	2018	2017	Agency Benchmark (Target)
Alarm Handling	Pick-up to Dispatch	Urban	3:06*	3:06	2:48	3:07	2:13*	2:07*	2:39
Turnout Time	Turnout Time 1st Unit	Urban	1:38	1:38	1:42	1:33	1:38	1:32	1:39
Travel Time	Travel Time 1st Unit Distribution	Urban	10:46	7:56	8:13	6:48	11:57	2:25	10:54
	Total Response Time ERF Concentration	Urban	16:35 n=15	20:04 n=8	19:40 n=5	14:46 n=2	14:51 n=1	13:34 n=1	14:36

Medium-Risk (Water)

Medium-Risk-Water Rescue ERF - 90th Percentile Times - Baseline Performance			2017-2021	2021	2020	2019	2018	2017	Agency Benchmark (Target)
Alarm Handling	Pick-up to Dispatch	Urban	2:21*	2:05	2:30	3:04	3:49*	2:11*	2:06
Turnout Time	Turnout Time 1st Unit	Urban	2:02	1:45	1:52	1:45	1:52	2:05	2:00
Travel Time	Travel Time 1st Unit Distribution	Urban	9:44	14:31	4:20	10:19	10:20	8:45	8:59
	Total Response Time 1st Unit on Scene Distribution	Urban	19:18 n=14	19:41 n=3	19:12 n=2	18:05 n=5	16:15 n=2	17:12 n=2	17:24

***18 seconds added for time input error.**

Per the Data Correction Process for Response Times, SOG 104.02, the calls in the chart are outside of the parameters as outlined in the SOG. However, all the calls were reviewed and determined to be valid. Therefore, they were placed into the chart. Some of the causes for the long call processing times are related to dispatch's ability to locate the incident due to the expanse of the local waterways.

Medium-Risk (Extrication)

Medium-Risk ERF (Extrication)- 90th Percentile Times - Baseline Performance			2017-2021	2021	2020	2019	2018	2017	Agency Benchmark (Target)
Alarm Handling	Pick-up to Dispatch	Urban	2:45*	1:57	2:44	2:33	2:12*	3:04*	2:13*
Turnout Time	Turnout Time 1st Unit	Urban	1:45	1:20	1:33	2:00	1:19	1:30	2:00
Travel Time	Travel Time 1st Unit Distribution	Urban	6:41	5:21	8:18	5:59	6:14	6:50	6:12
	Total Response Time 1st Unit on Scene Distribution	Urban	21:48 n=18	20:48 n=3	20:36 n=5	10:22 n=1	17:45 n=7	11:18 n=2	13:24

***18 seconds added for time input error.**

Hazardous Materials Benchmark Performance:

Hazardous Materials Incidents Benchmark Statements:

Low-Risk:

For low-risk hazardous materials incidents, the District considered a single-engine as its ERF. However, if the first arriving engine determines the incident to be significant in nature, the officer can call for more resources. Therefore, for 90 percent of all-risk level incidents, the first-due apparatus (Distribution), consisting of a minimum of three (3) personnel, shall be 12 minutes and 47 seconds. The first-due apparatus shall be capable of: Establishing command, complete a scene size-up, determine the type of hazardous material is present, develop an initial incident action plan, to realize the need for more resources quickly, and begin rescue/evacuation (if capable). Personnel are expected to follow the District's standard operating guidelines and perform tasks safely for themselves and the public.

Medium-Risk:

The District has not had a medium-risk incident in the past three years; however, the District still recognizes the dangers of any hazardous materials incident. Therefore, for 90 percent of medium-risk incidents, the total response time for the ERF (Concentration) shall be 19 minutes and 26 seconds, consisting of a second engine and battalion, for a total of 8 personnel. The ERF shall be capable of establishing a safety officer, evaluate and change the initial incident action plan, provide support and physical resources, setup decon, and provide medical help if needed. Personnel are expected to follow the District's standard operating guidelines and perform tasks safely for themselves and the public.

High-Risk:

As mentioned earlier, the District has not had a high-risk hazardous materials incident in the past three years, and like the benchmark statement for medium-risk, the District recognized the risks. Therefore, for 90 percent of high-risk incidents, the total response time for the arriving ERF (Concentration) shall be 60 minutes, consisting of 19 personnel. The ERF shall be capable of

establishing a safety officer, Hazmat safety officer, Decontamination Officer, Decon Team, Entry Officer, Recon Team, Medical/Rehab, Science position, evaluate and change the initial incident action plan, provide support and physical resources, setup decon, and provide medical

Hazmat-Low-Risk Level - 90th Percentile Times - Baseline Performance			2017-2021	2021	2020	2019	2018	2017	Target (Agency Benchmark)
Alarm Handling	Pick-up to Dispatch	Urban	2:59*	2:54	2:55	3:17	2:56*	2:55*	2:13*
Turnout Time	Turnout Time 1st Unit	Urban	1:44	1:42	1:50	1:42	1:23	1:33	1:32
Travel Time	Travel Time 1st Unit Distribution	Urban	10:21	9:35	10:54	10:19	10:51	8:55	8:43
	Travel Time ERF Concentration	Urban	--	13:34	13:34	--	--	--	
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	16:30	19:21	15:38	17:06	14:57	13:47	12:47
			n=155	n=41	n=34	n=33	n=25	n=22	
	Total Response Time ERF Concentration	Urban	20:35	23:36	19:28				1 Hour
			n=35	n=18	n=17	--	--	--	

***18 seconds added for time input error.**

In January 2020, the deployment model for hazardous condition call types is two engine response.

In 2021 there was a programming error in the CAD that went undetected until May 5, 2022 that affected the ERF of the Rescue. The error has been fixed and the Rescue is now toned out along with the primary engine.

Compliance Methodology: (CC2D.7) CC2D.6

From the beginning of the process of becoming an accredited agency, the District needed to adjust, and in some cases, create new methodologies to monitor its performance on a monthly and annual basis. One of the measurements that needed to be adjusted was using the average as a means of performance measurement to the nationally accepted performance methodology of the 90th percentile (NFPA 1710 A.4.1.2.5.2)

Furthermore, while the District performance fluctuates throughout the year, it is still necessary to review performance on an annual basis to identify any inadequacies, inconsistencies and negative trends in-service programs (fire suppression, EMS, rescue, and hazmat) it provides to its customers. The methodology used to measure this incorporates annual program appraisals, RMS data from the current year, and historical data (three and five years) is analyzed for consistencies, reliabilities, and resiliencies and compares the results to industry standards and neighboring fire departments. Moreover, the District considers the Community Risk Reduction, and Public Education Program as well as CRA-SOC, community expectations and strategic plan.

By doing so, the District, with a high degree of confidence, can identify the gaps, research the cause(s) and develop a plan to correct the inadequacies. The results are published in the District's annual report.

As mentioned earlier, the methodology the District used to measure its performance was the average. This methodology has been used for the past ten years and is shared with the District's Board of Directors every month. Conversely, the new methodology incorporates the new performance measurement of 90th percentile and will be presented to the District's Board of Directors to adopt as its new performance measurement.

Conclusions:

After a long and detailed analysis of the District's performance and the process of completing the standards of cover (SOC), the District recognized areas of opportunities for improvements.

Below are the administration's recommendations:

- The District should identify methods to improve accuracy when data is manually input into the RMS then implement those methods.
- The District should identify a new methodology for assessing value to residential and commercial properties.
- The District should improve its annual review process regarding its performance in each of its service provision areas (fire, EMS, technical rescue, and hazardous materials).
- The District should work to improve its overall turnout time by using education, technology, and enhanced supervision.
- The District should work closely with Beaufort County Dispatch to improve dispatch operations through performance improvement plans, in-depth quarterly performance review meetings, and implementation of technology such as advanced vehicle location (AVL) software.
- The District identified the wildland urban interface (WUI) as an emerging threat to the public. The District should develop a detailed WUI operations plan and implement the plan once training is complete.
- The District identified the need for the use of geographic information system (GIS) as a tool to define gaps in service provision. The District should investigate and purchase more robust GIS software to assist in the process of identifying and interpreting information for better service provision.
- For significant events, the battalion's aid will organize and present AAR, or by request by Operations Chief/Shift Battalion.
- The District will develop a program appraisal for Domestic Preparedness.

References:

1. Unknown Author, (2011, August). *Bluffton History!* http://www.bluffton.com/bluffton-history/

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3. William P. Barret (2016, April). *The Best Places to Retire In 2016.* *https://www.forbes.com/sites/williampbarrett/2016/04/04/the-best-places-to-retire-in-2016/#6542699717c3*

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Definitions:

Alarm Handling Time (PSAP) – The time interval from the receipt of the alarm at the primary PSAP until the beginning of the transmittal of the response information via voice or electronic means to an emergency response facilities (ERF's) or the emergency response units in the field.

Effective Response Force (ERF) - Is the minimum number of human and physical resources that are needed in a specific location within the prescribed benchmark time to mitigate an emergency.

PSAP – Public Safety Answering Point

Total Response Time – The time interval from the receipt of the alarm at the agency's public safety answering point (PSAP) to when the unit(s) arrives at the scene.

Travel Time – The time interval that begins when a unit is en-route to the emergency incident and ends when the units arrive on the scene.

Turnout Time – The time interval that begins when the emergency response facilities (ERF) and emergency response units notification process begins by either an audible alarm or visual annunciation or both and ends at the beginning point of travel.