NEW BERN

NORTH CAROLINA

Everything comes together here

2019-2022

New Bern Fire-Rescue Department Standard of Cover

~ Proudly Serving Since 1845 ~

Dennis Tyndall, Battalion Chief

City of New Bern

1/1/2019

Executive Summary

Fire Chief Robert Boyd

The New Bern Fire-Rescue Department prides itself on providing high-quality emergency service to the citizens of New Bern. The identification of both man-made and natural risk factors accompanied by the ability to provide sufficient resources equipped to address those risks is critical. The agency must be able to provide quantitative and qualitative data along with intense analysis to identify potential improvements in services and programs. Identification of trends in response times is critical to developing initiatives and actions to reduce response times. The provision of high-quality emergency and non-emergency services has a positive impact in managing risk in the community.

Community development and growth trends play a significant role in the agency's service delivery. Based on census data estimates from July 2017, the City's overall population has increased from 29,524 to 30,054. As shown in the 2010 Census, New Bern experienced a modest 20.76% total population increase from the 2000 Census. Recent increase, however, has been approximately 1.8% using the 2017 population estimate challenge results. Overall, the City's population continues to grow.

Nonetheless, while the city's population has only experienced a 1.8% growth since 2010, the agency's response data indicates an almost 31.4% increase in call volume during the same period. The agency responded to 1,606 calls in 2017 versus 1,102 calls in 2010. This is primarily a result of the increased services the agency provides in EMS, Rescue, and Community Outreach. The agency's call volume

will continue this steady growth pattern as the City grows and began to develop more to the western side.

Overall, New Bern Fire-Rescue Department continues to research all the variables of emergency response including community risk, historical response, resource capabilities, potential resource needs, and considers community variations to help determine what changes are necessary to support improving the level of emergency response coverage for the community. This is a continuously evolving cycle to ensure the agency is sufficiently positioned, staffed, trained, equipped, and supported with everything needed to provide the high-quality services deserved by the community.

Fire Chief Robert Boyd

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Section 1: Area Characteristics

Introduction

One of the major issues the fire service has struggled with in the past is defining levels of service. This is essential to determine whether a fire department is prepared to provide the level of service that is appropriate for its responsibilities, risks, and service level objectives. The evaluation process includes a critical self-analysis of historical data, existing and proposed deployment strategies, distribution and concentration of resources based on time parameters, identification of community risks and expectations, and reliability of response. It provides a method of continuous evaluation and improvement.

The following report serves as the New Bern Fire-Rescue Department's (NBFRD) "Community Risk Assessment: Standard of Cover" (CRA-SOC). The process of "deployment analysis" is a written procedure, which determines the distribution and concentration of fixed and mobile resources of an organization. The purpose for completing such a document is to assist the agency in ensuring a safe and effective response force for fire suppression, emergency medical services, and specialty response situations. The CRA-SOC serves as the following:

- Baseline tool for determining service level objectives
- Descriptive tool for validating fire station locations
- Management tool for determining apparatus type and staffing levels
- Predictive tool for helping to determine workload and ideal unit utilization'
- Basis for continually measuring service level performance

Creating a CRA-SOC requires the agency to research, study, and evaluate all levels of service. This report begins with an overview of both the community and the fire department. Following this overview, discussion includes areas such as community risk, critical task analysis, service level objectives, and distribution/concentration measures. The agency has provided documentation of reliable studies and historical performance through charts and graphs. In conclusion, the findings will define policy recommendations.

Community History

New Bern, a quaint small town that's rich in history, culture, and plenty to do. This could be due to our location sitting on the Neuse and Trent Rivers, close proximity to the North Carolina coast, and the beautiful Croatan Forest nearby. Although, we believe it is our people who make New Bern great. From the beginning, New Bern has been a diverse city. By digging into our roots, it is easy to see why one might say "Everything comes together here".

In 1710, New Bern was founded by Swiss and Palatine German immigrants. They were led by Swiss Baron Christoph de Graffenried. New Bern was named after his hometown of Bern Switzerland. When Bern, Switzerland was founded, it was named by a group of hunters. They named the city for the first animal they came upon on their hunting expedition. It was a bear. The term Bern is the old Germanic word for Bear and the bear became the symbol of the city. It has been adopted by New Bern, as well. During this time the only other settlement in North Carolina was Bath, making New Bern the second oldest town in the state. However, these immigrants were not the first inhabitants of this land. The Tuscarora Indians inhabited the land, now known as New Bern, long before the settlers arrived. Like many of the stories we hear from other settlements, New Bern had many conflicts with the Indian tribe. Even to the point where Baron de Graffenried and surveyor John Lawson were captured and held prisoner.

New Bern was the first colonial capital and Tryon Palace was the governor's mansion built in 1770. Most people don't know that in 1747 Governor Gabriel Johnson also named New Bern as the capital. But it wasn't until Governor William Tryon brought his family to New Bern and made it the permanent capitol that his wonderful palace was built. This amazing structure stood in all its grandeur, even when the capital was moved to Raleigh, until February of 1798 when the original Palace building caught fire. It wouldn't be until 1959 that Tryon Palace would be complete and the doors would be opened to the public.

During the 1800's New Bern became the largest city in North Carolina. This was largely in part because of the trade of goods and slaves. Items like turpentine, sugar, and lumber helped New Bern grow. Lumber had the biggest influence on the growth of New Bern, mainly because of the two rivers that border us. With the influence lumber had on New Bern it is no wonder that we have so many beautiful historic homes and magnificent architectural buildings. Unfortunately, by the '20s, the city had lost its boom, well at least its lumber boom.

New Bern's pride and joy came along in 1893. That's right "Brad's Drink" was introduced to New Bern and it was a sensation. People enjoyed this refreshing drink but Caleb Bradham thought of it as more than a refreshing drink, he thought this cola would aid in digestion thus changing its name to Pepsi Cola in 1898. In 1902, the Pepsi Cola company formed, and in 1910 the first Pepsi Bottling convention was held in New Bern. WWI brought hard times to Bradham. At first, he could not get enough sugar because of the war, then he paid a large amount for sugar, just to have prices decrease, this caused Pepsi Cola to go bankrupt and Caleb Bradham let the assets go for $30,000. Fortunately to all the Pepsi lovers out there, Pepsi is now back on top and doing very well.

The 1800's were not just about drinks and lumber. In 1862, the Battle of New Bern took place in the area. For three years the union soldiers occupied the town. First Presbyterian Church served as a hospital and lookout for the troops, as well did the Masonic theater. There are still marks in the walls of the masonic lodge room where troops leaned there guns and bayonets against the walls, and the Belfry at First Presbyterian church still has names of union soldiers carved in it. This is not the only stamp left on New Bern, nearly 4000 freedmen from North Carolina joined the United States Colored Troops and fought with the Union Army. James City got its name from Horace James who supervised the Trent River camp. Although there was some social disturbance New Bern did not sustain major destruction and was able to recover quickly due to the occupation of the Union soldiers. At the end of the war, many

soldiers left. The main reason was placed on a bit of yellow fever that plagued New Bern in 1864. But New Bern was strong and would flourish again due to all its treasures.

Rich in history is just the tip of the iceberg when describing New Bern. In the National Registry of Historic Places, New Bern has 36 individual listings, and 150 sites. Christ Church Parish dates back to 1715 and stones in the graveyard date back to the 1800's. The First Presbyterian Church dates back to 1817. Just two examples of the rich church history of New Bern. Two of our astonishing cemeteries are the Cedar Grove Cemetary, where Confederate soldiers from the Battle of New Bern still lay to rest, and the National Cemetary that not only holds the remains of our military Veterans but also the remains of Union soldiers from the civil war. New Bern also has nice museums from Tryon Palace and the North Carolina History Center to the New Bern Academy. After a visit to the Firemen's Museum, one might want to stop by the Pepsi Store where they can learn about Caleb Bradham and Pepsi Cola. If museums, Churches, and Graveyards are not your thing, maybe an evening stroll by the waterfront at Union Point Park or one of our other natural areas will be relaxing for you. Because that is New Bern, a relaxing small town where everything comes together.

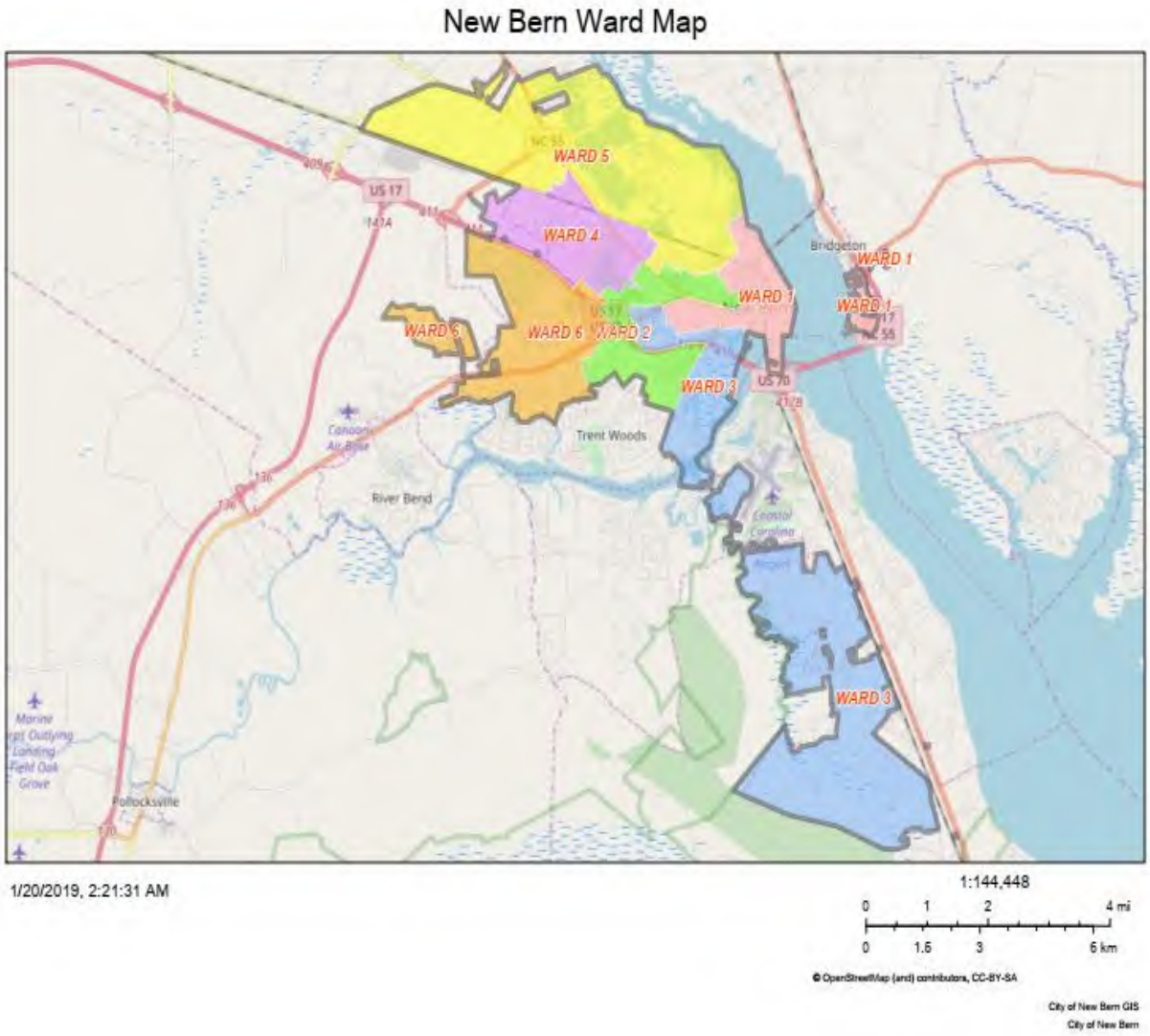
The City of New Bern is located in Craven County in eastern North Carolina, and serves as the county seat. The city occupies approximately 28 square miles. New Bern is approximately 40 miles from the Atlantic ocean, 23 miles from MCAS Cherry Point, and 41 miles from Camp Lejeune Marine Base. New Bern is approximately 112 miles from the state capital of Raleigh. The US Census Bureau estimated the 2017 population in New Bern at 30,054, This is a 1.8% increase from the 2010 census.

New Bern has a flat terrain with several marsh areas. The Neuse River and Trent River converge at union point in the historical part of downtown New Bern. The Croatan Forest is just south of New Bern.

New Bern has a mixed demographical profile. Caucasian and African Americans make up the prominent race. The median age of New Bernians is approximately 36. Over 85 % of New Bernians have at least a high school education. Through the years New Bern has been recognized as a retirement community, with more retirees making New Bern their home each year. Due to the rich history of New Bern, tourism brings more and more people into our city and plays a vital role in our development.

City Government

The City uses an Alderman-Manager form of government that includes a Mayor who serves as presiding officer and six (6) Aldermen that represent six (6) wards. The Mayor is the only representative elected by the citizens at-large while each Alderman is elected from his or her ward. The Mayor and each Alderman serve a four (4) year term. Below is a district map of each ward. The City Manager is an appointed position, and serves as the chief executive officer for the city.



Dana Outlaw

Mayor

Sabrina Bengel

Ward 1

Jameesha “ Jamee” Harris

Ward 2

Robert “Bobby” Aster

Ward 3

Johnnie Ray Kinsey

Ward 4

Barbara J. Best

Ward 5

Jeffrey T. Odham

Ward 6

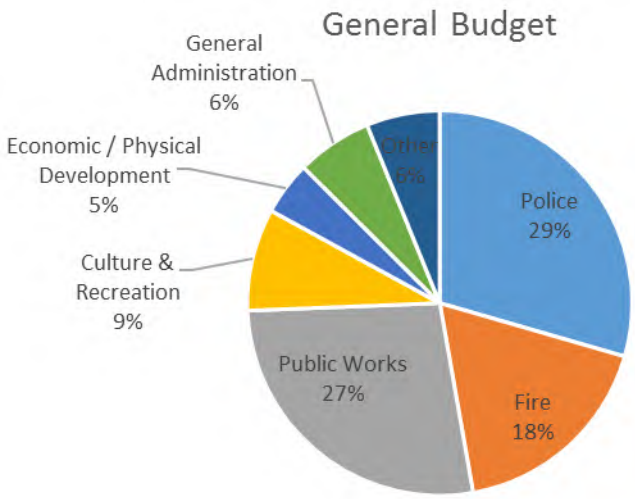
Mark A. Stephens

City Manager

Financial Basis

The Finance Department is responsible for managing the City's funds, administering financial policies and procedures, and maintaining complete records of all financial transactions. Funds and records are managed and maintained in accordance with applicable State and Federal regulations. The governing body is comprised of Administration and three divisions: Accounting, Customer and Payment Services, and Warehouse/Purchasing. These divisions undertake financial and managerial accounting including accounts payable, payroll, asset management, grant management, purchasing and contracting, revenue collections, and financial reporting. The City of New Bern has been awarded the Government Finance Officers Association (GFOA) Certificate of Achievement for the past seven (7) years.

The general fund is the main operating budget for the City of New Bern. The general fund revenue is comprised of property tax, sales tax, and other sources. New Bern Fire - Rescue Department is funded by the general fund and accounts for approximately 18 percent of the expenditures.



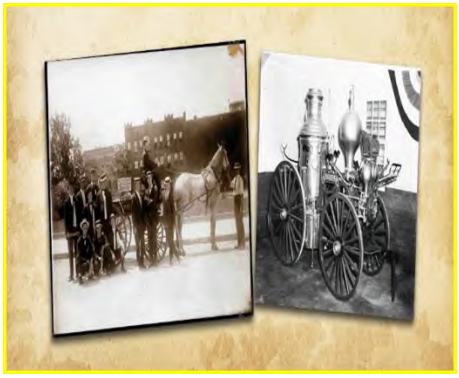
Fire Department History

The history of New Bern Fire - Rescue Department (NBFRD), as it is known today, is both rich and unique. Originally, the services were provided by three companies: 1) the Atlantic Fire & Hook & Ladder Company, 2) the New Bern Steam Fire Engine Company No. 1, and 3) the New Bern Fire Company No. 1. The first chartered fire-fighting organization was the Atlantic Fire & Hook & Ladder Company formed on May 14, 1845; however, this company became inactive due to the members volunteering for military service at the break of the War between the States.

During the Civil War occupation of New Bern, the New Bern Fire and Steam Engine Company, No. 1 was organized on January 1, 1865 by Union soldiers, many of whom remained after the war. During this time, the Union troops received a hand pump from the North. This contraption reached its maximum output when eight men exerted their weight on each end of the pump's crossbeam lever. A 16-man crew pulled the vehicle to the scene of the blaze. The pump drew water from one of New Bern's strategically located wells at Middle and Pollock Streets, Broad and Middle Streets, South Front Street, Bern Street (in Five Points), and North Craven Street at Pelletier's Knitting Mill. If the fire was near the Neuse or Trent Rivers, water was pumped from these. After pulling and pumping the "Yankee" apparatus for

about three years, firemen persuaded the Town Council to purchase a steam fire engine. When the new steam fire engine arrived in 1868, it too, had to be pulled by hand, but was later converted for horse pulling.

In 1879, the Atlantic Fire & Hook & Ladder Company received a new Silsby steam fire engine, and in 1884, the city traded the New Bern Steam Fire Engine Company, No. 1's steam fire engine for a new "Button Steam Fire Engine." Shortly thereafter, the nickname "Button Company" came to be. Rivalry between the two companies played an important part in their advancements, and with the arrival of this new steam fire engine, the competition gained momentum. Which fire company reached the blaze first became more important to New Bernians than the damage done or whose house was on fire. The rivalry continued until 1927, when the city housed both companies in a central fire station on Broad Street. Even then, however, the two companies still held separate meetings.



Although these fire companies were the "leaders," they were not the only firefighting organizations. There were several others, both white and black, in addition to a junior fire company. The junior fire company was made up of young men between the ages of 16 and 18, and was called the "Excelsior Bucket and Axe Company." Upon reaching manhood, these junior firefighters were "absorbed" by the Atlantic and Button Companies. Other fire companies that came about were: the Mechanics, the Fourth Ward, the Riverside, the Holden Company (named for Governor Holden), the Axe, the Rough and Ready Fire Company, the Reliance Bucket and Axe Company, and the Independent Colored Fire Company.

In February of 1798, Tryon Palace, the colonial capitol and govorners mansion caught fire. The fire started in the cellar, where hay was being stored. The fire quickly devastated the main building, which collapsed, but the kitchen and stable offices were saved. Although fire destroyed the main building, the state capitol had moved to Raleigh in 1794, so the fire did not hinder the North Carolina government. The first official fire company would not be established for nearly 47 more years.

December 1, 1922 brought devastation to New Bern, The Great fire of 1922. The fire began at the Rowland Lumber Co. An hour later, a fire started in the chimney of a small house on Kilmarnock Street near the Five Point intersection. These fires were driven by heavy winds from the North and West.

To add to the day's tragic events, most of the firefighters were on their way to Raleigh for the E.N.C. State Championship Football Game. Cedar Grove Cemetery saved a part of the city by providing a natural fire break of structures. Over 3,000 people were left homeless and 40 city blocks were destroyed. Black families were the majority of residents affected by this tragic day. To stop the raging fire, Chief James Bryan decided to start dynamiting and pulling down homes along Queen and Metcalf streets. Fire Departments from all over Eastern North Carolina responded to the fire. On December 12, 1922, the Red Cross stood up operations and Fort Bragg provided 1,000 tents. Tent city would become home for many families affected by the fire for two (2) years through very extreme weather elements.

The New Bern Fire Department kept abreast of the city's growth. With the arrival of the steam fire engines, the city's streets were paved with oyster shells. The driver's seat of the engines was equipped with leather straps to keep the driver from being thrown off when an engine struck a hole in the street. Later plans included paving the streets with bricks; however, this was delayed until a water system could be installed. The project was finally completed just before 1900. Because of these improvements, The agency was in a better position to fight several destructive fires that came a few years later.

The old Button and Atlantic fire engines were eventually replaced by motorized trucks. Purchased for $1,500 (versus today's price of $250,000) in 1914 and delivered in 1915, both trucks were American LaFrance. The Atlantic Company truck was white; the Button Company was red. The first motorized ladder truck was purchased in 1927 by Atlantic Company for $27,000 (versus today's price of $750,000).

Atlantic Company

- Organized May 14, 1845
- Incorporated January 5, 1847
- Oldest chartered fire department in North Carolina
- One of the oldest fire departments in the United States
- Fire Station was located behind the Chelsea Restaurant until 1910
- Held World Record - quick steam until Button Company took it
- First to use drop harnesses for horses
- Reel racing championship three times

Button Company

- Organized January 1, 1865
- Incorporated December 20, 1865
- Formed by Union troops who remained in New Bern after the Civil War
- First Steam Fire Engine was named "Amoskeag"
- Fire Station was the old City Hall building on Craven Street, across from Mitchell's Hardware
- Holds 3 world records in hose wagon competitions in early 1900's that remain unbroken today

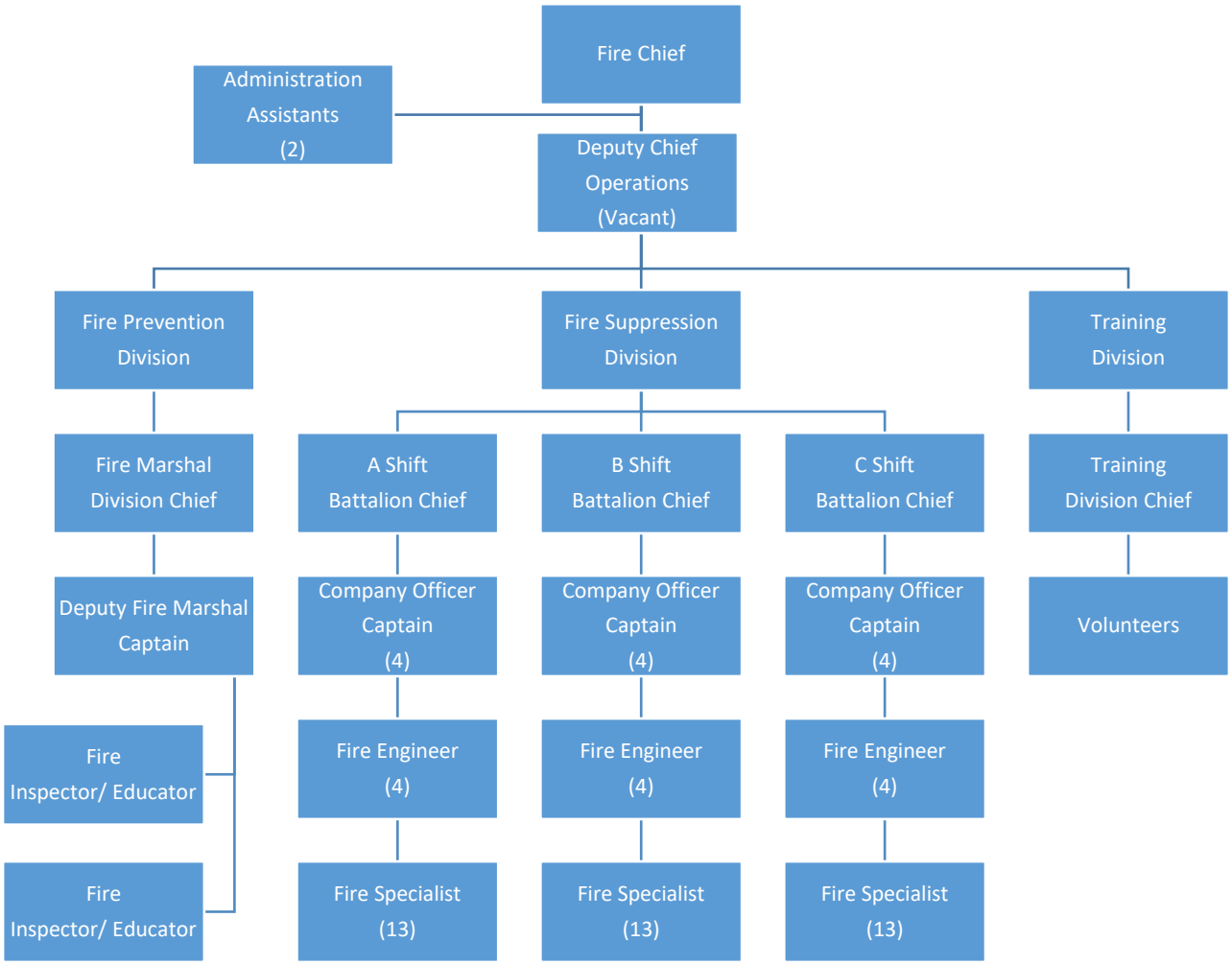
New Bern Fire Department

- 1928 - Atlantic and Button Companies merged.
- 1928 - Both companies housed together into one central station on Broad Street. (Station 1)
- 1951 – Opened Station 2, located on Fort Totten Drive.
- 1955 - Opened Station 3, located on National Avenue.
- 1980 - Opened Station 4, located on Elizabeth Avenue.
- 2000 - Moved into current Headquarters Station (Station 1) located on Neuse Boulevard
- 2000 - Combined old Headquarters Station (Broad St.) and Old Station 2 (Fort Totten Station)

- 2003 - Opened Station 2 located at West Thurman Road.
- 2003 - Closed Station 3 on National Avenue.
- Combination department with 66 career personnel and 10 volunteers

New Bern Fire-Rescue

- Received Fire-Rescue recognition and officially became known as "New Bern Fire-Rescue" (NBFRD) in 2004.
- NBFRD's first Training Academy opened in the Spring, 2005
- Stations Identified by Names
    - Station 1 – Headquarters
    - Station 2 – Thurman Rd. Station
    - Station 4 – Elizabeth Ave. Station
- Added six (6) new positions in Fire Suppression and one (1) Fire Inspector (73 personnel) in 2019.

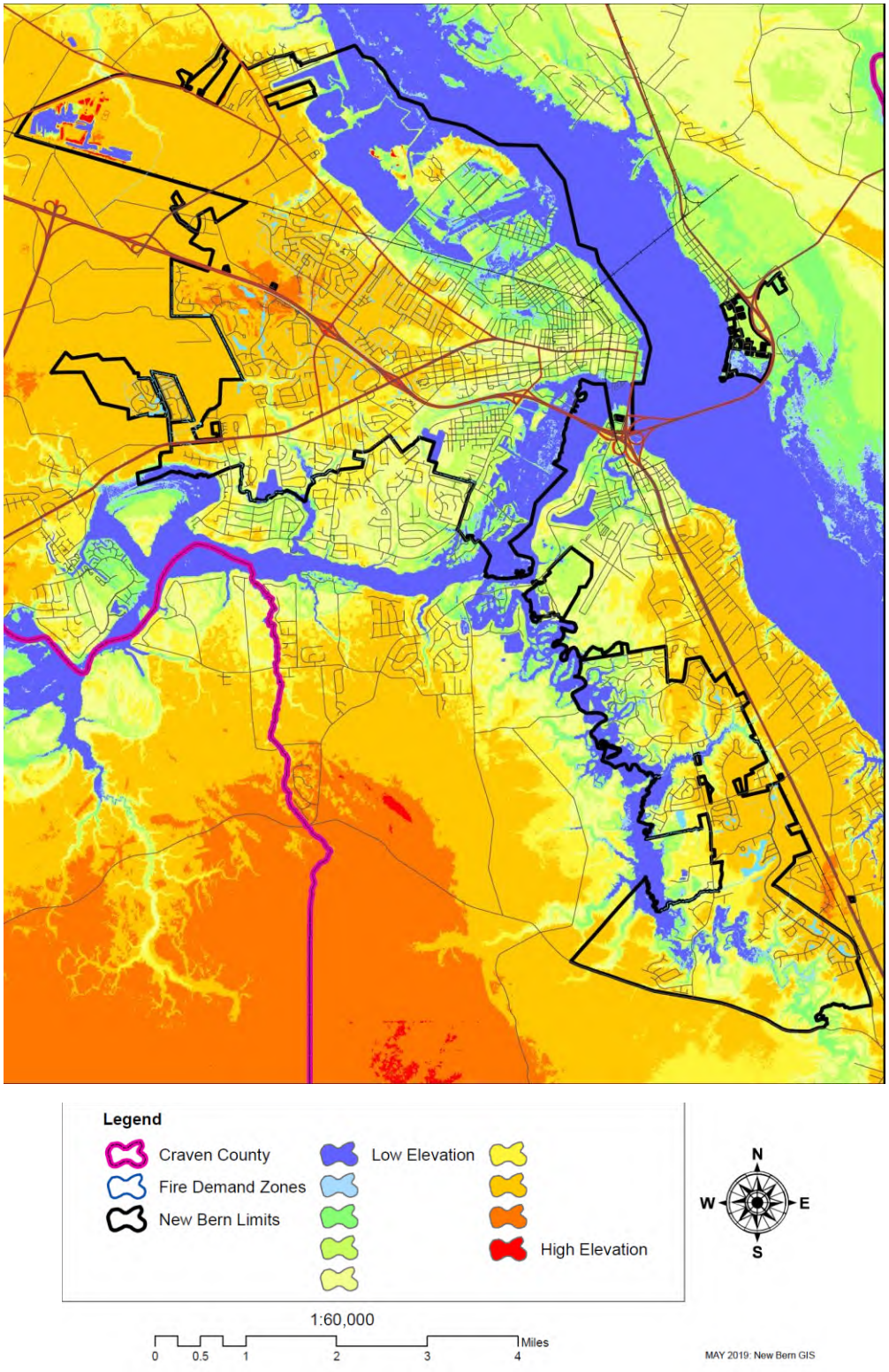

Fire Chief
Administration Assistants (2)
Deputy Chief Operations (Vacant)
Fire Prevention Division
Fire Suppression Division
Training Division
Fire Marshal Division Chief
A Shift Battalion Chief
B Shift Battalion Chief
C Shift Battalion Chief
Training Division Chief
Deputy Fire Marshal Captain
Company Officer Captain (4)
Company Officer Captain (4)
Company Officer Captain (4)
Volunteers
Fire Inspector/ Educator
Fire Engineer (4)
Fire Engineer (4)
Fire Engineer (4)
Fire Inspector/ Educator
Fire Specialist (13)
Fire Specialist (13)
Fire Specialist (13)

Community Features and Planning Zones

Geography

New Bern is located in the coastal plains of North Carolina. New Bern is located in Craven County and serves as the county seat. Craven County is the 15th largest county in North Carolina with regards to land area. It has approximately 709 square miles of land, and approximately 65 square miles of water. The water areas are primarily the Neuse and Trent Rivers. Its population is 102,578, which is a slight decrease from the 2010 census. Craven County is generally flat with several marsh areas. Parts of the Croatan National Forest are in Craven County Craven County is also home to Cherry Point MCAS home to 2nd Marine Air Wing (2ndMAW) and Fleet Readiness Center East (FRC East).

New Bern is the most populated city in Craven County. It has approximately 30 square miles of land, and approximately 1.45 square miles of water. Primarily, the Neuse River to the North / Northeast, and the Trent River to the Southeast border the city. The incorporated town of Trent Woods is adjacent to New Bern in the south. The areas west of New Bern are unincorporated. A satellite area of New Bern is approximately 5 miles east from the downtown peninsula.



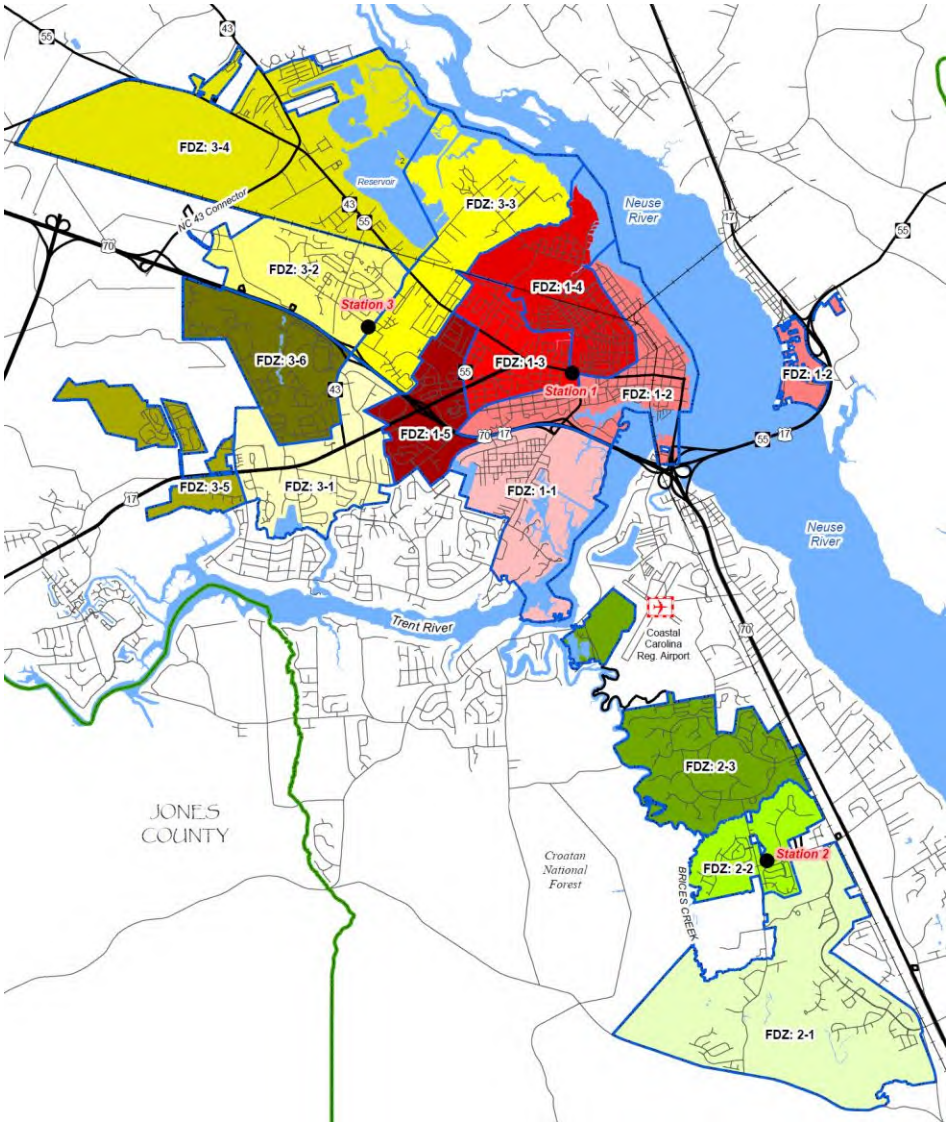
Elevation Map


City of New Bern
Street Map &
Fire Hydrants
Legend
Fire Station
Schools
City Park
New Bern City Limits
New Bern ETJ
MAY 2019
N
1:15,000
1 inch = 1,250 feet
Feet
0 625 1,250 2,500 3,750 5,000 6,250 7,500
TRENT RIVER
NEUSE RIVER
NEUSE RIVER

Street Map

Planning and Fire Demand Zones

The City of New Bern is incorporated into one (1) planning zone. The agency further divides the City into three (3) Fire Districts. Within the three districts are Fire Demand Zones (FDZ's). The City of New Bern has 14 FDZ's. The zones are based on natural boundaries and population density. FDZ's are created to help perform risk assessments. By evaluating the risk assessments for each area, NBFRD can better prepare our response plan, allowing us to better serve the city.



FDZ Map

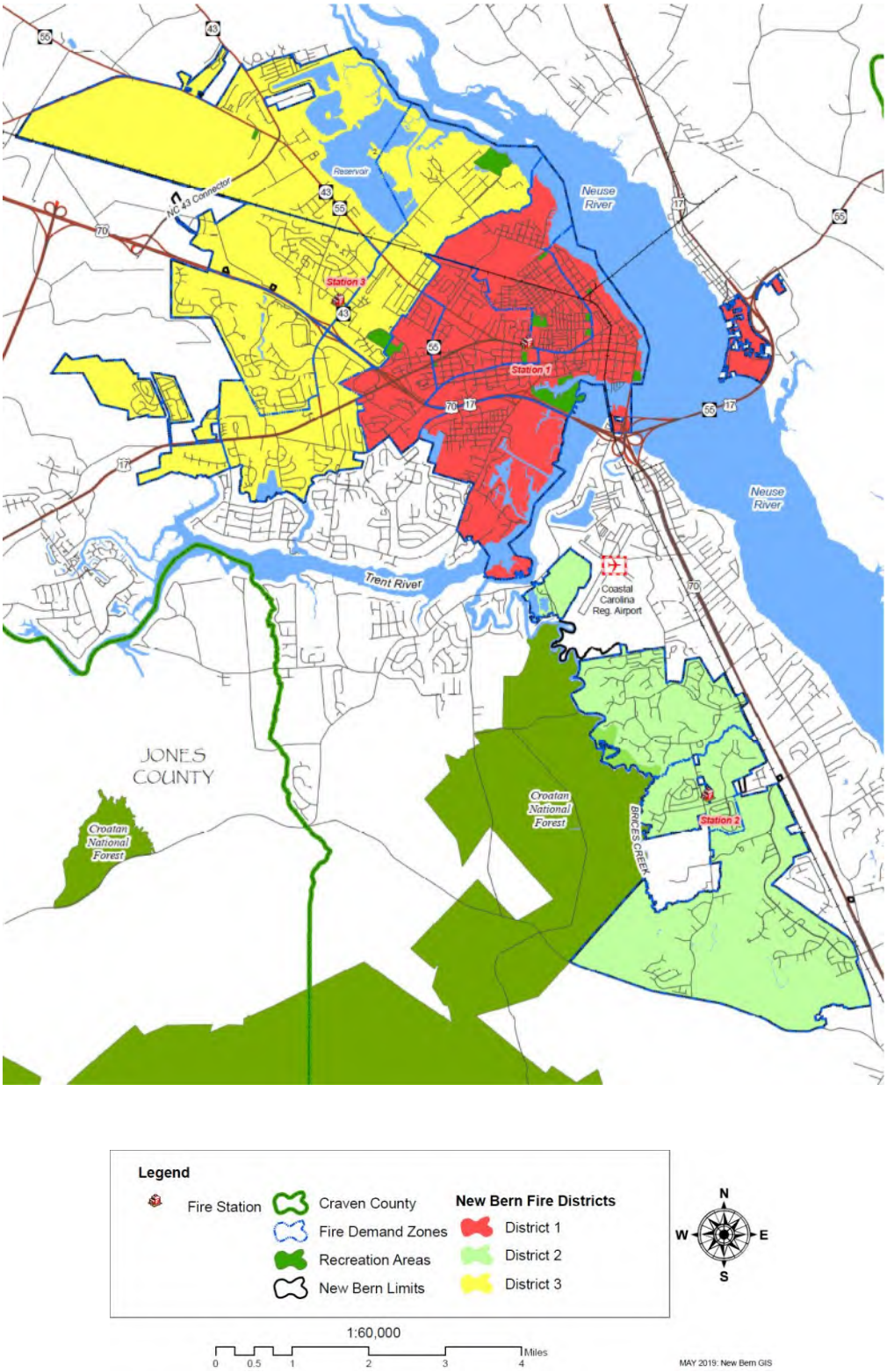
Topography

New Bern is located in the coastal plains' region of North Carolina. The area is generally described as flat and because of the proximity of the Neuse and Trent Rivers, there are several marshy areas. New Bern is situated approximately 15 feet above sea level. New Bern has an abundance of parks and recreational areas for the community and tourists to enjoy, including several waterfront areas at different park locations. New Bern Parks are divided into Pocket Parks (mini-parks), Neighborhood Parks, and Community Parks. There are also unnamed or green areas available to the community and special-use facilities. New Bern is also in the development stages of a regional park, Martin Marietta Park, which will involve water activities, an amphitheater, and trails. In December 2017, 2.2 miles of the City's River Walk was chosen to be added to North Carolina's Mountains-to-Sea Trail.

Park	Location	Designation
Bear Plaza	2302 Middle Street	Pocket Park
Carter-Sampson Park	924 Green Street	Pocket Park
Council Bluff Green	42 East Front Street	Pocket Park
D. E. Henderson Park	901 Chapman Street	Community Park
Donald Miller Park	100 Avenue A	Pocket Park
Fort Totten Park	490 Fort Totten Drive	Neighborhood Park
Glenburnie Park	340 Glenburnie Drive	Community Park
James Reed Lane	319 Pollock Street	Pocket Park
Lawson Creek Park	1309 Country Club Road	Community Park
Leander Morgan Park	925 Walt Bellamy Drive	Neighborhood Park
Lourenco Park	100 First Street	Pocket Park
Mary White Park	610 Julia Clay Street	Pocket Park
Monk Mallard Park	1101 North Craven Street	Neighborhood Park
Palace Point Commons		Pocket Park
Pierce Park	545 Neuse Avenue	Neighborhood Park
Pleasant Hill Park	427 NC 55 Hwy West	Neighborhood Park
Seth West Parrott Park	1225 Pine Tree Drive	Community Park

Park	Location	Designation
Speight Park	2206 Center Avenue	Pocket Park
Tryon Village Park	901 Meadows Street	Neighborhood Park
Union Point Park	210 East Front Street	Neighborhood Park
United Way Park	5 Points off Broad Street	Pocket Park
Walt Bellamy Park	Intersection of Pollock, Jones & Liberty	Pocket Park

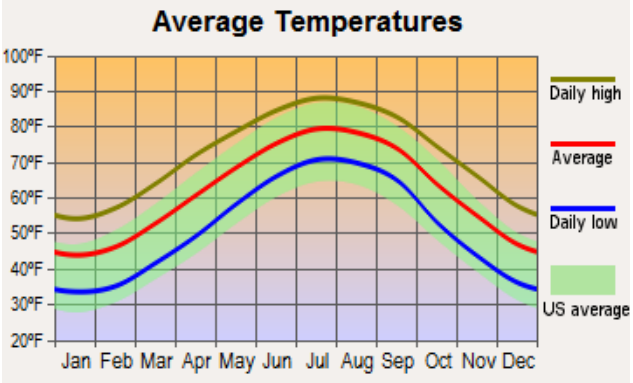
Special Use Facilities	Locations
408 Hancock	408 Hancock Street
Boat House	1307 Country Club Road
Down East Dog Park	340 Glenburnie Drive
George Street Park - Spray ground	807 George Street
Kafer Park	603 George Street
New Bern Aquatics Center	1155 Laura Lane
River Walk	210 E. Front Street
Stanley White Recreation Center	901 Chapman Street
West New Bern Recreation Center	1225 Pine Tree Drive

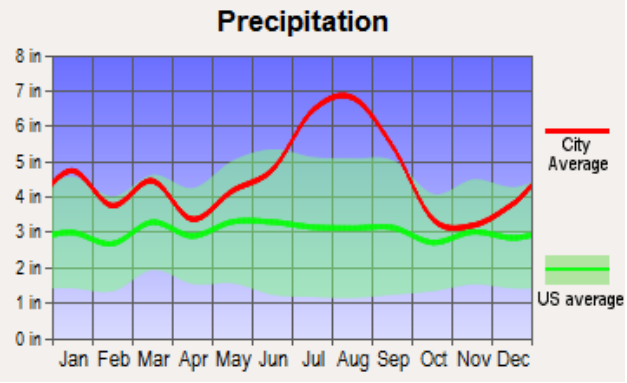


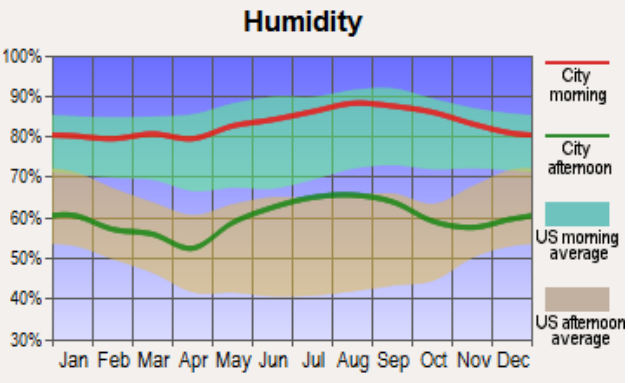
Recreational Map

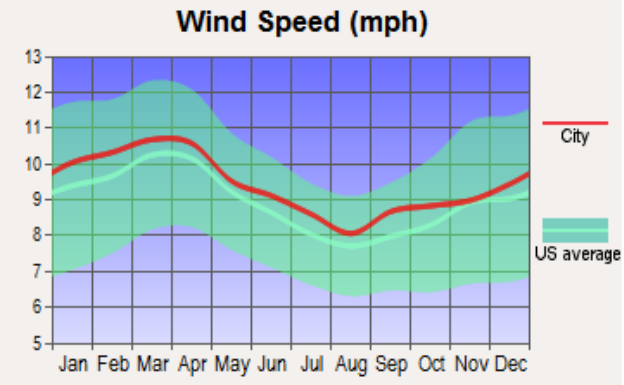
Climate

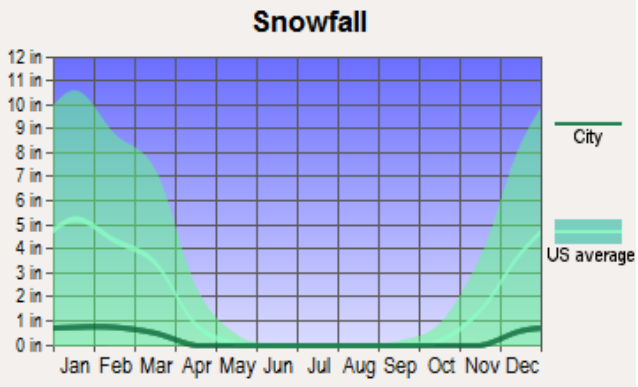
The City of New Bern typically has a relatively mild climate. Depending on the wind direction, temperature and humidity can be affected by influences from the coastal area about 35 miles away, the mountainous west of the state about 300 miles away, and weather systems to the north and south. Summer months, especially in July and August can be very hot and humid with temperatures in the high 90's and matching humidity. Winters are usually relatively mild, but temperatures can dip into the teens at night with daytime highs of 35 degrees for short time-periods.

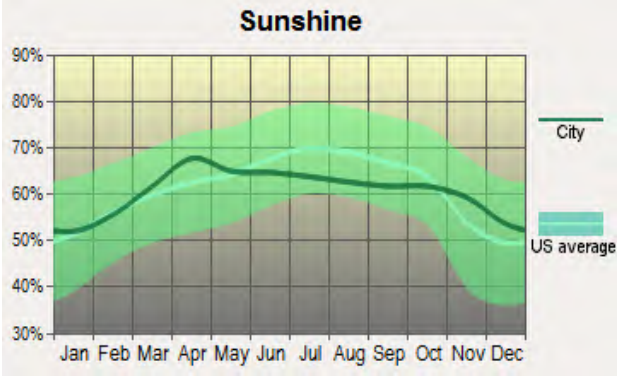


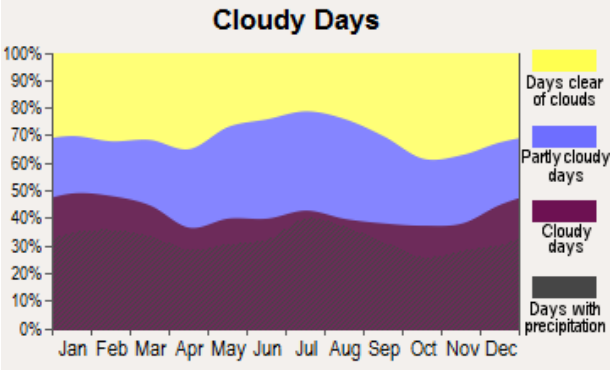












New Bern experiences a humid subtropical climate typical of the Atlantic coastal plain. Summers are hot and humid, with frequent afternoon thunderstorms that account for much of the higher summer precipitation. Spring and fall are generally mild, with fall foliage occurring from late October to early November. Winters are relatively mild and drier than the remainder of the year, with infrequent snowfall.

Climate New Bern - North Carolina

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
Average High in °F	55	58	65	74	80	87	89	88	83	79	66	58
Average Low in °F	34	36	42	50	59	67	72	70	65	53	44	36
Average precipitation in "	4.02	3.66	4.41	3.19	4.13	4.61	6.18	6.65	5.91	3.27	3.39	3.39

New Bern weather averages

Annual high temperature:	73.2°F
Annual low temperature:	52.3°F
Average temperature:	62.75°F
Average annual precipitation - rainfall:	52.81 inch

Natural Disasters

New Bern, like many cities in the state, has experienced several weather-related incidents, including hurricanes, tornadoes, severe thunderstorms, severe drought, and an occasional snowflake.

North Carolina is second only to Florida in the number of hurricanes that impact the state. The most notable hurricane to affect the New Bern area in recent history was Hurricane Florence in September 2018, which caused extensive freshwater flooding and $74.5 million in residential damages and another $25.6 million in commercial damage. Estimates from the city showed at least 4,325 homes and 300 businesses are damaged and railroad tracks have been washed away.

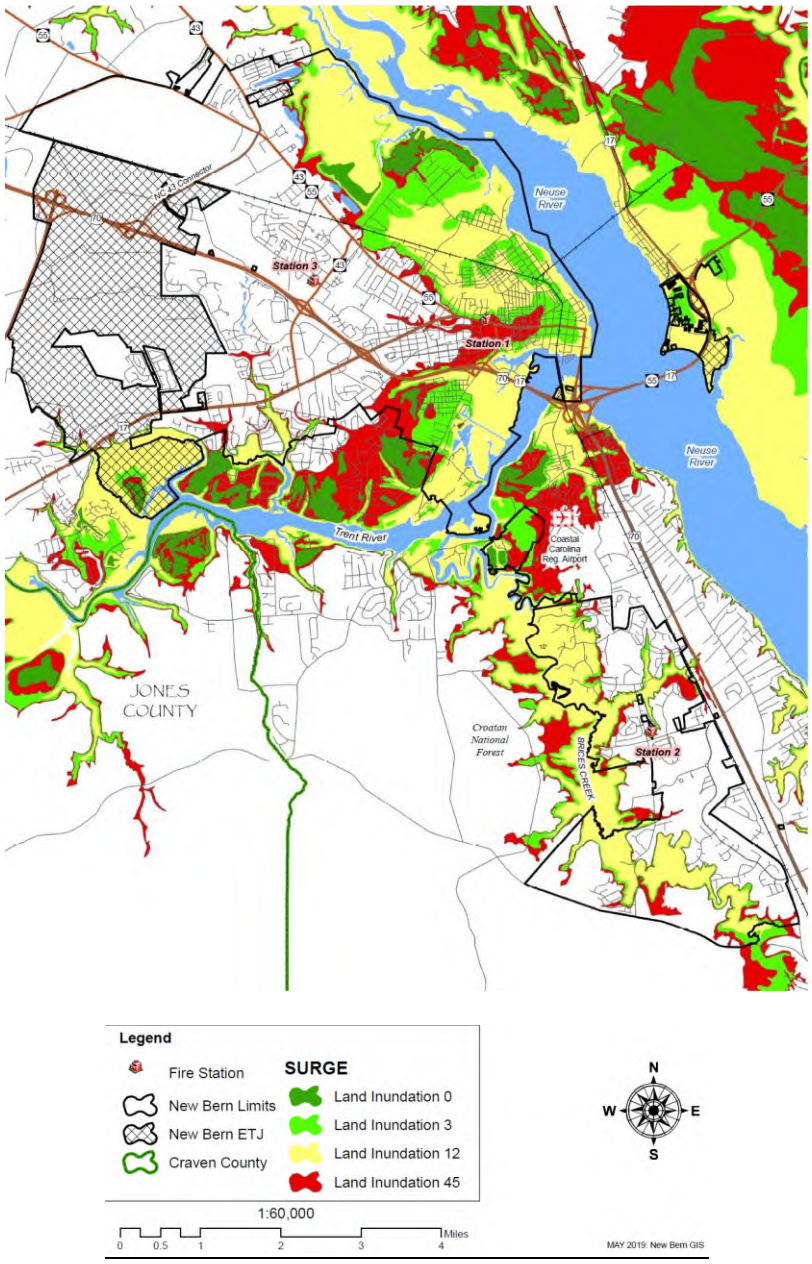
Three tornadoes have occurred in the surrounding area of New Bern in the last 40 years. The most recent was in 2011, approximately 10 miles East/ South East of the City.

Even as a coastal community, New Bern is no stranger to winter storms. On average there is one event each year that causes incidents on the roadways due to icy conditions. Some of these events lead to winter weather advisories causing New Bern to execute the emergency operations plan.

Earthquakes have occurred with the epicenters in Virginia, South Carolina, and western areas of North Carolina. In the past 40 years, there have been two minor earthquakes in the immediate local vicinity.

Stormwater street flooding can hamper emergency vehicles during thunderstorms in the summer; however, the most significant weather-related impact on providing emergency services in New Bern has been from flooding from tropical systems where the river and its tributaries will overflow and affect low lying areas including the city's downtown historic district, waterfront yacht basins, and critical

infrastructure. Emergency personnel are familiar with the city street configurations and low-lying areas that are most subject to flooding. This knowledge provides an opportunity to plan accordingly in terms of evacuations and response. New flood inundation maps are also available for planning and response purposes.

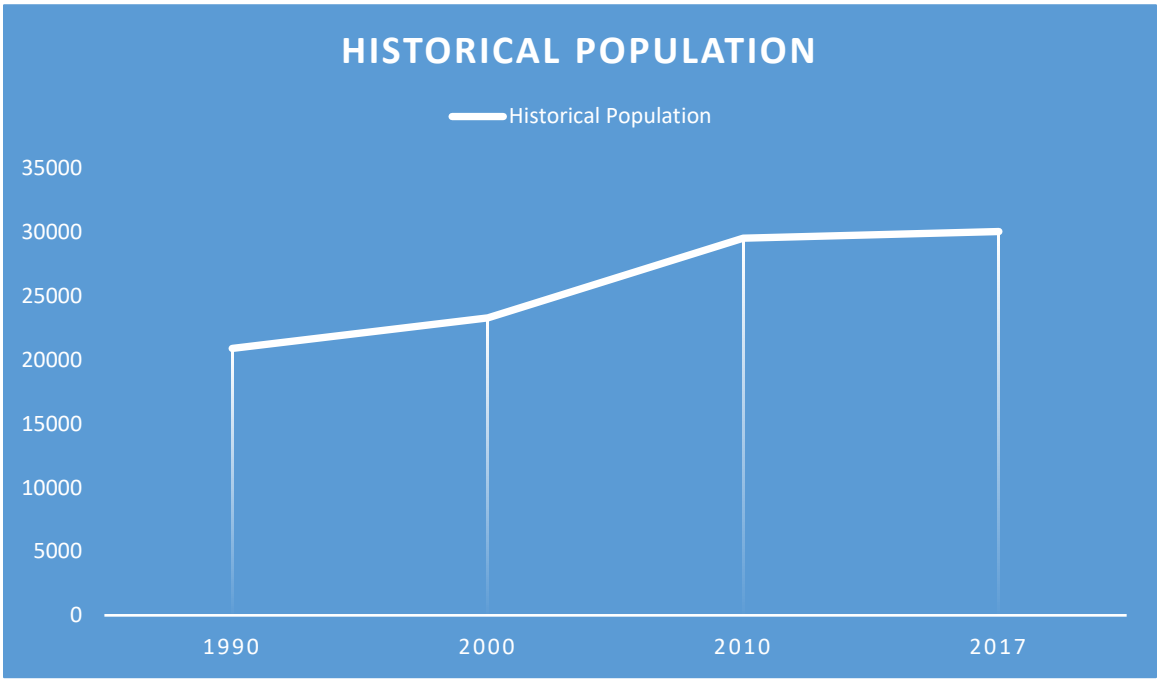


Storm Surge Map (FAST)

Population

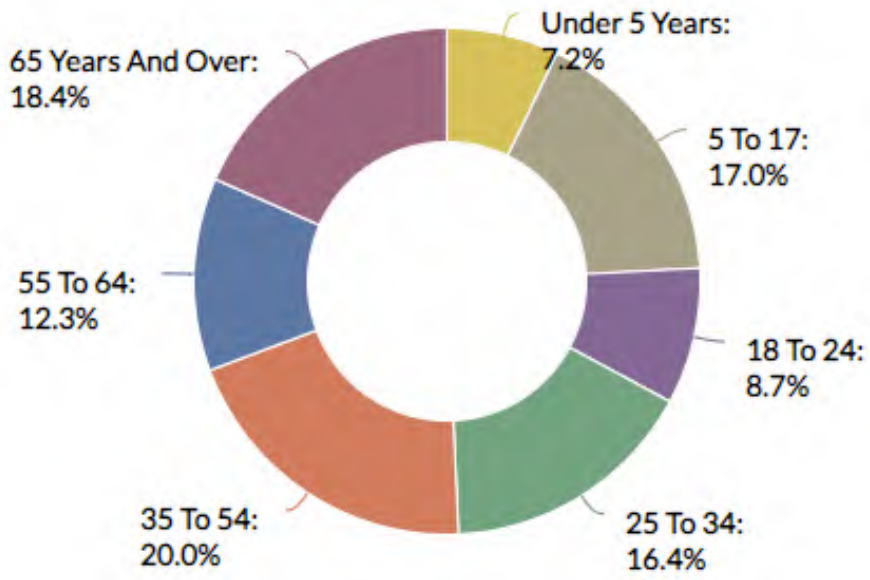
It is critical for an organization to have accurate data about the population so good decisions can be made regarding the Standard of Cover statement for emergency services. The important population information about the area includes the population size, population growth rates, and population composition by age, race, and education. Population density varies throughout the city and within each of the three (3) fire districts. Population is always a risk factor that must be considered in the overall assessment of factors that have an impact on service levels. The following information is provided to assist with well-informed decision making.

As of the 2010 census New Bern had a population of 29,524, which had risen to an estimated 30,054 as of 2017. This data represents a 1.8% growth increase in the city over the last 7 years. In 1990, the Population of New Bern was approximately 20.9 K, in 2000 it was approximately 23.3 K, and in 2010 it was approximately 29.5 K. This data represents approximately a 41.15% growth increase over a 20-year span according to the US Census. New Bern is the 29th largest city in North Carolina based on official 2017 estimates from the US Census Bureau. The population density is 1045.51 people/mi².



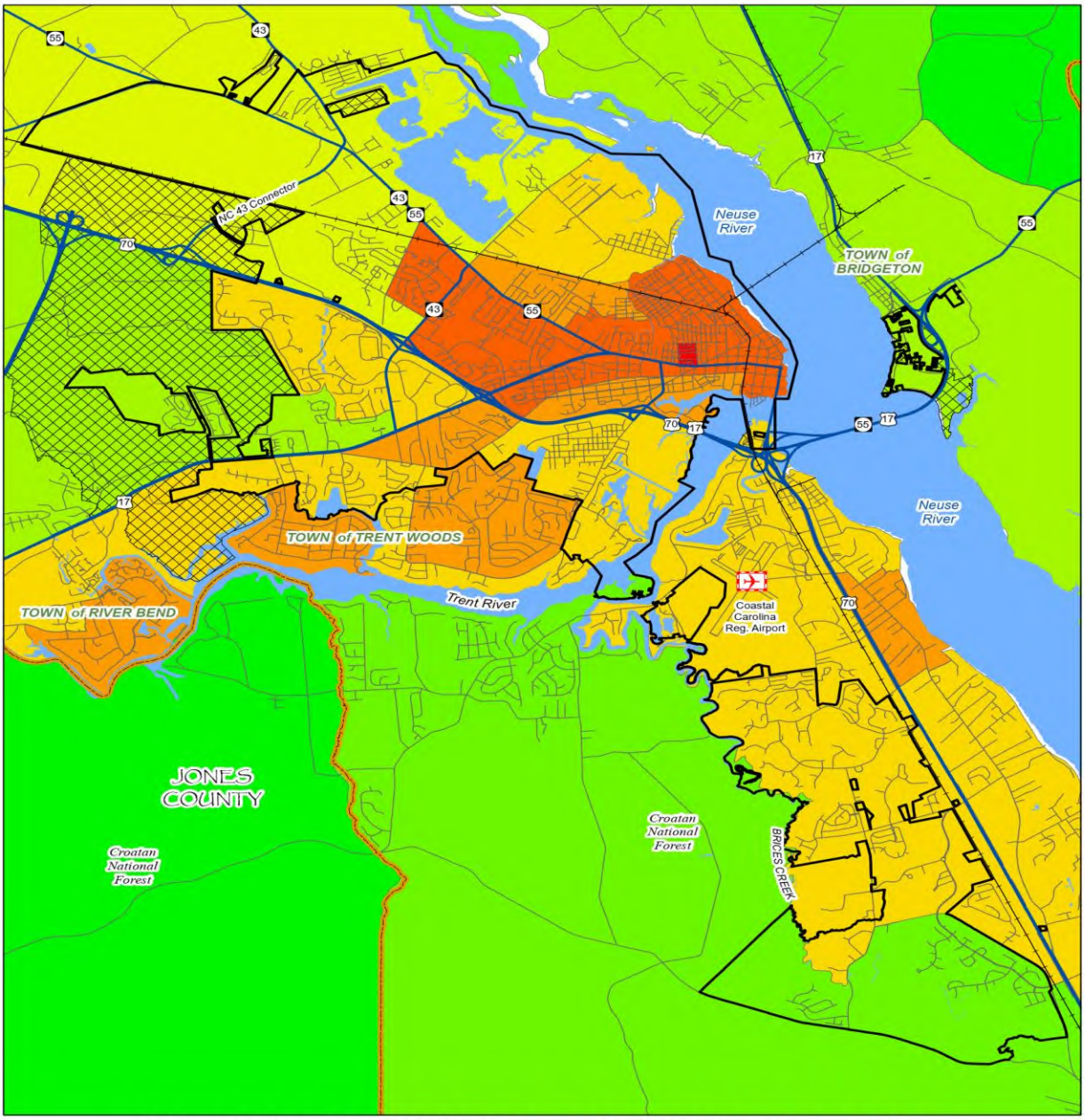
Population Trends

Traditionally recognized as a retirement community, New Bern and the surrounding area is becoming home to more working-class families. This is partially due to the proximity of MCAS Cherry Point. Companies such as Carolina East Medical Center, MCAS Cherry Point, Retail, and industries like BSH, Hatteras, and Moen have provided working-class growth in New Bern.



Population Density for Each Fire Station

	Sq. Miles	Population	Density/Sq. Mile	Designation
Station 1	8	13,347	1,668	Urban
Station 2	7.5	3,692	492	Urban
Station 3	14.2	13,099	922	Urban



City of New Bern NC: Population Density

Legend

- New Bern Limits
- Craven County
- New Bern ETJ

2012 Population/Sq. Mile by Block Group

- >= 50
- >50 - 100
- >100 - 250
- >250 - 500
- >500 - 1000
- >1000 - 2000
- >2000 - 5000
- >5000

N W E S

1:60,000

0 0.5 1 2 3 4 Miles

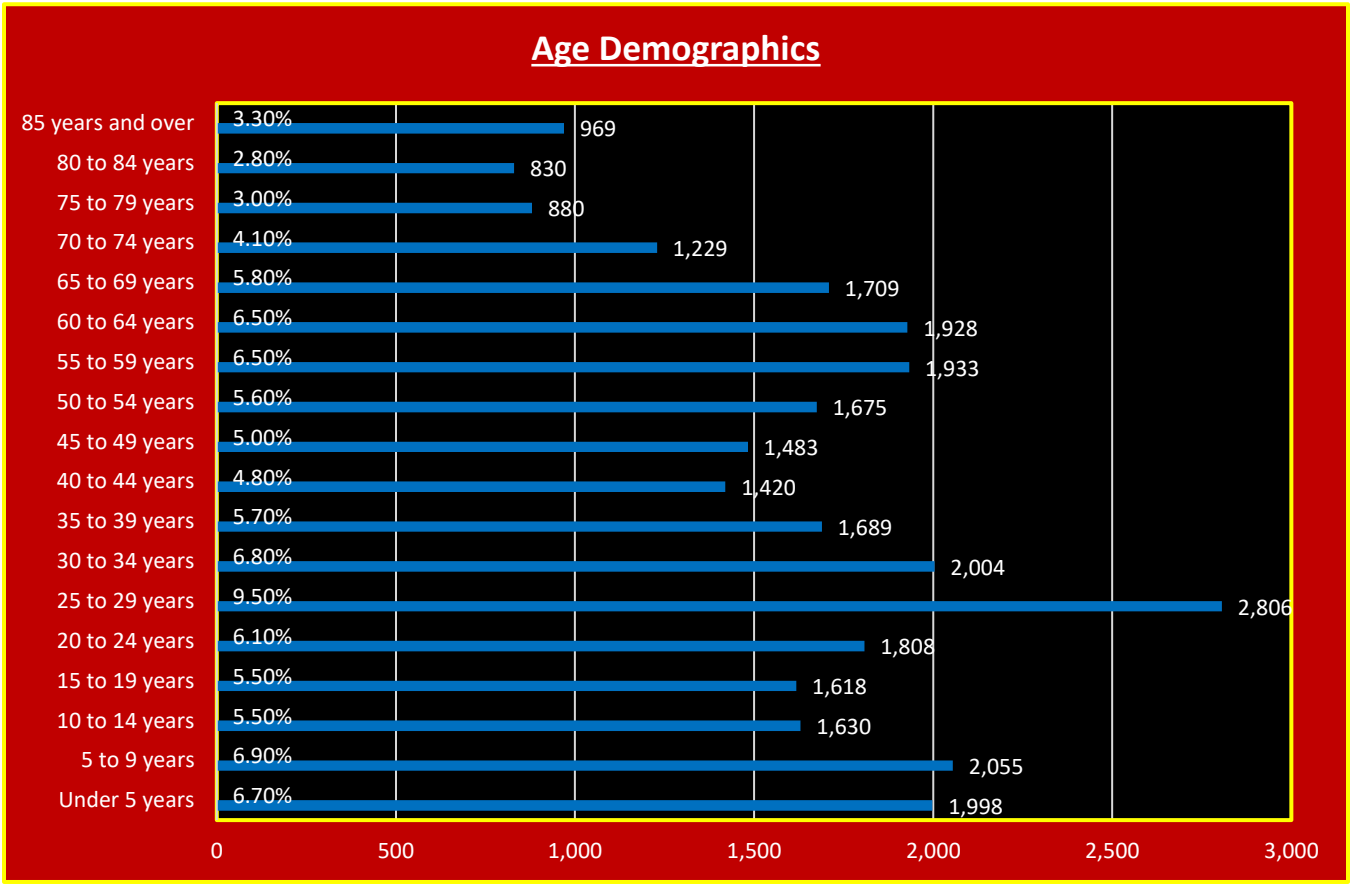
MAY 2019: New Bern GIS

Demographics

New Bern is home to more than 30,000 people according to an adjustment made by the Census Bureau on 7/1/2018. NBFRD must understand the demographic breakdown of the population to deliver services that provide accountability to the City of New Bern community.

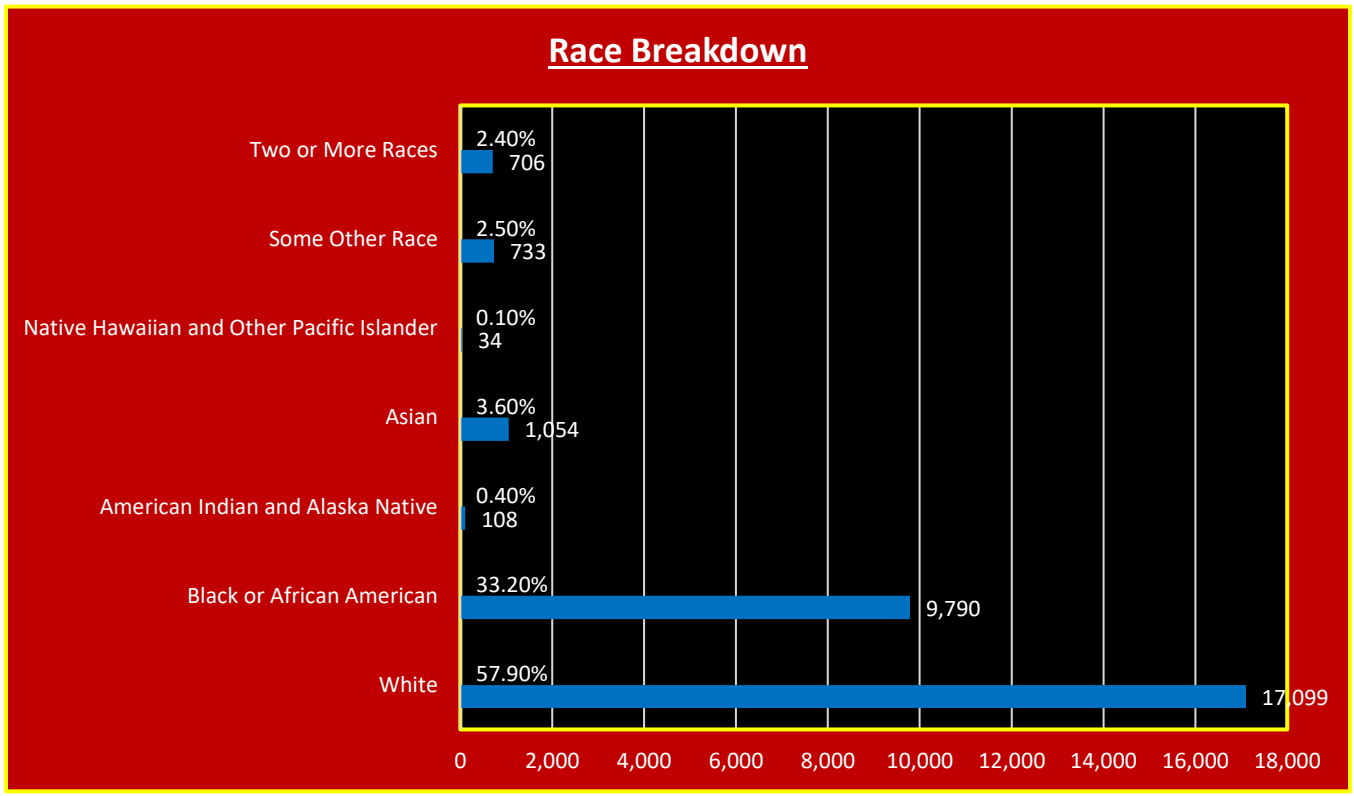
Age

In 2017, the median age of all people in New Bern, NC was 37.1. Native-born citizens, with a median age of 38, were generally older than foreign-born citizens, with a median age of 36. But people in New Bern, NC are getting getting older. In 2016, the average age of all New Bern, NC residents was 36.



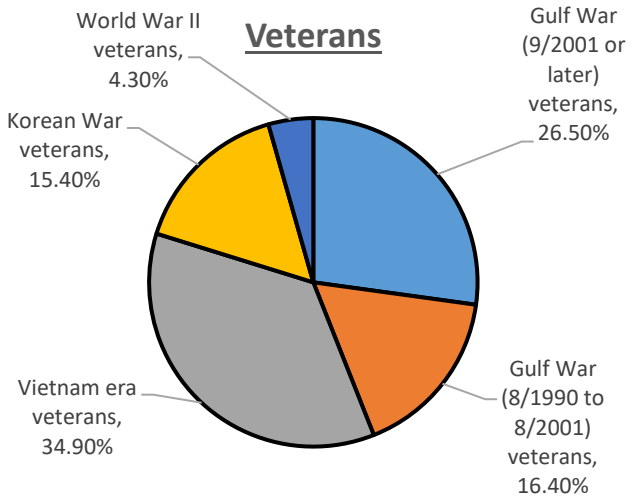
Race

New Bern is a diverse rich city. From the Mid 1800's when James City, a refuge for African Americans after the Civil War, until the present day time, New Bern has been strongly represented by Caucasians and African Americans. The table below shows the breakdown of race in New Bern.



Veterans

New Bern is approximately 30 miles from MCAS Cherry Point and approximately 45 miles from Camp Lejeune. NBFRD employees' have members from each branch of the military. The City of New Bern is home to citizens who served in all branches of service. Veterans from WW II through the Gulf War, and current servicemen and women call New Bern Home. Approximately 3,105 veterans currently live in New Bern.



Income and Employment

Households in New Bern, NC have a median annual income of $41,807, which is less than the median annual income of $61,937 across the entire United States. The annual household of North Carolina is $53,855. This is 28.82% higher than New Bern.

Income Range	Number of Households	Percentage of Households
Less than $10,000	1,289	9.90%
$10,000 to $14,999	715	5.50%
$15,000 to $24,999	1,767	13.60%
$25,000 to $34,999	1,657	12.80%
$35,000 to $49,999	2,082	16.00%
$50,000 to $74,999	2,280	17.60%
$75,000 to $99,999	990	7.60%
$100,000 to $149,999	1,355	10.40%
$150,000 to $199,999	567	4.40%
$200,000 or more	280	2.20%
Total Households	**12,982**	**100%**

The median amount of the monthly housing cost is $ 893.00. This is 2.14% of the median household income. The percentage of Homeowners in New Bern is 50.6%, with 49.4% of the population renting their homes. New Bern has a poverty rate of 20.3%. This means that approximately 2,635 households' are living below the poverty level.

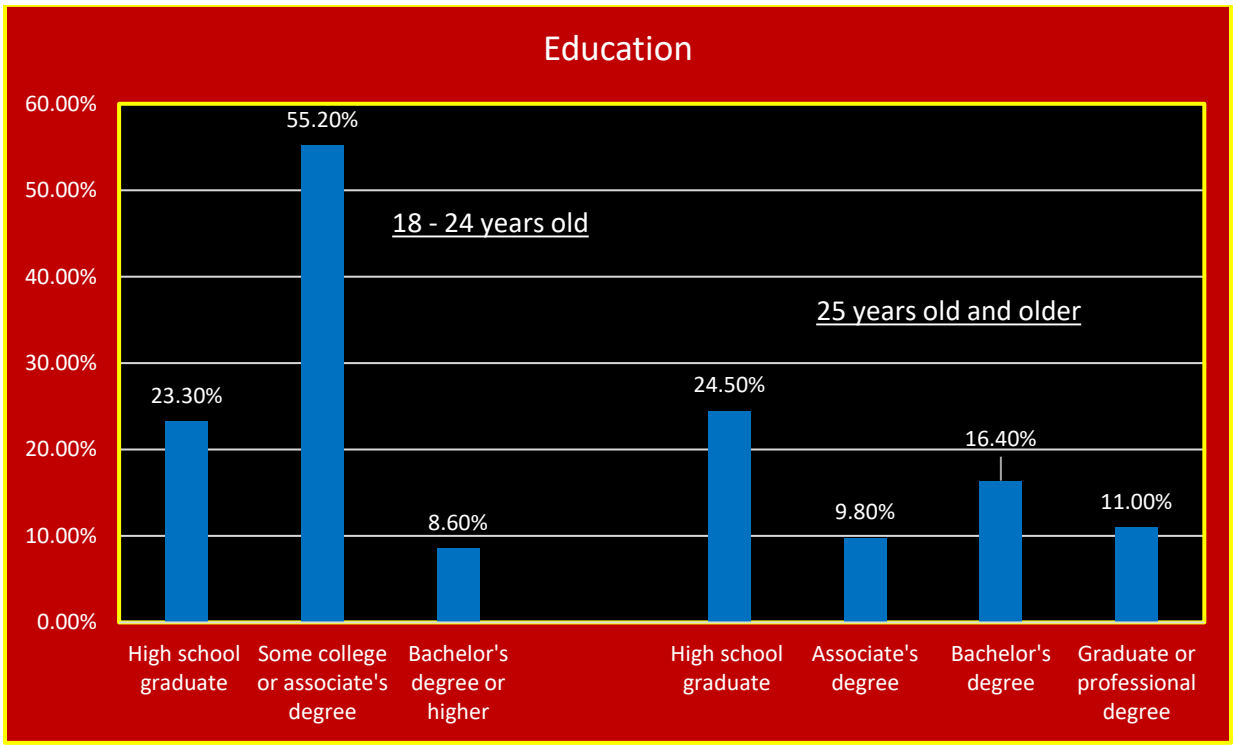
The top ten (10) employers in for residents of New Bern is as follows:

RANK	COMPANY	INDUSTRY	EMPLOYEE RANGE
1	Department of Defense (FRC East)	Public Administration	3000 +
2	Department of Defense (Military)	Military	3000 +
3	Carolina East Medical Center	Health Services	2000 +
4	Craven County Schools	Education	1000 +
5	BSH Home Appliances	Manufacturing	1000 +
6	Moen Inc.	Manufacturing	750 - 1000
7	Craven County Government	Public Administration	500 - 750
8	Craven Community College	Education	500 - 750
9	City of New Bern	Public Administration	500 - 750
10	Wal-Mart	Retail Trade	500 - 750

The unemployment rate for New Bern as of 2017 is 9.6%.

Education

The population over 18 that is a high school graduate (or equivalent) or higher is 85.7 %. Residents in New Bern 25 and over, with an education equal to or higher than an associate's degree is 37.2%.



Schools

Craven County School System serves New Bern residents. There are five (5) public Elementary schools (K-5th grade), two (2) public middle schools (6th -8th grade), and One (1) public high school (9th – 12th grade) within the City of New Bern. New Bern has two (2) head start facilities serving as early childhood development centers. New Bern also has three (3) private schools, two (2) of which serve from K-12th grade. Craven community college provides residents the opportunity to develop technical skills and offers two-year college education. The University of Mount Olive offers a four-year college education to New Bern Residents.

School Name	Grade Level
Ben D Quinn	Elementary School
Calvary (Private)	Kindergarten – 12th Grade
Craven Community College	Two-year College
Creekside	Elementary School
Duffy Field Head Start	Early Childhood Development
Epiphany (Private)	Kindergarten – 12th Grade
FR Danyus	Early Childhood Development
Grover C. Fields	Middle School
HJ McDonald	Middle School
JT Barber	Elementary School
Mount Olive	Four-year College
New Bern High	High School
Oaks Road	Elementary School
St. Paul (Private)	Kindergarten – 8th Grade
Trent Park	Elementary School

Transportation

There are four major roadways coming into the City of New Bern, Hwy 70, Hwy 17, Hwy 43, and Hwy 55. Within the city, several city streets connect each district, Neuse Blvd., ML King Jr. Blvd., S Glenburnie Rd., Simmons St., Trent Rd. / Pollock St., and Oaks Rd. / National Ave. / George St. The above streets serve as main response routes for apparatus. ML King Jr Blvd. (Hwy 17) has also developed into the main commercial corridor for New Bern. Currently, Hwy 43 corridor and Hwy 17 are being redesigned to provide better transportation for some of the local industries. This will also help with response times, as well as, provide more opportunities for city growth.

Coastal Carolina Regional Airport (EWN) serves New Bern and surrounding areas. The airport is 2.4 miles away from the Headquarters fire station and located southeast in James City, Craven County. The primary runway is approximately 5,000 feet with a 1,000-foot overrun. The airport has an instrument landing system, passenger terminal, and several hangers. A combination of commercial, corporate, and private planes fly in and out of New Bern.

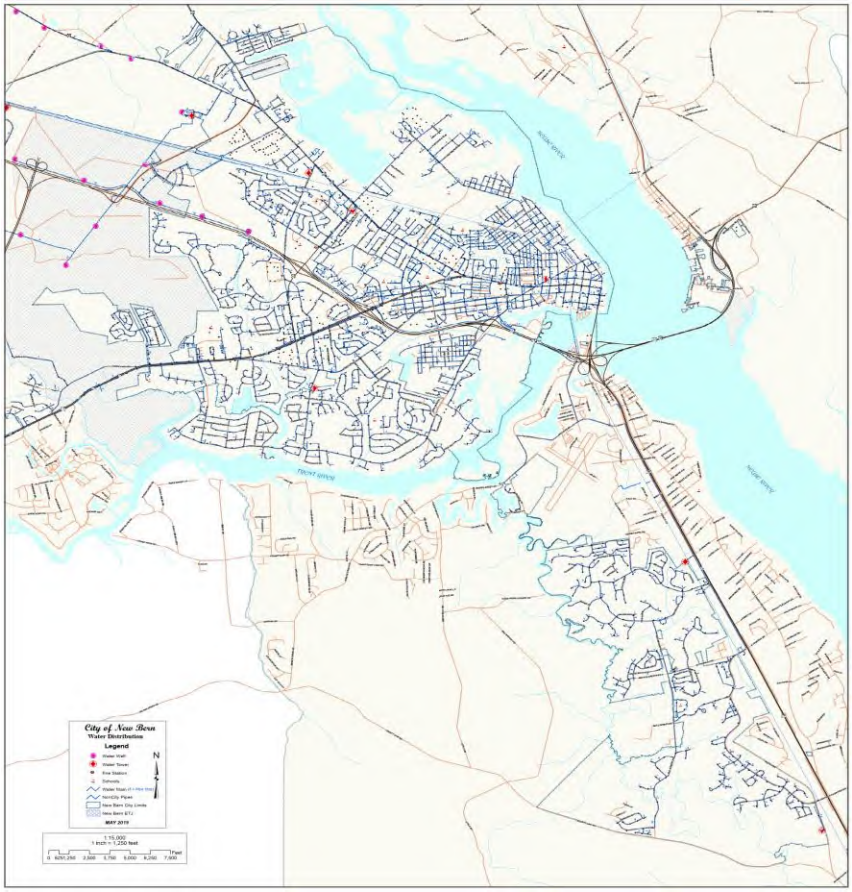
New Bern has railroad service that passes through from the southeast, north, and west. However, there are no railroad stops in New Bern.

Water Distribution

Residents and businesses in New Bern receive their water supply from the City of New Bern. There are nine (9) water storage tanks strategically located throughout the city. There are six (6) elevated ground tanks and three (3) ground-level storage tanks. The city has 331 miles of water main. There are five (5) booster pumps, which have the capability of pumping 15,000 gallons of water per minute to 17,750 water meters. There are 1486 fire hydrants in the City of New Bern. The following table shows the demand for water over the past three years.

	2017	2018	2019
Average Daily Demand *	3.444	3.583	3.68
Peak Demand *	6.130	5.380	6.33
Total Gallons *	1,257.06	1307.79	1344.00

* Figures are in millions of gallons



Area Description

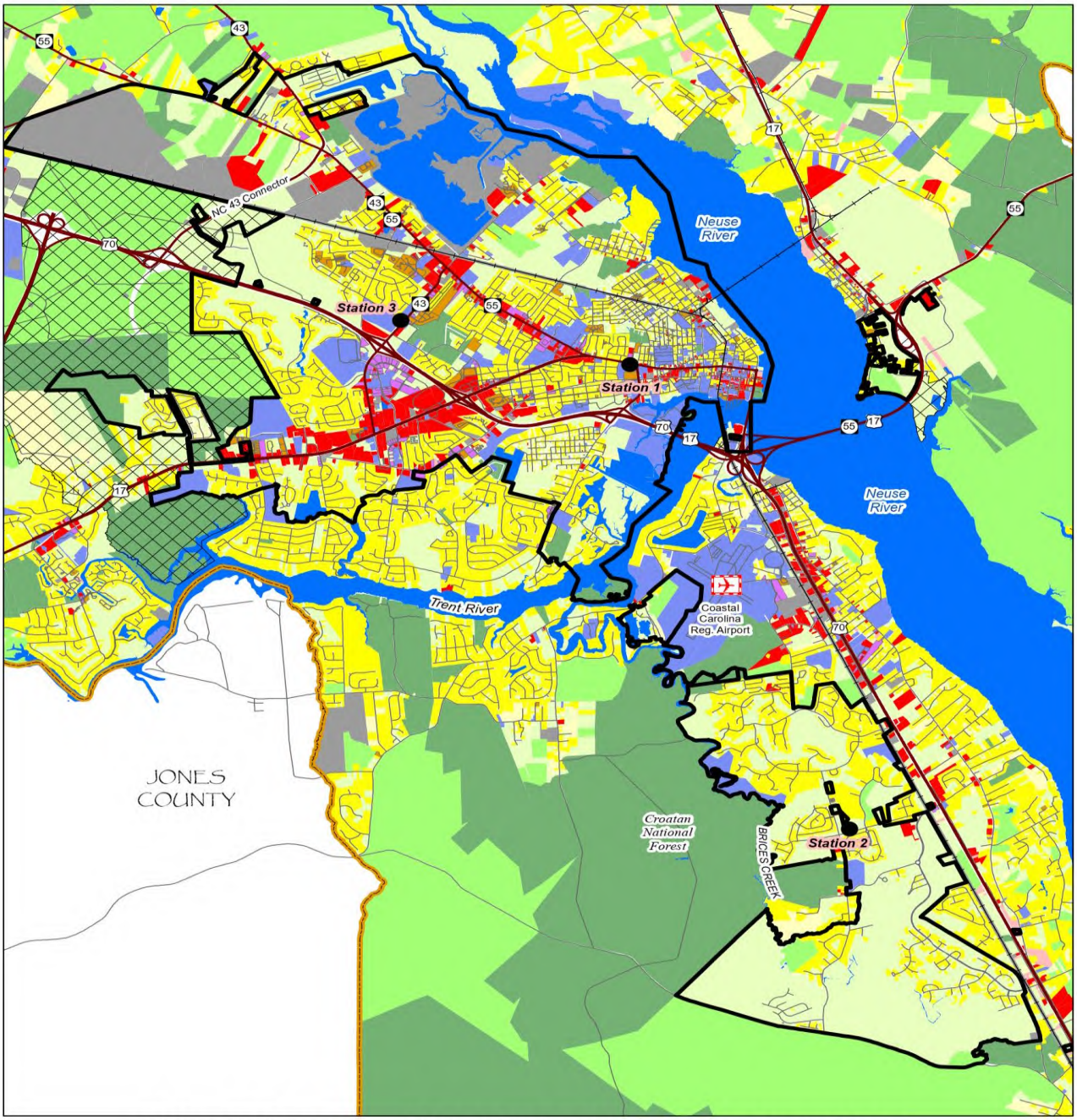
The NBFRD service area is comprised of three fire response districts. Developments within the districts are comprised of residential, commercial, industrial, manufacturing, business, and assembly occupancies.

Non-residential occupancies account for approximately 2,100 commercial occupancies in the City. Some buildings have multiple occupancies in the structure. Of these structures, 163 are two stories, 35 are three stories, twelve (12) are four stories, six (6) are five stories, one (1) is eight stories. The remaining structures are one story in height. The types of commercial construction include wood frame, masonry, and metal frame. From the map below it is easy to see that commercial and offices are primarily of the Hwy 55, Hwy 17, and Hwy 43 corridors. The downtown historical area is populated with commercial and residential. This is partly because of businesses on the first floor of historical structures and apartments/condos above the businesses. Industries tend to be more prevalent in the northwest part of the city. FDZ's 3-3 and 3-4 house most of the cities industries.

There are approximately 15,750 residential structures in the city. Residential construction is typically a wood frame with masonry or other types of decorative veneer. These residential areas are respectfully divided between headquarters and Elizabeth Avenue districts, but recent development has taken place in the Thurman Road district. Specific property uses of the occupancies in which the agency inspects for Fire Code enforcement provides an indication of the services and programs offered and a general view of the types of businesses in New Bern.

Parks and nature areas are also respectfully divided throughout the city. Several parks are strategically located adjacent to the Neuse and Trent Rivers. The use of the city parks varies from sports such as soccer, softball, and other recreational sports to playgrounds, boating access, and nature areas where citizens can relax.

In the western part of the city, there is an opportunity for the city to grow both residentially and commercially. Thurman Road district also provides the opportunity to grow. Recent growth in this area has primarily been residential; however, recently more areas that are commercial have developed in this district.



City of New Bern NC: Existing Land Use

Legend

- Fire Station
- New Bern Limits
- Craven County
- New Bern ETJ

Land Use

- Agriculture
- Conservation/Undev
- Forest/Park
- Low Den Residential
- Med Den Residential
- High Den Residential
- Office
- Institutional
- Neighborhood Commercial
- Regional Commercial
- Industrial
- Water

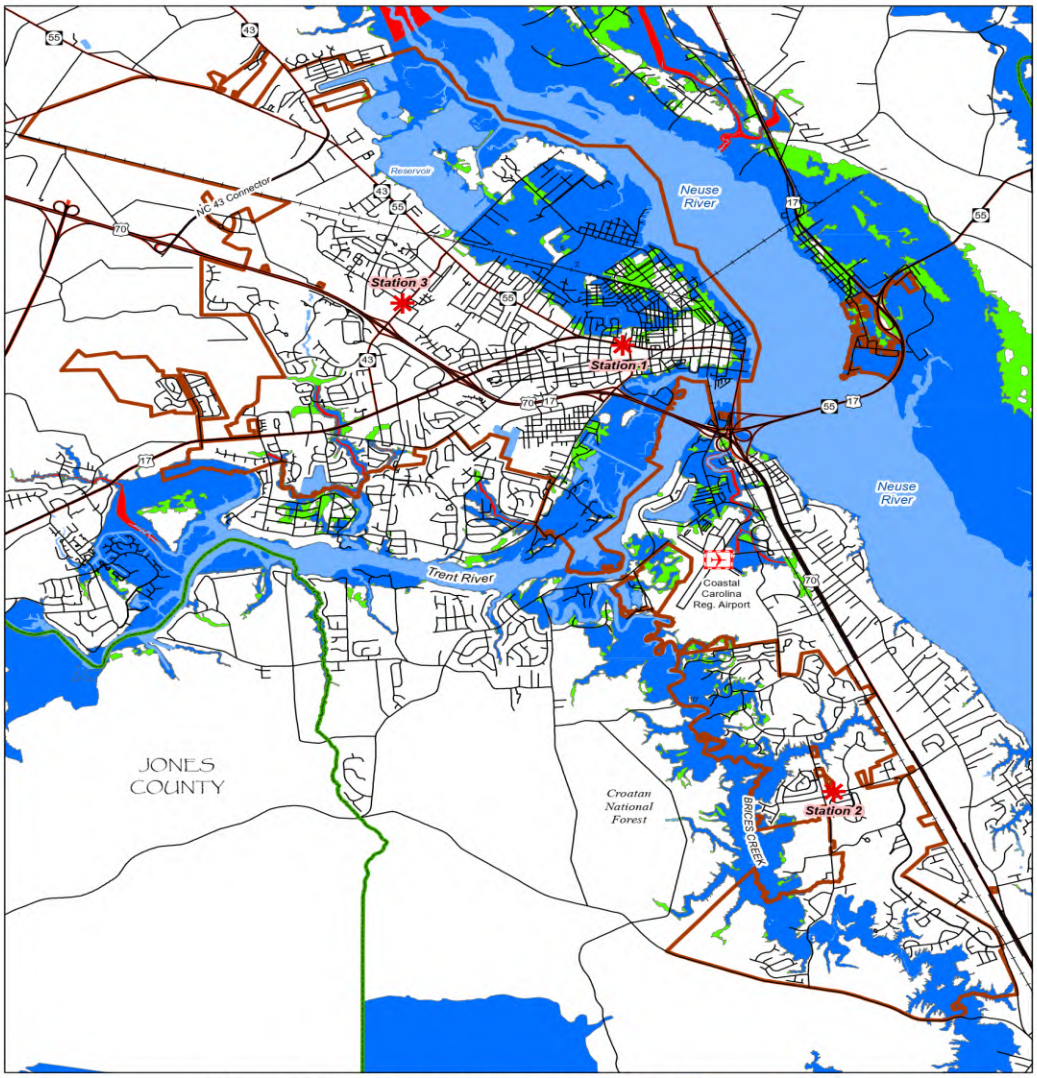
N W E S

1:60,000

0 0.5 1 2 3 4 Miles

MAY 2019: New Bern GIS

When considering developmental growth, consideration is given to the proximity of flood-prone areas. While the proximity to the Neuse and Trent river makes New Bern a great place to live, it also causes flooding issues.



City of New Bern NC: Flood Zones

Legend

- Fire Station
- Craven County
- New Bern Limits

Flood Zones

- A & AE:Areas of 1% Chance of Flooding
- Shaded X: Areas of 2% Chance of Flooding
- AEFW: Same as AE and in Floodway

N W E S

1:60,000

0 0.5 1 2 3 4 Miles

MAY 2019: New Bern GIS

Historic Properties

The city of New Bern has four National Historic Districts and two local ones, which have helped preserve the character of the architecture. The Downtown Local Historic District is 368.64 acres or 0.576 square miles and the Riverside Local Historic District covers 51.94 acres or 0.081 square miles. Fifty-four homes and businesses are listed on the National Historic Registry. The local designation is an honor, meaning the community believes the architecture, history, and character of the area are worthy of recognition and protection. Local historic districts are generally created to protect entire areas or groups of historic structures. Most often, the reason for creating a local district is to prevent unregulated and insensitive change.

Completed in 1770, Tryon Palace served as the first permanent capital of North Carolina and home to the Tryon family. Tryon Palace was the site of the first sessions of the general assembly for the State of North Carolina following the revolution and housed the state governors until 1794. In 1798, the fire destroyed the original Palace building. An extensive 30-year campaign to rebuild the Palace and restore the grounds was launched by the people of New Bern, state leaders, world craftsmen, and generous, dedicated citizens. The efforts led to the reopening of the Palace in 1959. Today, the Palace lives on as a testament to history, community, and rebirth.

Section 2: Programs and Services

NBFRD provides various programs and services to the City of New Bern and the surrounding areas. The agency shares the responsibilities between Fire Prevention and Fire Suppression. Prevention is the best means to address life-threatening events. For this reason, NBFRD list community risk reduction programs and services first.

Community Risk Reduction

NBFRD takes a proactive approach to community risk reduction. Programs and services associated with community risk reduction fall under the primary responsibility of the agency's Bureau of Fire Prevention. It is their responsibility to develop, coordinate, implement, and evaluate the success of these programs. NBFRD targets various audiences, behaviors, and hazards within the community to create a safer community by reducing and eliminating identified risk. Although New Bern is a diverse community through the collection of data certain hazards and risks can be identified and minimized. Some programs are carried out with the assistance of the agency's Fire Suppression Division. NBFRD also understands that a team approach is necessary and has worked hard to build a partnership with local stakeholders, both community leaders, business owners and citizens, national, state, and local resources, and members of the agency. Through the dedication of these partnerships it is possible to enhance the quality of life within our community, and fulfill the mission of the City of New Bern.

- Building Inspection/ Code Enforcement/ Permits
- Fire Investigation
- Fire Education

Building Inspection/ Code Enforcement/ Permits

Inspections

NBFRD performs state-mandated inspections on all commercial and multifamily buildings within the city. State certified inspectors use this opportunity to educate business owners on the NC Fire Prevention Code and enforce compliance of the same. These are a few areas covered:

- New construction inspections, renovation/remodel inspections, existing building inspections
- Daycare centers and group homes inspection

- Home daycare centers inspection
- Occupancy load enforcement
- Complaint investigations

Permits

NBFRD Inspectors review permits, plans, and sites to ensure that activities and events are safe and compliant with the 2018 NC Fire Prevention Code. NBFRD Inspectors also conduct plan reviews on all commercial and residential developments to ensure federal, state, and local codes and ordinances are met.

- Open & Commercial Burn
- Fireworks
- Carnival/ Fairs/ Festivals/ Tents
- Exhibit/ Trade Shows
- Plan Review

Fire Investigation

New Bern Fire-Rescue Department investigates fire within the City of New Bern for cause and origin. Investigations are conducted in accordance with NFPA 921. Through a methodical approach, Investigators can determine cause and origin, and determine any trends in community behavior or risk. New Bern Fire-Rescue Department has a canine investigator named Darby provided through a grant from State Farm Insurance. Darby and handler Division Chief Danny Hill assist neighboring counties and cities with fire investigations by request.

Fire & Life Safety Education

- Fire station tours

  NBFRD performs numerous station tours throughout the year. These tours allow the public to visit the station, meet the firefighters, and receive education on Fire Safety. Station tours may consist of family visits, school visits, or civic organizations such as churches, boy scouts, and girl scouts. Firefighters escort groups around the station and provide education through videos, discussions, or the department's puppet troupe.

- School visits

  Throughout the year members of NBFRD congregate at local schools before the school opening, welcome the children to school, and wish them a good day. Meet and greet is just one way we encourage local kids. NBFRD also participates in book reading with the schools, where uniformed firefighters visit the classrooms and read to the kids.

  For two weeks during the year, NBFRD visits the elementary schools in New Bern and teaches Fire & Life Safety to the kids as part of Fire Prevention Week. Several County schools request assistance from NBFRD to teach their students Fire & Life Safety. NBFRD is able to provide this service because firefighters have taken an interest in the following areas.

    - New Bern Safety Troupe
      - Clowns
      - Puppets
    - Electronic Quiz Games
    - Fire Robotics
    - Fire Safety House

  Also at New Bern High School, NBFRD teams up with EMS and local Law Enforcement around May to provide a DUI Mock Wreck where Juniors and Seniors experience firsthand a staged wreck scene where several of their peers are used as victims.

- Smoke Detectors

  Citizens in New Bern may set an appointment to have members of NBFRD inspect their Smoke and CO detectors for proper operation. During this time, firefighters also discuss home escape plans and home fire safety with the community. In the past, NBFRD has participated in campaigns with the American Red Cross. Recently, NBFRD participated in a smoke detector campaign with the NC DOI/OSFM.

- Fire safety for daycare providers

  NBFRD provides education for local daycares and their employees in fire safety. Topics covered are escape plans, use of fire extinguishers, understanding the fire equipment on site, and maintaining a fire-safe environment for each occupant.

- Fire extinguisher program

  NBFRD provides fire extinguisher training to local businesses and civic organizations. Training consists of a presentation followed by hands-on use of a fire extinguisher where participants approach and extinguish a small fire with props that simulate waste cans, electric motors, stoves, and shelving. Firefighters can control the intensity of the fire through the LP gas system.

- Child passenger safety seat program

  NBFRD has been providing the CPS program to the citizens of New Bern and Craven County since 2001-2002. Headquarters Fire Station is a certified Permanent Checking Station. NBFRD has 52 Child Passenger Safety Technicians. On average NBFRD conducts 25 safety seat inspections monthly.

- Youth fire-setter intervention

  New Bern has maintained a low volume of juvenile firesetters. However, if an investigation determines that a juvenile was involved with the ignition of a fire, the juvenile is provided an educational opportunity regarding the consequences of fire to the juvenile and the caregiver. This training uses videos and one on one intervention to defer the individual from carrying out such actions.

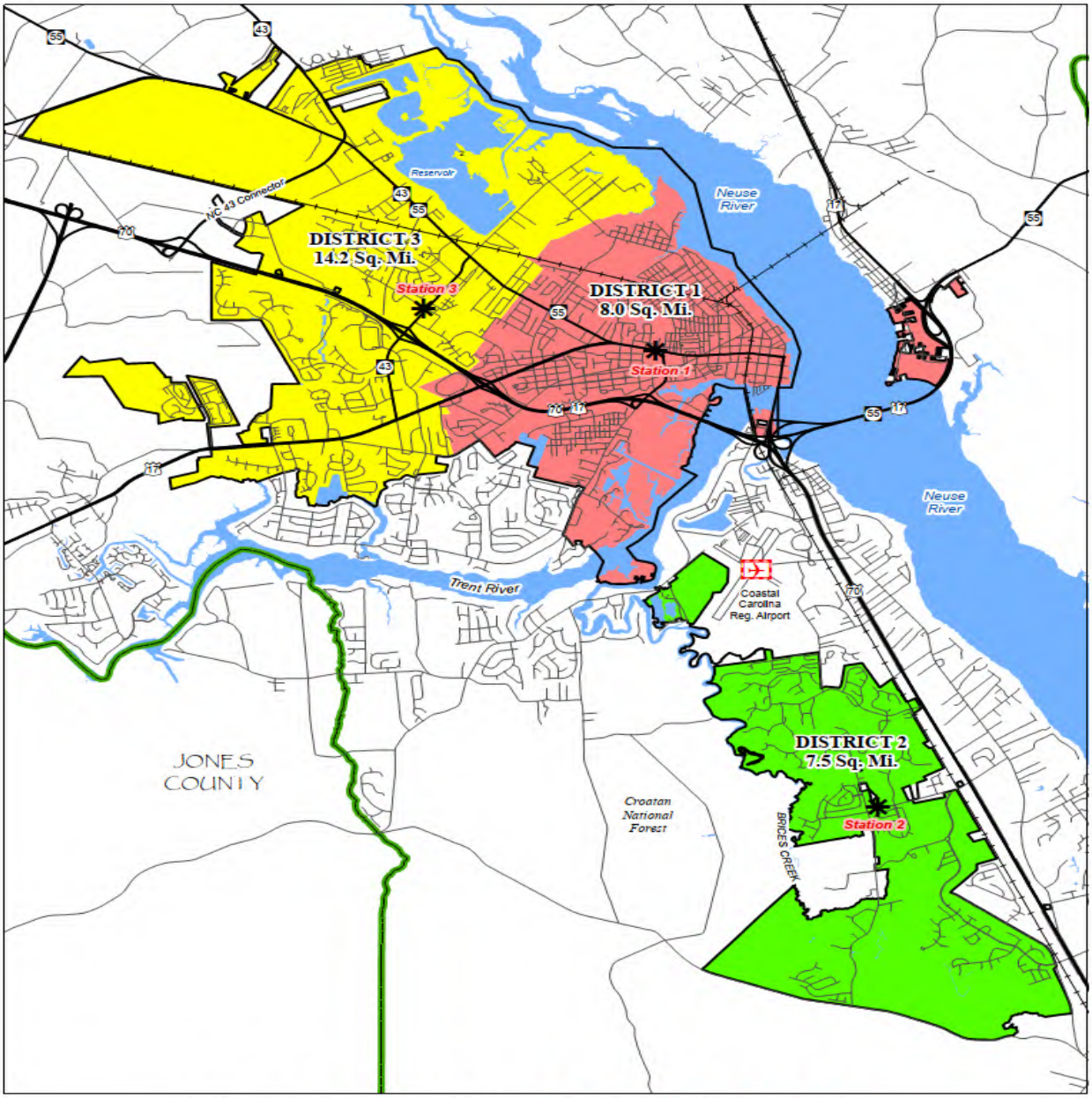
Fire Suppression

New Bern Fire-Rescue Department responds to various types of incidents including Fires, Motor Vehicle Crashes, Medical calls, Rescue calls, and Minor Hazardous situation calls. Fires including building/structure, mobile property, vehicles, natural vegetation, and outside rubbish. These may include fires in one and two-family dwellings, multi-family dwellings, commercial properties, mobile homes, or urban interface. Motor vehicle crashes can present various hazards/ conditions to include but not limited to, patient care, vehicle fires, hazardous materials, and overall scene safety. NBFRD assists the hospital and county rescue squads with patient care with in the city limits and currently operates at an Emergency Medical Technician Basic (EMT-B) level (treatment/ non-transport). At the rescue level, NBFRD responds to calls involving water rescue, elevator rescue, rope rescue, land search and rescue, and lock outs/ lock in. most personnel are also trained in Trench and Confined Space rescue. NBFRD

along with Greenville Fire-Rescue make up North Carolina Task Force 10 (NCTF-10). Personnel on the task force team may be deployed at a moment's notice for Urban Search and Rescue (USAR) operation and/ or Swift water operations throughout the State. NBFRD operates at an operational level in Hazmat. We assist with decontamination on an incident scene, and on a few occasions have been requested to assist Carolina East Medical Center with decontamination. However, our primary concern with Hazardous materials is to identify and report to the proper authorities trained in hot zone operations.

Stations and Resources

New Bern Fire-Rescue Department provides daily services for the City of New Bern from three (3) stations located throughout the city (Headquarters, Thurman Road Station, and Elizabeth Avenue Station). Below is a map that represents the fire districts.


DISTRICT 3
14.2 Sq. Mi.
Station 3
DISTRICT 1
8.0 Sq. Mi.
Station 1
DISTRICT 2
7.5 Sq. Mi.
Station 2
Neuse River
Neuse River
Trent River
Reservoir
NC 43 Connector
Coastal Carolina Reg. Airport
JONES COUNTY
Croatan National Forest
BRICES CREEK
City of New Bern NC: Fire Districts
Fire Station
New Bern Limits
Craven County
Fire Districts
District 1
District 2
District 3
N
W
E
S
1:60,000
0 0.5 1 2 3 4 Miles
MAY 2019: New Bern GIS

There are three (3) front line engines (1 – engine, 2 – quints), two (2) front line truck (1 - elevated platform, 1- panel truck), two (2) reserve engines, five (5) boats, one (1) Battalion Chiefs vehicle, four (4) inspector vehicles, six (6) service vehicles. For technical rescue deployment purposes, we have USAR 1 (tractor-trailer) and a boat trailer capable of transporting multiple rescue boats. Each apparatus is equipped to perform the task assigned to that company, making sure that at least a minimum of DOI required equipment is in place. Each Quint is equipped with a 75 feet aerial ladder, and the elevated platform is 100 feet in length. All pumps are 1500 gallons per minute (GPM) pumps. The Battalion Chief's vehicle has all the necessary equipment to properly manage an incident, including command boards and worksheets, Pre-plans, and other essentials.

Administration and Headquarters Station

1401 Neuse Blvd

(252) 639-2921 (Administration) (252) 639-2932 (Suppression)

Battalion 1

Engine 1

Tower 1

Marine 1

Marine 2

Marine 3

Marine 4 & 5

USAR 1

Reserve 2

West Thurman Rd. Station

(252) 639-2936

Engine 2

Truck 1

Elizabeth Ave. Station

(252) 639-2937

Engine 3

Reserve 1

Personnel

New Bern Fire-Rescue Department has 72 uniformed personnel. Six (6) personnel are assigned to administration consisting of the Fire Chief, Division Chief of Training, Fire Marshal, and three (3) fire inspectors. Three shifts make up the suppression division. Each shift consists of 22 personnel, which include one (1) Battalion Chief, four (4) Captains, four (4) Fire Engineers, and thirteen (13) Fire Specialist. Minimum Staffing is set at 18 under normal conditions. Shift Personnel works off a nine (9) day cycle, consisting of working three (3) days with a day off in between and a four (4) day break after each rotation.

Station Staffing

Personnel Off Duty		**0**	**1**	**2**	**3**	**4**
Headquarters	Battalion 1	1	1	1	1	1
	Engine 1	5	5	4	4	4
	Tower 1	5	5	5	4	3
Thurman Rd.	Engine 2	4	4	4	4	4
	Truck 1	2	2	2	2	2
Elizabeth Ave	Engine 3	5	4	4	4	4
Number of Personnel On Duty		22	21	20	19	18

Emergency Medical

NBFRD provides basic medical care for the citizens of New Bern at the EMT-B level. Primary Medical care is provided from Carolina East Medical Center (CEMC) at a Paramedic Level. The Medical Director and Emergency Manager for Craven County have agreed for NBFRD to assist CEMC with medical care. NBFRD response is laid out in the run cards for echo level calls, however CEMC EMS is authorized to request NBFRD for back upon any call they deem necessary.

Although NBFRD has a limited role in EMS response, EMS calls account for approximately 26 % of the total call volume for the agency. NBFRD will be automatically dispatched to the following type of medical calls:

- Motor vehicle crashes
- Delta level response calls (Upon request)
- Echo level response calls

Motor Vehicle Crashes account for the majority of EMS type calls responded to by NBFRD. Other EMS type calls consist of cardiac emergencies, overdose, and lifting assist. NBFRD provides medical coverage for community events such as MumFest, Fourth of July celebration, and other festivals/events sponsored by the city. During such events, the incident action plan follows the cities mass casualty plan, and events normally are coordinated between NBFRD and CEMC EMS.

Technical Rescue

NBFRD, historically a low rate of frequency when it comes to Technical Rescue. Locally, NBFRD is dispatched to vehicle extrication, water rescue, elevator rescue, and children locked in vehicles. NBFRD is placed on standby for confined space entries within the city limits. There have been several incidences where NBFRD has conducted land searches. However, there is a limited number of calls involving high angle rescue, trench rescue, and structural collapse rescue. NBFRD and Greenville Fire-Rescue make up North Carolina Task Force 10 (NCTF-10). NCTF-10 deploys for USAR and Swift Water Rescue operations during natural and man-made disasters.

The agency trains in vehicle extrication, confined space rescue, and trench rescue. Many members of the agency train in Urban Search and Rescue (USAR), Swift Water Rescue, and Search and Rescue

technician (SAR Tech) as part of NCTF-10. The agency is equipped with four (4) boats, a tractor-trailer, and several trucks and trailers dedicated to technical rescue stationed at Headquarters Fire Station.

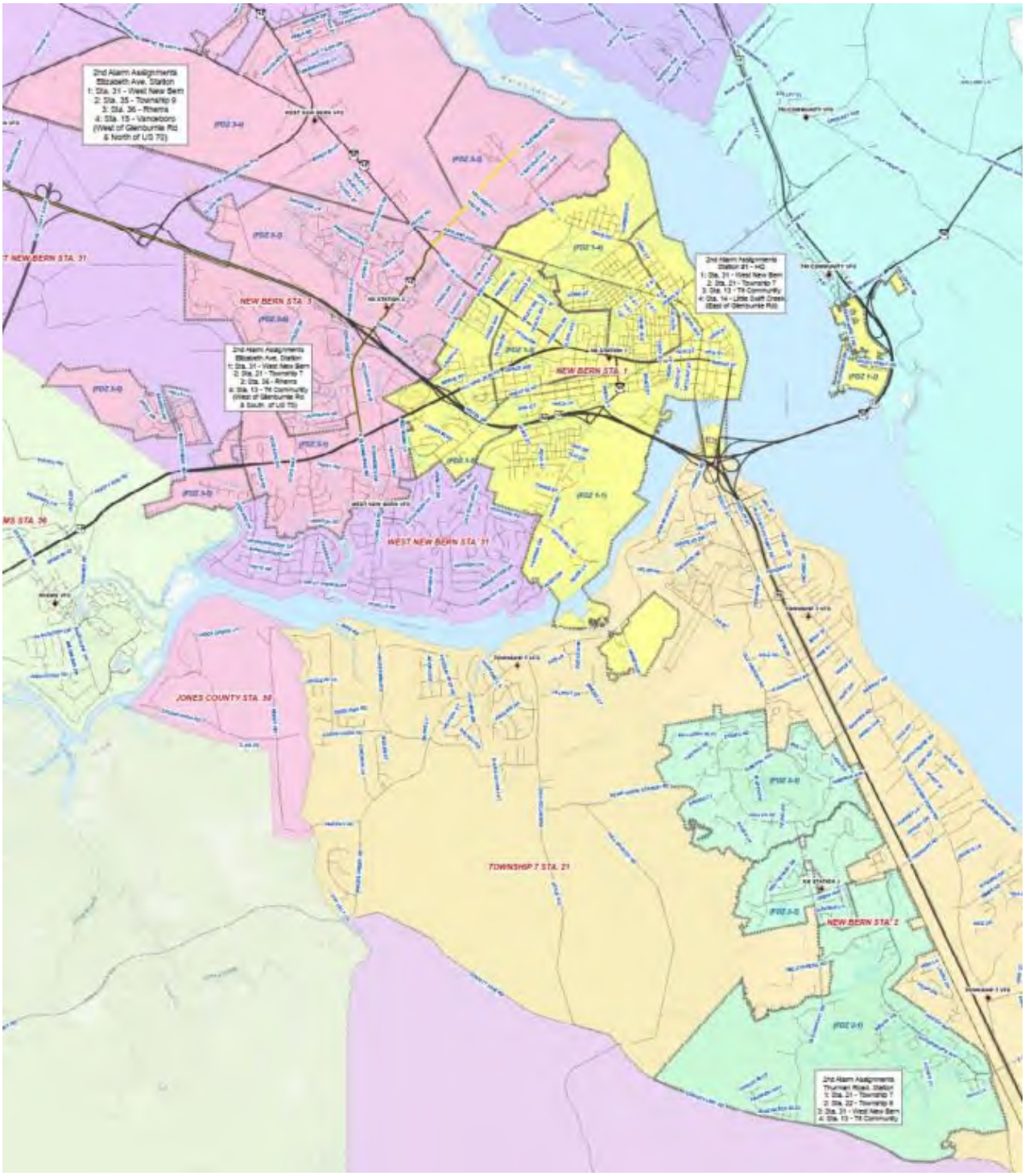
Hazardous Materials

The main threat of Hazardous Material occurrences in New Bern is transportation-related incidents. The railroad system that runs through the city transports goods from the port at Morehead City through New Bern. Hwy 17 runs south to Jacksonville, Home of Camp Lejeune, and Hwy 70 runs east to Cherry Point MCAS. Like most cities, New Bern has its share of some potential threats in the form of hardware stores, pool supply stores, medical facilities, gas stations, LP Gas storage facilities, and other locations that have limited chemical storage. A major gas line for Natural Gas travels through New Bern, but New Bern is mostly residential and the frequency of Hazmat situations is low.

NBFRD personnel train at the operational level for hazardous material incidents. Fire department personnel identify the hazardous material or potential for a hazmat situation and report. When technician services are needed, NBFRD relies upon the Hazmat unit from Cherry Point MCAS or the regional response team (RRT-1) from Williamston. NBFRD has the equipment and assists with decontamination as needed.

Response Areas

The primary response district for NBFRD is within the city limits of New Bern, NC. As part of NCTF-10, NBFRD has a responsibility to the State of North Carolina in the event of Natural or Man-made disasters. New Bern Communications (NB Comm.'s) located at New Bern Police Department dispatches NBFRD. NB Comm.'s uses computer-aided dispatch (CAD) along with predetermined run cards programmed so that the best available apparatus can be dispatched to a call. NB Comm.'s is responsible for dispatching NBFRD, New Bern Police Department, and Carolina East Medical Center (to city-related calls). NB Comm.'s has direct access to Craven County Fire Control for Mutual Aid request. NBFRD has a good working relationship with adjacent departments in regards to mutual aid and has a contract for automatic aid with Tri-community VFD for the Bridgeton annex area. NBFRD is working with Craven County Emergency Management and county departments to provide a better mutual aid agreement for all of Craven County. The below maps show NBFRD mutual aid response areas (Received).


2nd Alarm Assignments
Elizabeth Ave. Station
1: Sta. 31 - West New Bern
2: Sta. 35 - Township 9
3: Sta. 36 - Rhems
4: Sta. 15 - Vanceboro
(West of Glenburnie Rd
& North of US 70)
NEW BERN STA. 31
NEW BERN STA. 1
2nd Alarm Assignments
Station 31 - HQ
1: Sta. 31 - West New Bern
2: Sta. 21 - Township 7
3: Sta. 13 - TR Community
4: Sta. 14 - Little Swift Creek
(East of Glenburnie Rd)
2nd Alarm Assignments
Elizabeth Ave. Station
1: Sta. 31 - West New Bern
2: Sta. 21 - Township 7
3: Sta. 36 - Rhems
4: Sta. 13 - TR Community
(West of Glenburnie Rd
& South of US 70)
WEST NEW BERN STA. 31
JONES COUNTY STA. 39
TOWNSHIP 7 STA. 21
NEW BERN STA. 2
2nd Alarm Assignments
Thurman Road Station
1: Sta. 21 - Township 7
2: Sta. 22 - Township 8
3: Sta. 31 - West New Bern
4: Sta. 13 - TR Community

Section 3: Community Risk Assessment

One of the most valuable tools a fire department has is risk assessment. This process must take into account all hazards, both fire, and non-fire situations. When performed accurately, a department can properly match the deployment of resources with the associated risk types. NBFRD considered the following information when performing a risk assessment:

- Hazards in the community (Primary cause of danger)
- Threat (Measured probability or likelihood)
- Consequence (Measure of the disparate outcome, loss)
- Impact (drain on emergency resources; effect)
- Risk (Classification by program/ Categorization by degree)

Through consideration of the above information, a department can develop the critical task necessary to mitigate the different incidents. Critical thinking allows for a continuous method of decisions making and recommendations, which provide the best service possible to a community.

The Center for Public Safety Excellence's (CPSE) Community Risk Assessment-Standards of Cover (6th edition) outlines four (4) primary steps in developing a risk assessment methodology. Because these primary steps are all-inclusive to the process, NBFRD used them as the primary basis for its risk assessment model. They are:

- Identify the risk
- Assess the risk
- Categorize the risk
- Classify the risk

Risk Assessment and Classification

There are four (4) primary program areas identified in the risk assessment: Fire, EMS, Technical Rescue, and Hazardous Materials. Several Non-Fire program areas were identified that are of concern: Natural Hazards, Special Events, and man-made disasters. These classifications are broken down by Fire District.

Risk Assessment Methodology and Categorization

NBFRD used historical data to create subcategories for the fire and non-fire risk assessment. The 3-axis model was then used to determine the risk score and risk assessment. The 3-axis model is based on three (3) factors: the probability, consequence on the community, and impact on the agency. By looking at historical data, the probability is based on the frequency an incident occurs. The consequence is based on the effect an incident has on the community and is further broke down based on loss of life, financial loss, and emotional strain. The impact is determined due to the ability to respond to other incidents based on the resources needed for a particular incident. The numerical values are represented below. These values are based on a scale of 0 – 8 with 0 being less significant and 8 being most significant. Probability is the exception based on annually (0), Quarterly (2), Monthly (4), Weekly (6), Daily (8), and Multiple calls daily (10).

Probability

Score	Threat Definition
0	Yearly
2	Quarterly
4	Monthly
6	Weekly
8	Daily
10	Multiple times Daily

Impact

Score	Threat Definition
2	Single apparatus - Four or less personnel
4	Two apparatus -Five to eight personnel (Plus BC)
6	Three or more apparatus - Nine to Fourteen personnel (Plus BC) (Possible need for Mutual Aid)
8	Four or more apparatus - Fifteen or more personnel (Plus BC) (Automatic Aid Requested)

Consequence

Score	Threat Definition
2	Little to No Loss
4	Relatively Minor Loss
6	Relatively Moderate Loss
8	Relatively Significant Loss

Life Loss (50 %)	**Financial Loss (25%)**	**Emotional Loss (25%)**
2= No loss of life	2= Under $ 50,000	2= Isolated meaning
4= Potential life loss of 1-3	4= $50,000 to $1,000,000	4= Some meaningfulness
6= Potential life loss of 4-12	6= $1,000,000 to $5,000,000	6= Meaningful
8= Potential life loss of 13+	8= Over $5,000,000	8= Historic meaning

NBFRD recognizes the preservation of life as a major component of serving the community. For this reason, loss of life holds a higher value on the consequence part of the matrix. The following formula and table represent the process of figuring the consequence on the community.

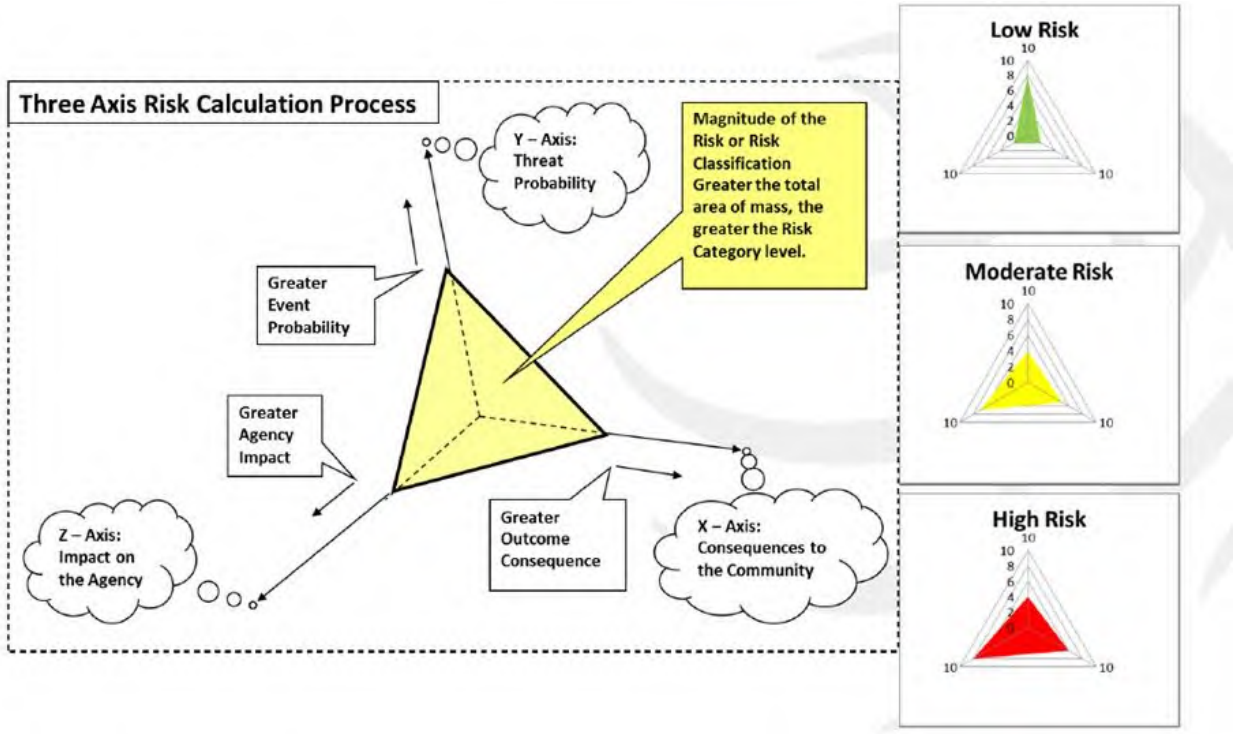
Overall Scoring:		
	0-15	Low Risk
	15.1-30	Moderate Risk
	30.1-45	High Risk
	> 45	Maximum Risk

Consequence = X(.5) + Y(.25) + Z(.25)

Consequence Scoring Matrix			
	Score	Factor	Score
Financial		0.25	0
Emotional		0.25	0
Life		0.5	0
		Total Score	0

Life loss = X and is weighted at 50% of the effect on the community
Financial = Y and is weighted at 25% of the effect on the community
Emotional = Z and is weighted at 25% of the effect on the community

Once the consequence is calculated, NBFRD uses Heron's formula to figure the overall risk score and categorize the risk assessment. The following is a description and examples of the process.



$$\sqrt{\frac{(x \cdot y)^2}{2} + \frac{(y \cdot z)^2}{2} + \frac{(z \cdot x)^2}{2}}$$

As an example, cooking fires are monthly occurrences on average, having a moderate (4) probability of occurrence. When cooking fires do occur, the consequences of the emotional, financial, and life loss could be High (6). The impact on the agency would be High (6), due to the resources needed. This would result in a disruption of the agency's ability to provide services if another incident would arise.

Probability

Score	Threat Definition
0	Yearly
2	Quarterly
4	Monthly
6	Weekly
8	Daily
10	Multiple times Daily

Consequence

Score	Threat Definition
2	Little to No Loss
4	Relatively Minor Loss
6	Relatively Moderate Loss
8	Relatively Significant Loss

Impact

Score	Threat Definition
2	Single apparatus - Four or less personnel
4	Two apparatus -Five to eight personnel (Plus BC)
6	Three or more apparatus - Nine to Fourteen personnel (Plus BC) (Possible need for Mutual Aid)
8	Four or more apparatus - Fifteen or more personnel (Plus BC) (Automatic Aid Requested)

Total Score: 26.53 (Moderate Risk)

In the event of a vehicle extrication, the occurrence is considerably low (2). The consequences of the emotional, financial, and life loss could be relatively minor (4). Two apparatus and the battalion Chief would respond so the impact on the agency would be Moderate (4).

Probability

Score	Threat Definition
0	Yearly
2	Quarterly
4	Monthly
6	Weekly
8	Daily
10	Multiple times Daily

Consequence

Score	Threat Definition
2	Little to No Loss
4	Relatively Minor Loss
6	Relatively Moderate Loss
8	Relatively Significant Loss

Impact

Score	Threat Definition
2	Single apparatus - Four or less personnel
4	Two apparatus -Five to eight personnel (Plus BC)
6	Three or more apparatus - Nine to Fourteen personnel (Plus BC) (Possible need for Mutual Aid)
8	Four or more apparatus - Fifteen or more personnel (Plus BC) (Automatic Aid Requested)

Total Score: 13.86 (Low Risk)

All Hazard Risk

Although it is impossible to predict all hazards and the outcome, by using historical data, formulas, and constants, such as response protocols, NBFRD can better understand the effects of each category and plan for future incidents. The table below represents the general risk that faces NBFRD, and the probability, consequence, and impact of each risk.

Risk	Probability	Consequence	Impact	Overall
Fire	Monthly	Moderate	Minor	Moderate
Medical	Daily	Minor	Low	Moderate
Hazmat	Monthly	Low	Low	Low
Rescue	Quarterly	Minor	Minor	Low
Weather	Quarterly	Minor	Minor	Low
Events	Annually	Low	Moderate	Low

Fire Risk

From July 1, 2017, thru June 30, 2018, NBFRD has responded to 206 fire-related calls. July 1, 2018, thru June 30, 2019, NBFRD responded to 208 fire-related calls. This is an annual average of 207 fire-related calls. NBFRD bases our subcategories on the National Fire Incident Reporting System (NIFRS), and is as follows: Structure Fires, Cooking Fires, Vehicle Fires, Grass/Wood/ Trash Fires, Dumpster Fires, Chimney Fires, Outside Equipment Fires, Electrical Problems, and Unauthorized Burning. Fires in New Bern account for 10.9% of the total call volume from July 1, 2017, thru June 31, 2019. NBFRD has had one (1) fire-related deaths since July 2017. There have been seventeen (17) civilian casualties. Some were due to occupants trying to extinguish cooking fires.

NBFRD Fire Related Calls					
Type of Calls	**FY17** July 1 – June 30	**FY18** July 1 – June 30	**FY19** July 1 – June 30	**Total**	**Yearly Average**
Structure	**53**	**36**	**56**	**145**	**48**
Cooking	**10**	**20**	**22**	**52**	**17**
Vehicle	**24**	**16**	**16**	**56**	**19**
Grass/Wood	**36**	**33**	**30**	**99**	**33**
Dumpster	**5**	**5**	**13**	**23**	**8**
Unauthorized Burns	**18**	**18**	**15**	**51**	**17**
Outside Equip.	**6**	**5**	**2**	**13**	**4**
Elec. Problems	**52**	**73**	**53**	**178**	**59**
Other	**2**	**2**	**0**	**4**	**2**

Fire Critical Task Analysis

It is important for a fire department to ensure proper staffing levels are maintained to perform the necessary duties associated with incident mitigation. By taking into consideration the operations, critical tasking, and effective response force needed to perform those duties, departments can create a plan of action for most incident scenes. NBFRD has reviewed such critical tasks and evaluated the effectiveness of its deployment levels. Safety is the most important factor considered and takes the highest priority. Secondly, the number of personnel necessary to complete each task, and the proper time to perform the task effectively is taken into consideration. Critical Tasking for a fire will be based upon the risk level.

Low-Risk Fire

Low-Risk Fires would include but not be limited to Dumpster Fires, Vehicle Fires, Grass/ Brush/ Rubbish Fire. For low-risk fires, the effective response force will be a single-engine response, staffed with three (3) firefighters and one (1) officer. The initial actions of the crew are:

- Initiate command / Perform size up
- Deploy one attack line flowing a minimum of 95 GPM
- Establish and maintain water supply
- Rescue potential victims
- Containing the fire within three (3) minutes of arrival
- Requesting additional resources as needed

The first due engine for all low-risk fires shall be capable of:

- Providing 500 gallons of water
- Pumping 1500 gallons per minute (GPM).

Fire Risk: Low	
Critical Task	**Number of Staff**
Command / Safety	1
Fire Attack	2
Pump Operations	1
TOTAL	4

Moderate Risk Fire

Moderate fires would include but not be limited to small structure fires (up to 2000 Sqft), large vehicle / Outside equipment fires. For a Moderate risk fires, the effective response force will be two (2) engines, one (1) trucks, one (1) Battalion Chief, and one (1) EMS unit from Carolina East Medical Center. The response from the agency will consist of a minimum of; one (1) Battalion Chief, three (3) Company Officers, nine (9) Engineers/ Firefighters, and two (2) EMT's/ Paramedics.

The first due crew consisting of an officer and three (3) Firefighters shall perform the initial actions:

- Initiate command / Perform size up
- Deploy one attack line flowing a minimum of 95 GPM
- Establish and maintain water supply
- Rescue potential victims
- Initiate mitigation of the fire within 3 minutes of arrival

The first due engine for all moderate risk fires shall be capable of:

- Providing 500 gallons of water
- Pumping 1500 gallons per minute (GPM).

The effective response force consisting of a Battalion Chief, two (2) Company Officers, and six (6) Fire Fighters shall perform the following actions:

- Deploy one back-up line flowing a minimum of 95 GPM
- Deploy a search team
- Deploy a ventilation team
- Assume command from the first due engine crew
- Establish Initial Rapid Intervention Team (RIT)
- Supplement the fire protection system (as needed)

All operations shall be handled in conjunction with department policy while providing for the safety responders and citizens alike.

Fire Risk: Moderate	
Critical Task	**Number of Staff**
Command / Safety	1
Fire Attack	2
Back Up Line	2
Pump Operations	1
Water Supply / Support	1
Ventilation	2
Search	2
RIT	2
EMS (Provided by CEMC)	2
TOTAL	15

High-Risk Fire

High-Risk Fires consist of but are not limited to Apartment fires, Strip Mall fires, moderated commercial fires. For high-risk fires, the effective response force will be four (4) engines, two (2) trucks, three (3) Chiefs, and one (1) EMS unit from Carolina East Medical Center. The response from the agency will consist of a minimum of: three (3) Chiefs, four (4) Company Officers, eighteen (18) Engineers/ Firefighters, and two (2) EMT's/ Paramedics. To supplement minimum staffing two (2) mutual aid departments will each provide one (1) engine with four (4) personnel.

The first due crew consisting of an officer and three (3) Firefighters shall perform the initial actions:

- Initiate command / Perform size up
- Deploy one attack line flowing a minimum of 150 GPM
- Establish and maintain water supply
- Rescuing potential victims
- Initiate mitigation of the fire within 3 minutes of arrival

The first due engine for all high-risk fires shall be capable of:

- Providing 500 gallons of water
- Pumping 1500 gallons per minute (GPM).

The effective response force consisting of three (3) Chiefs, three (3) Company Officers, and fifteen (15) Fire Fighters shall perform the following actions:

- Deploy one back-up line flowing a minimum of 150 GPM
- Deploy Hand-line for Exposure protection flowing a minimum of 150 GPM
- Deploy two search team
- Deploy two ventilation team
- Assume command from the first due engine crew
- Establish Incident Safety Officer
- Establish Operations Officer
- Establish a Rapid Intervention Team (RIT)
- Supplement the fire protection system (as needed)

All operations shall be handled in conjunction with department policy while providing for the safety responders and citizens alike.

Fire Risk: High	
Critical Task	**Number of Staff**
Command / Safety / Operations	3
Attack Line	2
Pump Operations	2
Back-Up Line	2
Rapid Intervention	4
Search and Rescue (2)	4
Ventilation (2)	4
Water Supply / Support	2
Utilities / Exposure Protection	2
Aerial Operations (as needed)	1
EMS (Provided by CEMC)	2
TOTAL	28

Special Risk Fire

Special Risk Fires consist of but are not limited to High Rise fires, large commercial fires, and industrial fires. For a special risk fires, the effective response force will be five (5) engines, two (2) trucks, five (5) Chiefs, and one (2) EMS unit from Carolina East Medical Center. The response from the agency will consist of a minimum of; five (5) Chiefs, four (6) Company Officers, twenty-five (25) Engineers/ Firefighters, and four (4) EMT's/ Paramedics. These unique incident types may have little to no historical response data associated with them, however, possess extraordinary risk. The response complexity to these types of incidents is specifically addressed using Mutual Aid. To supplement staffing three (3) mutual aid departments will each provide one (1) engine with four (4) personnel. One off duty shift will be called back to duty, Two (2) off duty companies consisting of one (1) officer and three (3) firefighters each will man the two (2) reserve apparatus for the purpose of covering the city, all other personnel will report to the scene.

The first due crew consisting of an officer and three (3) Firefighters shall perform the initial actions:

- Initiate command / Perform size up
- Deploy one attack line flowing a minimum of 250 GPM
- Establish and maintain water supply
- Rescuing potential victims
- Initiate mitigation of the fire within 3 minutes of arrival

The first due engine for all special risk fires shall be capable of:

- Providing 500 gallons of water
- Pumping 1500 gallons per minute (GPM).

The effective response force consisting of five (5) Chiefs, five (5) Company Officers, and Twenty-two (22) Fire Fighters shall perform the following actions:

- Deploy one back-up line flowing a minimum of 250 GPM
- Deploy one exposure line flowing a minimum of 250 GPM
- Deploy two evacuation teams

- Deploy two search teams
- Deploy two ventilation teams
- Assume command from the first due engine crew
- Establish Incident Safety Officer
- Establish Operations
- Establish Exterior staging/accountability
- Establish a Rapid Intervention Team (RIT)
- Supplement the fire protection system (as needed)

All operations shall be handled in conjunction with department policy while providing for the safety responders and citizens alike.

Fire Risk: Special	
Critical Task	**Number of Staff**
Command Staff	5
Attack Line	2
Pump Operations	2
Back-Up Line	4
Rapid Intervention	4
Search and Rescue	4
Ventilation	4
Water Supply / Support	4
Evacuation	4
Aerial Operations	1
Rehab / EMS (2 Units from CEMC)	6
TOTAL	40

Position Responsibilities Defined

Attack line –	A firefighting line staffed with a minimum of two (2) firefighters capable of delivering an effective fire attack.
Back-up Line –	This is the same size or larger line as the attack line, staffed with a minimum of two (2) firefighters. The back-up line protects the fire attack crew in the event of a flashover or a problem arising with the initial attack crew, and protect the egress route.
Exposure Protection –	A hand line used to protect surrounding property that is susceptible to catching fire from the heat and flames generated by the initial fire. Exposure lines are normally manned by two (2) firefighter.
Search and Rescue –	A minimum of two (2) firefighters assigned to search the structure for victims. The crew removes any victims located.
Ventilation –	A minimum of two (2) firefighters assigned to provide vertical and/ or horizontal ventilation. Ventilation is a labor-intensive and time-consuming task that is important because it releases the super-heated gas from the structure.
Rapid Intervention Crew –	A minimum of two (2) firefighters initially, four (4) firefighters as the fire grows, are assigned to stage in a ready position near the entry point of the involved structure. Their purpose is to provide search and rescue for lost or injured firefighters inside the structure.
Pump Operator –	This person is responsible for facilitating water flow to lines used on the scene.
Aerial Operator –	This person is responsible for performing aerial operations as needed.
Water Supply –	The firefighter responsible for providing an uninterrupted water supply to the attack engine. NBFRD accomplishes this task by laying a five-inch supply line. This firefighter is reassigned as a support person once the water supply is established.
Command –	An officer responsible for coordinating the strategic plans of the fire operation.

Safety – An officer responsible for making sure that the scene remains safe for firefighters and civilians.

Operations - An officer responsible for coordinating the tactical plans of the fire operation.

EMS Personnel – Personnel trained to provide advanced life support to firefighters and civilians on emergency scenes.

EMS Risk

NBFRD assist CEMC EMS and Craven County EMS units with medical care in the City of New Bern. CEMC EMS is the primary EMS provider for New Bern. NBFRD has an agreement with CEMC, the Medical Director, and Craven County Emergency Management to operate as an EMT-Basic, assisting EMS with basic life support. Each apparatus responds with multiple crew members certified at the NC EMT Basic level.

NBFRD's historical data shows that 25.6% of the response over the past three years have been EMS related. The highest number of calls that NBFRD responds to are Medical related calls. During a community survey in 2016, the public responded that Medical response was high on their priority in regards to services provided.

NBFRD EMS Response Data					
Type of Calls	**FY17** July 1 – June 30	**FY18** July 1 – June 30	**FY19** July 1 – June 30	**Total**	**Yearly Average**
Medical Assist	**274**	**283**	**356**	**913**	**304**
First Responder	**69**	**70**	**130**	**269**	**90**
MVC W/ Injury	**134**	**133**	**119**	**386**	**129**
Distressed Person / Assist Invalid	**1**	**6**	**6**	**13**	**4**

"Medical assist" calls represent calls where an EMS Unit is on the scene when NBFRD arrives. "First responder" calls represent calls where NBFRD arrives first on the scene and initiates patient care. MVC with injuries represents only known motor vehicle crashes where NBFRD assists with patient care. Distress person / Assist Invalid calls are normally good intent calls. The majority of NBFRD EMS call volume are:

- MVC
- Cardiac / Heart attack
- Breathing Problems
- Overdose
- EMS request

EMS Critical Task Analysis

The typical response for an EMS call is one (1) engine company. Thurman road fire station responds with a two-person squad for EMS calls. There are few situations where New Bern will have a *mass casualty incident.* These situations are primarily festivals and other venues hosted by the City of New Bern. In such cases, NBFRD typically provides basic EMS services and Incident Command at these venues.

EMS Risk: Low (Engine Company)	
Critical Task	**Number of Staff**
Command / Safety	1
Patient Care	2
Documentation	1
TOTAL	4

EMS Risk: Low (Squad/ Truck Company)	
Critical Task	**Number of Staff**
Command / Patient Assessment	1
Maintain Airway / Documentation	1
TOTAL	2

Rescue Risk

Technical rescue related calls have historically occurred at a low-frequency rate. Primarily children locked in cars have been the most frequent occurrence. NBFRD has kits to assist with this and conducts training on unlocking vehicles in emergencies.

Water/ watercraft rescues are the second most reported incident. Even as part of NCTF-10, deployment historically is mainly for Swift-water/ water rescue incidents. Because New Bern is surrounded by water, it is understandable why water rescues would be more frequent than other calls. Although NBFRD trains in multiple areas of rescue, special attention is given to water rescue for this reason. NBFRD has four (4) boats and each shift has several Rescue swimmers.

NBFRD Rescue Response Data					
Type of Calls	**FY17** July 1 – June 30	**FY18** July 1 – June 30	**FY19** July 1 – June 30	**Total**	**Yearly Average**
Search Land / Water	5	2	0	7	4
Extrication	1	9	3	13	4
Elevator Rescue	9	3	4	16	5
Vehicle Lock Out/ In	17	26	31	74	25
Water / Watercraft Rescue	8	17	7	32	11
Confined Space Rescue	1	0	2	3	1
Structural Collapse	1	0	2	3	1
Rescue Standby	15	1	8	24	8

There have been very low frequencies of calls pertaining to structural collapse, confined space rescue, vehicle extrication, and land search. The agency has twenty-eight (28) members who also serve on the NCTF-10 team. Focus on the Task Force team is on swift water and Urban Search and Rescue (USAR). Most members on the team have attended structural collapse school, and are also certified as Search and Rescue technicians (SAR Tech.)

The agency proactively trained each shift in trench rescue, and confined space rescue. Although there is a very low-frequency rate of Confined Space rescues in New Bern, the potential is moderate for these emergencies due to manholes and sewage pumping stations. NBFRD is notified and placed on standby for confined space entries. Most members of the agency are trained in Technical Rescuer: General/ VMR. Continued in-house training is conducted in extrication to ensure crews work together to provide the best care possible when conducting extrication. All first due engines carry extrication equipment.

Rescue Critical Task Analysis

NBFRD is trained in the many different disciplines of technical rescue. Members of the technical rescue team are equally divided between the three (3) shifts. During technical rescue emergencies, the IC determines the need to activate the technical rescue team. Shift personnel led by technical rescue team members begin initial operations until the situation is mitigated or other team members arrive to assist. The following table addresses the task and number of personnel need to effectively perform the critical task.

Vehicle Extrication – one (1) Battalion Chief, one (1) engine, and one (1) truck.

Technical Risk: Low (Extrication)	
Critical Task	**Number of Staff**
Command / Safety	1
Extrication & Hydraulic Pump Operator	4
Driver Operator	1
Hose Line	3
TOTAL	9

Water Rescue (Excluding Storms or Deployment) - one (1) Battalion Chief, one (1) engine, one (1) truck, and one (1) boat.

Technical Risk: Low (Water Rescue)	
Critical Task	**Number of Staff**
Command / Safety	1
Boat Operator, Officer, Rescuer	3
Land Support Personnel	5
TOTAL	9

Technical Rescue - one (1) Battalion Chief, two (2) engine, and two (2) truck.

Technical Risk: Low (Technical)	
Critical Task	**Number of Staff**
Command	1
Safety	1
Rescue Group Supervisor/ Operations	1
Rescue Team (2 Teams)	4
Rigging Team	4
Support Functions	4
TOTAL	15

Hazmat Risk

NBFRD typically does not have a high call volume of Hazardous Material calls. Most of the calls tend to be investigation type calls. MVC's where the agency checks for hazards and spreads absorbent over a small spill is the most common call.

With construction crews updating infrastructure and revitalizing our downtown area, there have been several incidents involving LP or Natural gas lines becoming punctured or damaged. For these situations, fire department personnel create safe areas by providing the proper evacuation and maintaining the safe area until released by the gas contractors.

NBFRD Hazmat Response Data					
Type of Calls	**FY17** July 1 – June 30	**FY18** July 1 – June 30	**FY19** July 1 – June 30	**Total**	**Yearly Average**
MVC General Clean-up	288	330	341	959	320
Hazardous Condition	4	14	3	21	7
Spills/ Leaks	4	8	12	24	8
LP / Natural Gas	25	54	31	110	37
CO Incident	3	6	5	14	5
Hazmat Investigation	4	5	13	22	7
CO Detector	13	20	17	50	17

Hazmat Critical Task Analysis

Most hazmat calls where NBFRD are dispatched are low-risk calls. The purpose of these calls is generally to perform an investigation. NBFRD responds to low-risk hazmat calls with a single-engine company consisting of one (1) officer and three (3) firefighters.

Hazmat Risk: Low	
Critical Task	**Number of Staff**
Command / Safety	1
Investigation	2
Pump Operations	1
TOTAL	4

In some situations, such as spills and leaks, NBFRD deploys a full dispatch consisting of one (1) Battalion Chief, two (2) engines, and one (1) truck company. These incidents may be dispatched as a confirmed leak or as a low risk in which the first due discovers a leak or spill. Initial units will establish Hazmat Zones and perform evacuations. In the event the incident requires a Hazmat team, Craven County Emergency Management will be notified. They will begin the deployment of the regional response team out of Williamston, NC, or the Cherry Point Hazmat Team. In the event of a full-scale Hazmat incident, NBFRD will assist with Decontamination.

Hazmat Risk: Moderate	
Critical Task	**Number of Staff**
Command	1
Operation / Safety	1
Pump Operations	1
Attack Line	2
RIT	2
Evacuation	6
TOTAL	13

Natural Disasters

New Bern is no stranger to Natural Disasters. The three main weather events that threaten New Bern are thunderstorms, hurricanes/tropical storms, and winter weather. New Bern also has the potential for tornadoes, although uncommon spring and summer weather, as well as hurricanes, can spawn these deadly events.

Thunderstorms are notorious for popping up from spring through fall. The most common impact that these storms have is flash flooding, lightning, and hail. Thunderstorms affect the area directly and indirectly through fires from lightning strikes, down trees and power lines from heavy winds, structural damage, motor vehicle crashes, and they minimize the agency's availability due to multiple alarm activations.

The peak season for hurricanes begins in June and ends in November. Due to New Bern's location in the central coastal area of North Carolina, hurricanes and tropical storms coming ashore or sweeping the

coastline of North Carolina have an impact on New Bern. Some of the most notable storms to affect New Bern are Hurricane Hazel in 1954, Hurricane Donna in 1960, Hurricanes Bertha and Fran in 1996, Hurricanes Floyd in 1998, Hurricane Irene in 2011. In 2016, New Bern felt the effects of Matthew and Dorian in 2019, however the most devastating recent storm was Hurricane Florence in 2018. Although Florence brought major flooding to New Bern, there was no loss of life in the New Bern area. The destruction from these storms is usually in the form of high winds, heavy rain, and storm surge. All of which ultimately cause flooding.

Severe winter weather is rare in New Bern. However, historically once every year or two, New Bern will get a couple of inches of snow accompanied by icing conditions. The winter of 2013-2014 brought unforgettable snow, ice, and freezing rain to New Bern. Schools and businesses were closed for several days. The biggest threat with winter weather is down power lines and trees due to the weight of the ice. Motor vehicle crashes are also common during winter weather situations.

In recent years, the potential for Tornadoes has increased. Although not common to the area, NBFRD recognizes the potential and plans accordingly. Members of the technical rescue team deployed to Green County when tornadoes swept across the southeastern United States on April 16, 2011. Prior to deployment, NBFRD was dispatched to offer assistance in a community in Craven County where a tornado destroyed several homes. Recently during Hurricane Dorian, several tornadoes were sighted around the area. One possible tornado was said to travel through downtown New Bern.

Special Event Risk

MumFest is the biggest event in New Bern followed by the Fourth of July Celebration. Along with these big events throughout the spring, summer, and fall smaller venues are held in the City of New Bern. National Night Out and high school sports have brought large local crowds out. With such community events, NBFRD has teamed up with NBPD and Carolina East EMS to provide a safe atmosphere for everyone attending.

MumFest begins on Friday Night with a kick-off concert, and continues Saturday and Sunday as a variety of vendors sell their goods in downtown New Bern. From the concert to the festival, thousands of people visit New

Bern and enjoy everything from arts and crafts to carnival food. On average, over 100,000 people attend MumFest each year. NBFRD provides the first level of medical care at the festival. NBFRD Fire Prevention staff perform inspections of the different food vendors and monitor for overall safety violations.

July fourth is a day and evening of celebration in New Bern. However, this creates a potential for fires and mass casualties. As with MumFest, NBFRD provides Medical care to those enjoying the event and Fire Prevention staff makes sure that the use of fireworks is conducted safely.

Risk Assessment by Districts

Headquarters

Fire Demand Zones (FDZ's) Covered: 1-1, 1-2, 1-3, 1-4, 1-5.

The Headquarters district is the heart of New Bern. It consists of the downtown area, as well as parts of Neuse Blvd., ML King Jr. Blvd., Oaks Rd., and Trent Rd. It also includes all four (4) historical areas. There are multiple government buildings, including the county and the federal courthouse, county municipal building, and Tryon Palace and the historical museum. Several motels and churches are in the headquarters district, as well as two (3) elementary schools, one (1) middle school, and several private schools. Also, located in the Headquarters district are several rest homes/assisted living facilities, and daycare centers. A large portion of the district is residential communities. The tallest structure in this district is eight (8) stories; it is an elderly apartment facility. Information provided by New Bern GIS indicates 86% of the headquarters district is residential, and 14% is commercial.

Number of occupancies for each risk classification and structures with a value of $500,000 or greater in Headquarters District:

HEADQUARTERS		
RISK ASSESSMENT		**PROPERTY VALUE > $500,000**
HIGH	**32**	**204**
MODERATE	**472**	
LOW	**342**	

HEADQUARTERS Incident Types	
Fire Related	361
Medical Related	801
Hazmat Related	647
Rescue Related	119
Police / Public Assist	46
Alarm Activations	659
Storm Related	183
Canceled / No Incident	142
Smoke Scare	45
Public Service / Good Intent	91
Miscellaneous	51
Total	3145

Thurman Road

Fire Demand Zones (FDZ's) Covered: 2-1, 2-2, 2-3.

Thurman Rd. District is located on the southern side of the city. It is a satellite district separated from the main city by the Trent River and part of Craven County. This district is primarily devised of residential communities. There is one (1) elementary school in the district, and two golf courses with clubhouses. This district also has a strip mall, urgent care medical facility, drug store, and restaurant. The tallest structure in this district is a three (3) story Clubhouse. Information provided by New Bern GIS indicates 98% of Thurman Road's district is residential, and 2% is commercial.

Number of occupancies for each risk classification and structures with a value of $500,000 or greater in the Thurman Road District:

THURMAN ROAD		
RISK ASSESSMENT		**PROPERTY VALUE > $500,000**
HIGH	**0**	**40**
MODERATE	**7**	
LOW	**18**	

THURMAN ROAD Incident Types	
Fire Related	25
Medical Related	223
Hazmat Related	33
Rescue Related	6
Police / Public Assist	4
Alarm Activations	100
Storm Related	4
Canceled / No Incident	8
Smoke Scare	4
Public Service / Good Intent	28
Miscellaneous	22
Total	457

Elizabeth Avenue

Fire Demand Zones (FDZ's) Covered: 3-1, 3-2, 3-3, 3-4, 3-5, 3-6.

Elizabeth Avenue district covers the western side of New Bern. It is a combination of residential and commercial, with some industrial businesses. This district is composed of hotels, churches, strip malls, shopping centers, and business offices. There is one (1) elementary, one (1) middle, one (1) high school, and one

(1) community college in the district. There are eight (8) elderly living facilities, and multiple daycares. There are four (4) Industrial facilities in the district. The tallest structure is five (5) stories, an industrial processing plant. Information provided by New Bern GIS indicates 88% of Elizabeth Avenue's district is residential, and 12% is commercial. The number of occupancies for each risk classification and structures with a value of $500,000 or greater in the Elizabeth Avenue District are as follows:

ELIZABETH AVENUE		
RISK ASSESSMENT		**PROPERTY VALUE > $500,000**
HIGH	**8**	**195**
MODERATE	**331**	
LOW	**454**	

Elizabeth Avenue Incident Types	
Fire Related	234
Medical Related	558
Hazmat Related	522
Rescue Related	48
Police / Public Assist	19
Alarm Activations	546
Storm Related	22
Canceled / No Incident	93
Smoke Scare	39
Public Service / Good Intent	63
Miscellaneous	29
Total	2173

Community Risk Evaluation Conclusion

Based upon the community risk evaluation methodology previously described, NBFRD has generated a report utilizing our Records Management System (RMS) and RAFER's reports which rank all occupancies within the City of New Bern and the extra-territorial jurisdiction. Ten (10) Occupancies were the top risks identified by NBFRD and are as follows:

OCCUPANCY	RAFER'S SCORE
First Presbyterian Church	21
Craven County Court House	21
US Federal Court House	21
New Bern City Hall	21
Sudan Temple	21
Craven County St. Lukes Office Complex	21
Centenary United Methodist Church	21
Tryon Palace	21
Scottish Rite Temple	21
Reserve at Glenburnie	21

Section 4: Development and Performance

Current Deployment and Performance

Through the development of a Standard of Cover (SOC), NBFRD is able to establish deployment and performance, based upon the risks and demands of the service area. The SOC looks at how the agency currently responds, the agency's deployment, and how well the agency performs based on the baselines, and includes an evaluation of our deployment. These baseline times are measured against industry best standard practices.

Consideration for the deployment models is based upon three (3) factors.

- Risk assessment model
- Internal stakeholder's expectations
- External stakeholder's expectations

Periodic surveys are sent out to remain current with stakeholder's expectations. These are in reference to incident response (major incidents involving full dispatch) and fire prevention activities. In order to perform a qualitative and quantitative assessment, other considerations must be taken into account. These include:

- Baseline deployment and Service Demands (Historical Data)
    - Incident Type
    - Frequency of Events
    - Location of Events
    - Outcomes
- Deployment Strategies
- Performance Statements
- Actual performance

Community Service Demands – Current Baseline Deployment

Community Expectations

In 2016 with the assistance of the North Carolina Office of State Fire Marshal (NCOSFM), NBFRD embarked in a process of self-assessment by conducting a peer review focused on evaluating five core areas:

- Standard of Cover
- Evaluation of Services
- Community Risk Assessment
- Resource Deployment
- Staffing Levels

Internal and external stakeholders were surveyed to provide the best service possible to our citizens. An internal **S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats (**S.W.O.T.)** analysis was performed, a meeting with Business and Community Leaders was held, a community survey was administered, and a peer review from Fire Chiefs across the state was held. The outcome was a strategic plan that focused on five (5) strategic initiatives and nineteen (19) objectives.

The external stakeholders' feedback was acquired through a business and community leader's feedback session and a general public feedback survey. Forty-nine business and community leaders were in attendance at the feedback session to provide their expectations. Well over 200 responses were gathered through the general public survey from data collected by the City of New Bern Public Information Officer. Of those responses, 99 were from New Bern, 60 from areas within the state, and another 72 from areas outside the United States. From this data, NBFRD was able to determine those services most critical to the members of our community. The top three priorities are:

- Emergency Medical Service
- Fire Suppression
- Rescue (Basic & Technical)

An agency needs to understand the expectations of the members of its community. Only then can that agency begin to provide the highest level of customer service to the community. This knowledge equips the agency with the data and information needed to analyze and focus its efforts in alignment with the community priorities.

Community Expectations of New Bern Fire-Rescue Department

1. Response times at or better than our peers
2. When there is a vehicle collision, get there quickly
3. Coordinate well between other fire departments
4. Readiness for natural disasters-hurricane, tornado, etc.
5. Solid fire prevention efforts
6. Be accessible to the community
7. Community involvement
8. Professionalism in all actions
9. When there is a fire; get there quickly
10. Embrace new advances in equipment and technology
11. Well trained staff
12. Fire education for our children
13. Involvement and engagement in community events
14. Firm, fair, and consistent
15. Improve the ISO rating to Class 2
16. Be the premier fire department in Eastern North Carolina
17. Follow up after an incident occurs

18. Save my life. Save my community. Save my structure.
19. An adequate number of individuals and equipment needed to respond immediately within the area demographics.
20. Benchmark training in line with current issues of community safety.
21. Community education efforts to reach multiple and diversified groups.
22. Make sure buildings are up to code.

Areas of Community Concerns

While understanding the expectations of the community is very important developing long-range goals and objectives, identifying areas of concern are just as important. Identifying these areas may reflect a direct weakness in the delivery system or it may reflect a misconception of the agency through incorrect information or a lack of information.

Areas of Community Concern

1. That funding cuts do not affect the valuable services provided
2. Emergency access in subdivisions with one-way in and one-way out
3. Partnering with other fire departments
4. Adequate funding for fire personnel. Is pay competitive?
5. Need for diversity in the agency - few African Americans
6. Fires in unoccupied buildings
7. Engagement in all areas of the community including 5-Points/Duffyfield area
8. Water safety education for the public
9. Do we have enough resources to handle what our risks are in New Bern?
10. Funding may be inadequate for training

11. Keeping up with city's growth and demands
12. Adequate number of fire stations
13. Level of interaction with the local media; the need for PIO
14. Concerned about the firefighting staffing coverage in Taberna/Carolina Colours area
15. Being able to reach the ISO Class 1 rating
16. Involvement with community watch members
17. Is the fire department prepared since funding has been cut to Pedro?
18. Coordinate with the city for street design standards
19. Teaching the elderly
20. Are we prepared for an active shooter/intentional mass casualty incident?
21. Having the necessary resources and financial backing to meet the community need.

Mission Statement

The City of New Bern Fire-Rescue Department is committed to providing continual protection from the devastation of fire and life-threatening emergencies. We are steadfast in providing quality risk awareness programs, training, and other related services to the citizens we protect.

Value Statement

The employees of the City of New Bern Fire-Rescue Department believe in and promote personal and professional growth through honesty, professionalism, loyalty, and dedication.

New Bern Fire-Rescue Department Core Values	
Honesty –	Through fairness and sincerity in all efforts.
Professionalism –	Through making a conscious effort to protect those who entrust their lives and property to our service.
Loyalty –	Through allegiance to the department's vision.
Dedication –	Through our passion and commitment to serve the public and fellow employee.

Vision Statement

The City of New Bern Fire-Rescue Department will be the premier fire department in our region as a result of our commitment to community risk reduction.

S.W.O.T. Analysis

The Strengths, Weakness, Opportunities, and Threats (S.W.O.T.) analysis allows for the internal stakeholders (our personnel), to voice their opinion on what the agency is doing, what the agency needs to do, opportunities for growth, and pitfalls that an agency may be facing. The information gained from this analysis in conjunction with information collected from the external stakeholders allows the agency to create a strategic plan and guide in decisions to improve the quality of service provided to the community.

NBFRD conducted this meeting with ten (10) members from the agency. Consideration was given to include different rank, age, demographics, experience, and covered all three (3) shifts and a representative for our Bureau of Fire Prevention. The meeting was facilitated by a member of NCOSFM away from the agency, allowing members to be open with their comments. Each member was contacted before the meeting, informed of the topics of discussion, allowing them to have discussions with other

members of the agency. This allowed for total input from the agency through the selected members. Concluding the one and one half-hour meeting, the members were able to submit additional comments electronically to the facilitator.

Strengths

In order to move forward with improved or requested services from the city's citizens and business/community leaders, New Bern Fire-Rescue Department must first identify the agency's current strengths to ensure the capability of requested services. It is important that the programs match the agency's strengths and all gaps are addressed. These strengths must also prove consistent with current issues facing the agency. Through this planning process, the following strengths were identified for the agency:

Strengths

1. Solid Class 3 insurance rating
2. Our people
    a. High ability and great talents with diverse skills & experience
    b. High quality of career personnel
    c. Certification achievements of our personnel
    d. Our people are very passionate about what they do
3. Customer Service
    a. Strong commitment
    b. Professionalism
    c. Adaptive and Innovative
    d. Community driven
4. A strong prevention program that grew from our people desiring to improve safety to our citizens

5. Leadership
    a. New Fire Chief
    b. Working relationship with City Leaders
    c. Leadership initiative programs
6. Mutual Aid
7. Competitive pay

Weakness

As with strengths, for an agency to move forward, it must acknowledge its weaknesses. Areas of weaknesses should not be misconstrued as threats (which will be later identified), but rather looked upon as areas of concern which could prohibit the agency's current processes/operations. An agency's performance and/or lack of performance relies heavily not only on identifying the weaknesses, but effectively addressing them. The following weaknesses of the agency were identified:

Weaknesses

1. More proactive Fire Prevention
2. More Stations
3. Need a strategic plan
4. Battalion Chiefs need more clearly defined roles and responsibilities
5. Need for a Capital Improvement Plan (CIP)
6. Much needed improvements at the communications center
7. Call Processing times
8. Shift operation consistency
9. Need for more departmental recognition and sincere appreciation
10. More face-to-face communication

11. Department preparation of leadership
12. Address pay compression
13. Need for more use of technology and training on using that technology
14. Staffing is minimal
15. Public education about the agency and services
16. All levels of diversity
17. No clear EMS program or plan
18. Better communication
19. Department standard operating procedures
20. Better Technology
21. Revisit run cards
22. Physical fitness standards for the agency

Opportunities

Upon identification of strengths and weaknesses, only then can an agency assess the agency's program enhancement capabilities and/or restrictions. The focus of opportunities should not be exclusively on existing programs and services, but expounding upon and development of new prospects within the fire service industry. Many opportunities exist for New Bern Fire-Rescue Department as identified during this strategic planning process.

Opportunities

1. Establish solid EMS system
2. Improvements at the Communications Center
3. Additional marketing: Diversity of workforce through enhanced recruitment efforts
4. Strengthen public education and overall service delivery with a dedicated fire and life safety educator/ public information officer
5. Developing of NBFD personnel, especially with leadership

6. Use of qualified retirees as part-time non benefitted employees to assist in non-emergency response functions
7. Strengthening of staff in the Training Division
8. Need for a fourth station: staffing needs
9. Increase service to the community
10. Specialized team use
11. Reorganize department structure and roles
12. Harnessing technology to improve work outcomes
13. Need for identifying and utilizing diverse career paths, such as operations, prevention, etc.

Threats

Another aspect of strategic planning is the peril of threats and/or potential threats to the agency.

Implementation of new programs/processes oftentimes meets with new challenges or oppositions. The success of any strategic plan is the understanding that threats are not completely and/or directly controlled by the agency. Some current and potential threats are identified below:

Threats

1. Transition occurring at the senior ranks
2. Lack of necessary funding to support the agency & pay compression
3. Political Arena & Public Support
4. Core services – too many projects: Mastery of Skills/ Jack-Of-All-Trades.
5. Spread too thin
6. Staffing Needs/ Need for New Station/ Safety of Personnel
7. Rank disparity – “us and them” approach
8. Typical small town issues

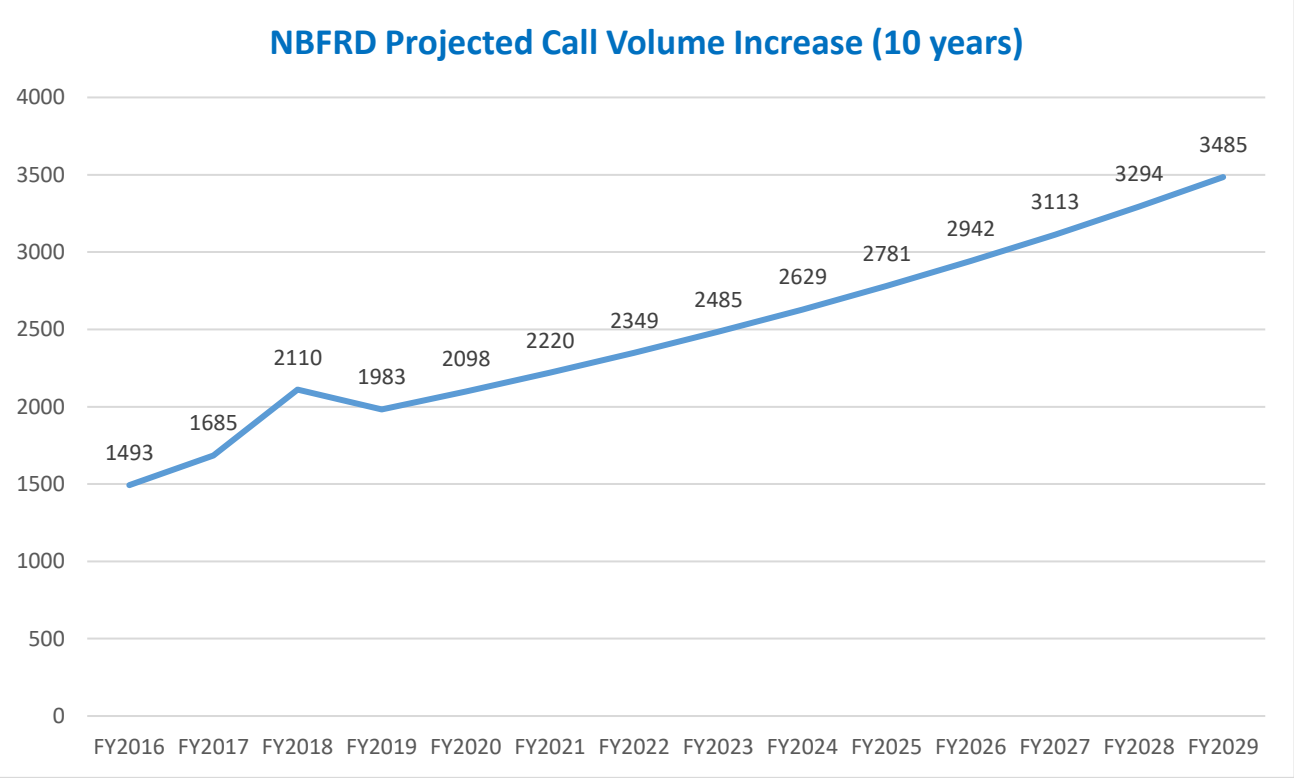
9. Emergency Preparedness Program
10. Need to identify and more clearly define personnel involved in special operations to increase effectiveness and provide for proper training.
11. Employee sensitivity

Community Service Demands

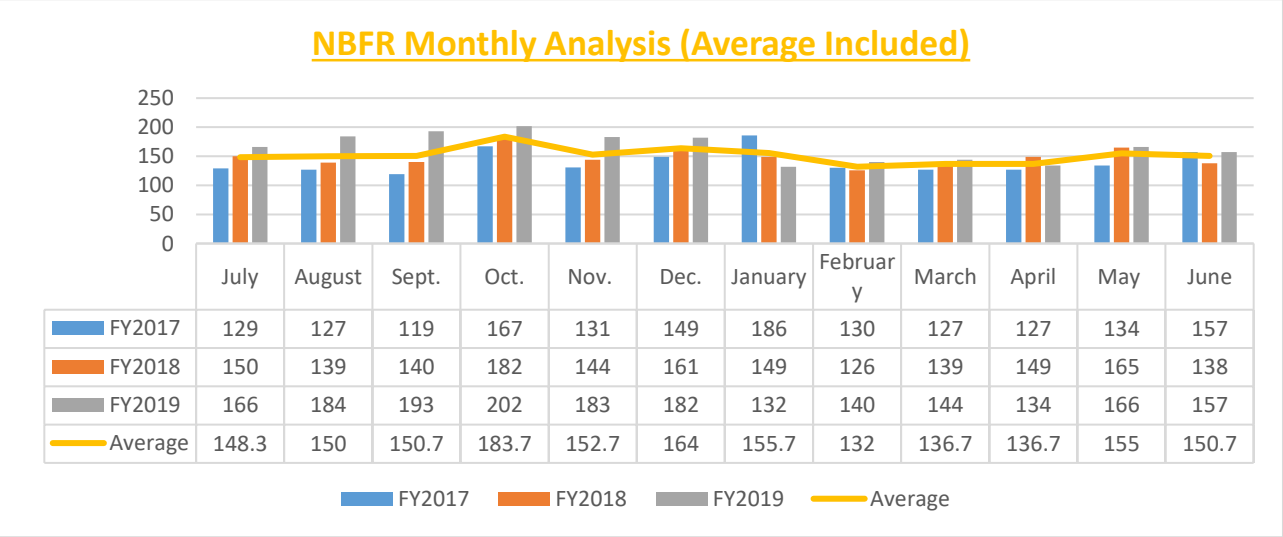
When assessing the needs of the community it is important to place the right resources with the different levels of risk. To determine these risks the agency must analyze the historical data. This includes the types of calls, the location of calls, and the frequency of those calls. The agency must also take into account responding to simultaneous calls. All this information is then compiled to develop deployment strategies.

Incident History

There was an increase of 12.86% in call volume from FY2016 to FY2017. During this time, NBFRD increased its medical response. In FY 2018, there was an increase in the call volume of 25.22%. This was primarily due to Hurricane Florence; otherwise, the increase would equal approximately 5.8%. The projected decrease for FY 2019 is 6.0%. This decrease is due to the previous year having an influx of storm-related calls; otherwise, the projected increase would be 11.3%. This is due to a more aggressive change in NBFRD's medical response based on the strategic plan. The chart below represents a forecast of 5.8% call volume increase over the next ten (10) years.

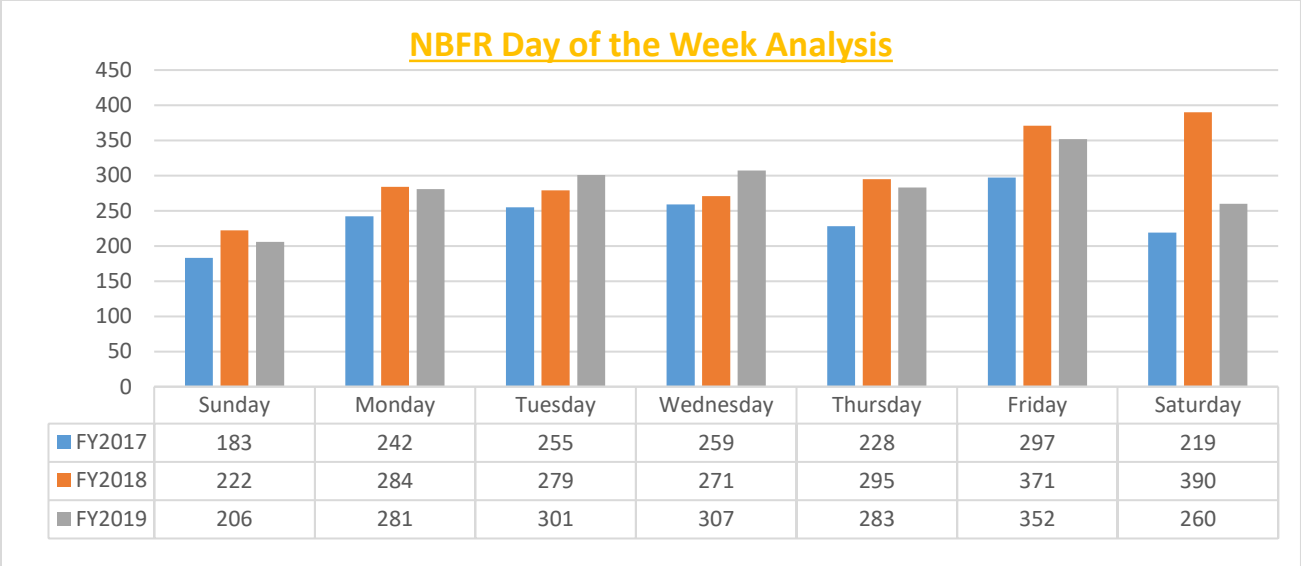


To determine what the busiest times in reference to month, day, and hour, NBFRD performed an analysis over the past three years. The busiest months overall were October and December. The slowest months were February, March, and April. The busiest month for the three-year period was October 2019.



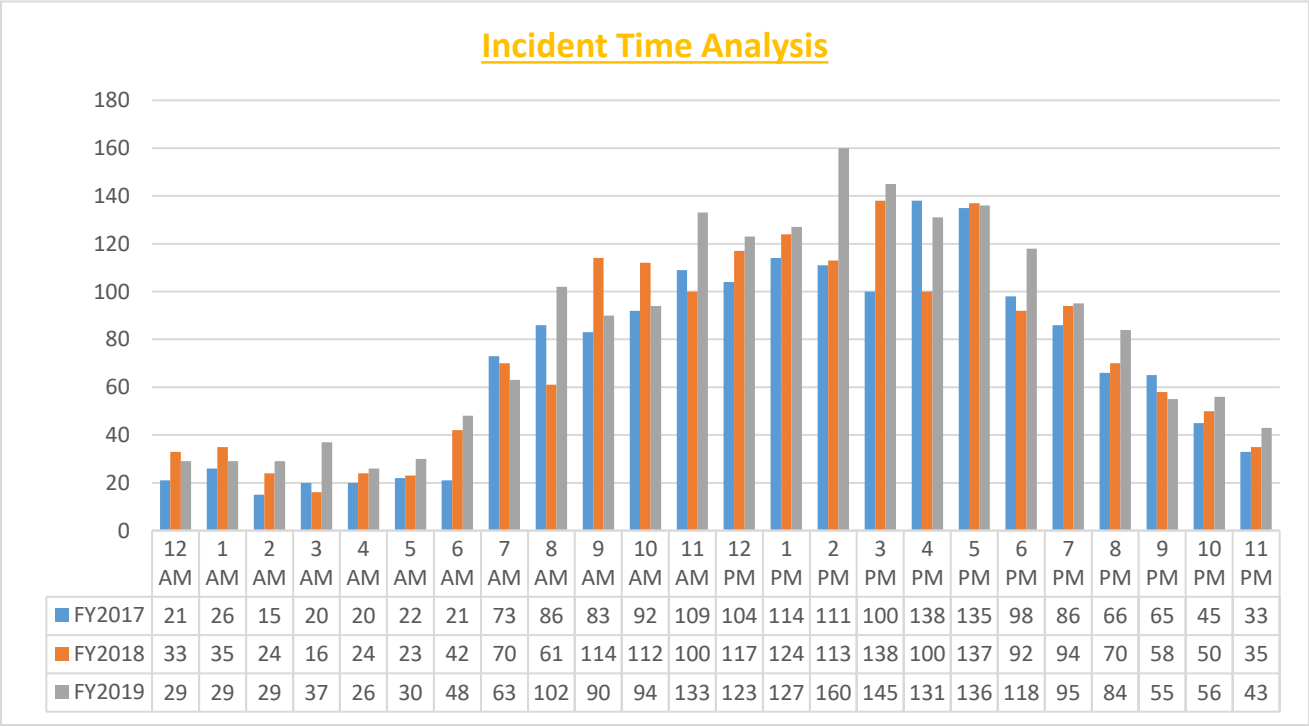
	July	August	Sept.	Oct.	Nov.	Dec.	January	February	March	April	May	June
FY2017	129	127	119	167	131	149	186	130	127	127	134	157
FY2018	150	139	140	182	144	161	149	126	139	149	165	138
FY2019	166	184	193	202	183	182	132	140	144	134	166	157
Average	148.3	150	150.7	183.7	152.7	164	155.7	132	136.7	136.7	155	150.7

Friday is consistently a busy time for NBFRD. There was an increase in Saturday calls in 2018. Sunday is consistently the slowest days of calls.



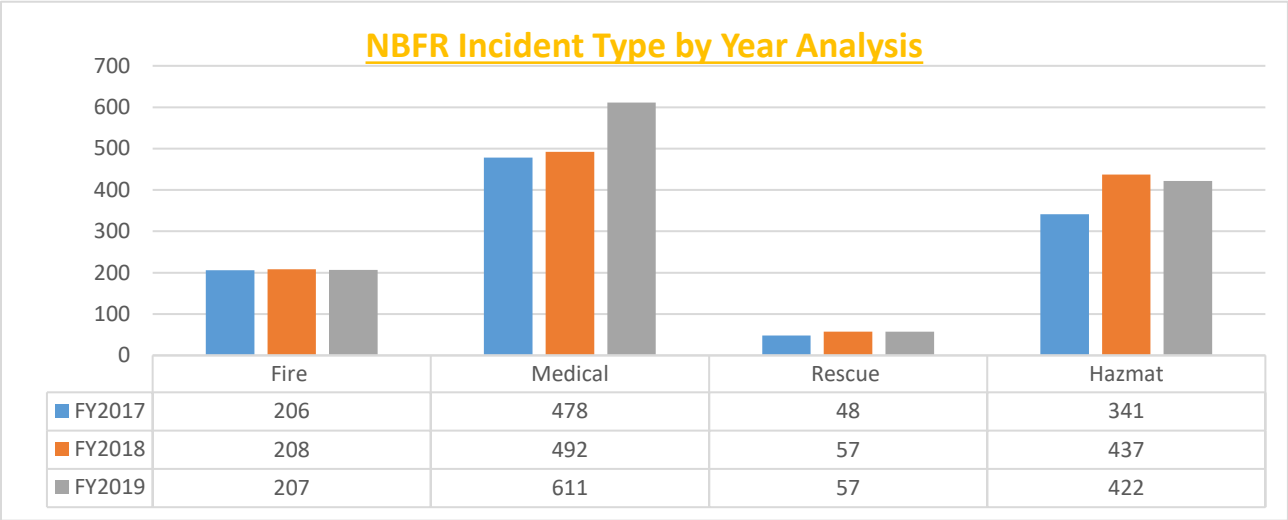
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
FY2017	183	242	255	259	228	297	219
FY2018	222	284	279	271	295	371	390
FY2019	206	281	301	307	283	352	260

NBFRD's busiest times of the day according to historical data run from 11 AM until 5 PM. The least busy hours are from 2 AM until 5 AM. During the afternoon hours, NBFRD is likely to respond to more calls. From Midnight until five (5) AM NBFRD tends to run the least amount of calls.



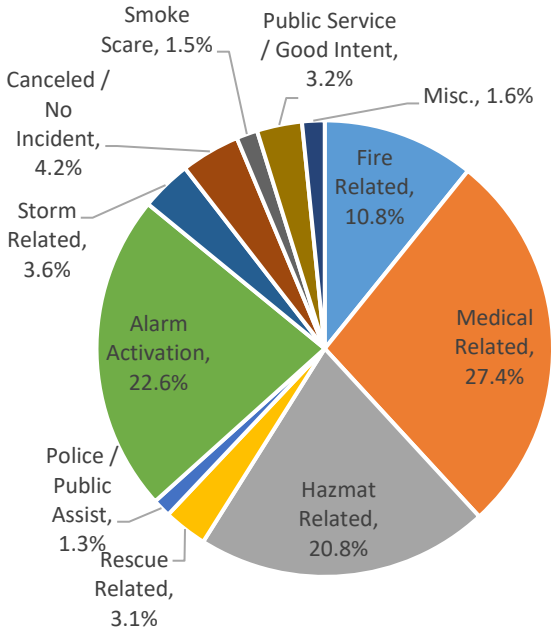
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
FY2017	21	26	15	20	20	22	21	73	86	83	92	109	104	114	111	100	138	135	98	86	66	65	45	33
FY2018	33	35	24	16	24	23	42	70	61	114	112	100	117	124	113	138	100	137	92	94	70	58	50	35
FY2019	29	29	29	37	26	30	48	63	102	90	94	133	123	127	160	145	131	136	118	95	84	55	56	43

Knowing the above historical data is not enough to develop baseline performance data. It is also important for an agency to know the type of incidents that occurred so the agency can monitor deployment status. NBFRD analyzed the four main responses and developed the following graph to show the incidents between FY 2017 and FY 2019. The incident analysis shows an increase in Medical calls, while Fire, Hazmat, and Rescue calls are holding steady. Medical calls have increased by around 28% in three years. The pie chart below shows the percentages of each incident response for three years.



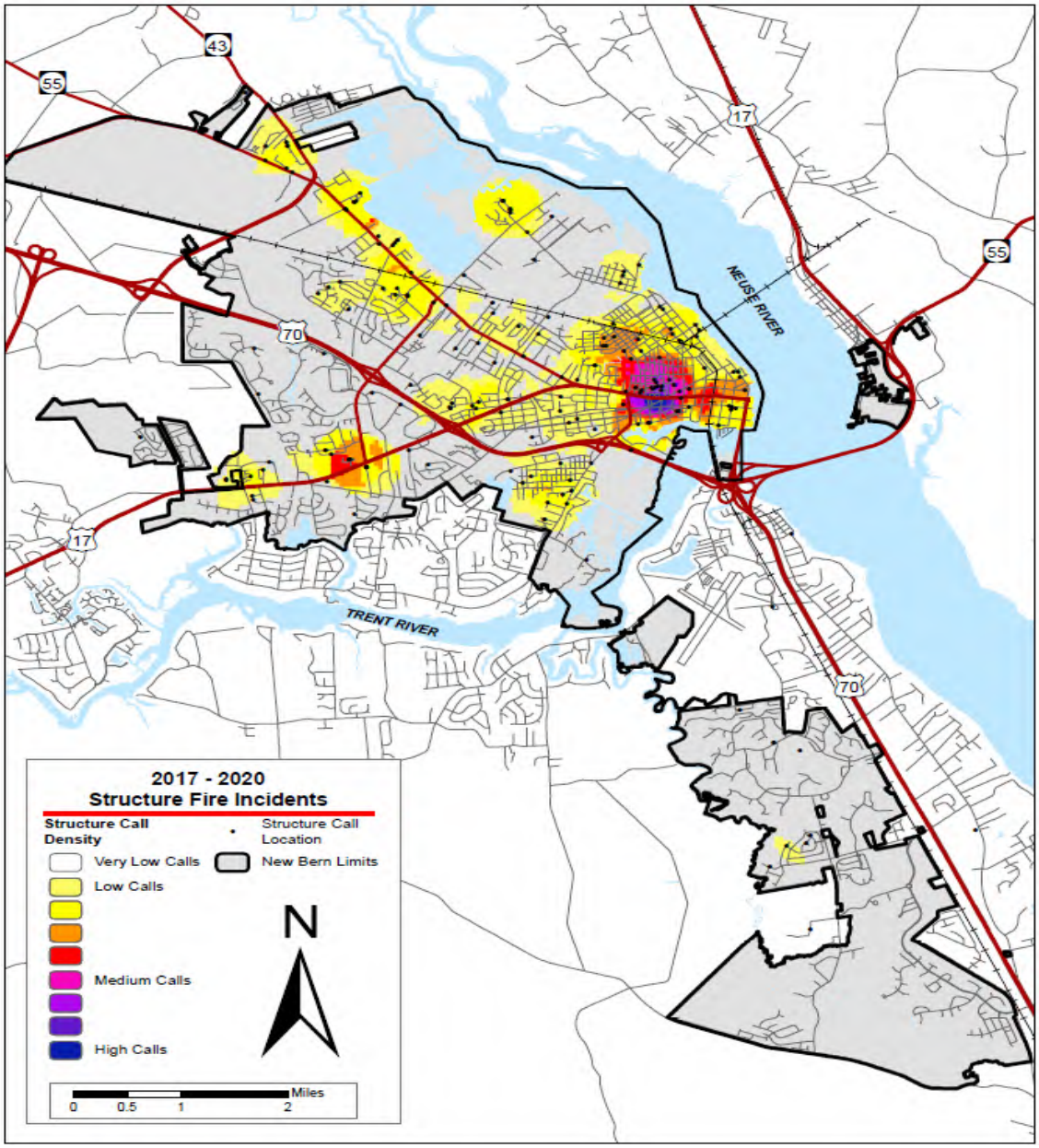
	Fire	Medical	Rescue	Hazmat
FY2017	206	478	48	341
FY2018	208	492	57	437
FY2019	207	611	57	422

NBFRD FY17 – FY19 Incident Type

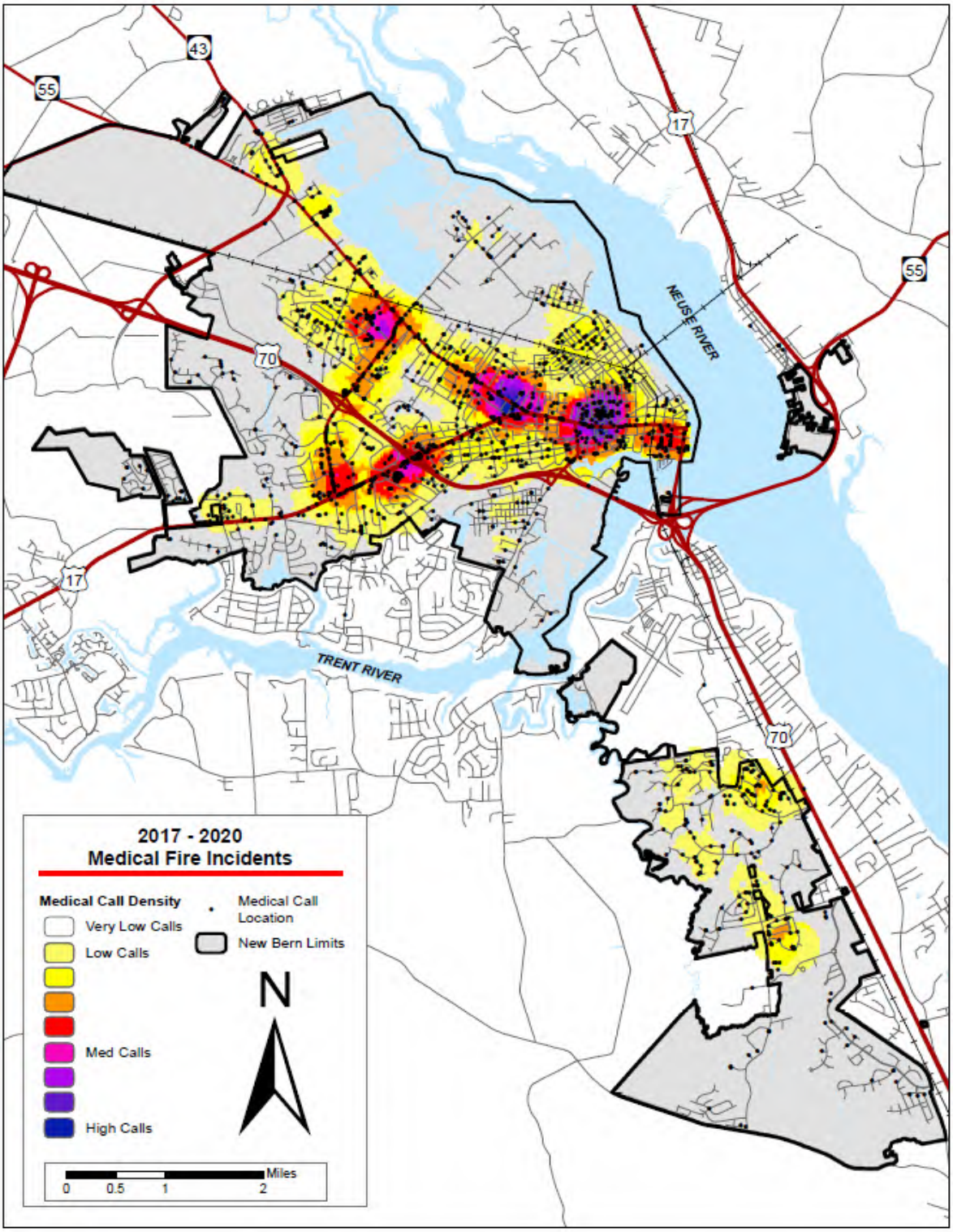


Incident Location

The top two concerns from the external stakeholders were Emergency Medical Care and Fire. To serve our community better, NBRD analyzed threats using hot spot maps. These maps allow NBFRD to determine the need for education and the possibility for additional coverage to areas where the threats are more prominent. The two (2) hot spot maps below depict data from FY 2017 to FY 2019.



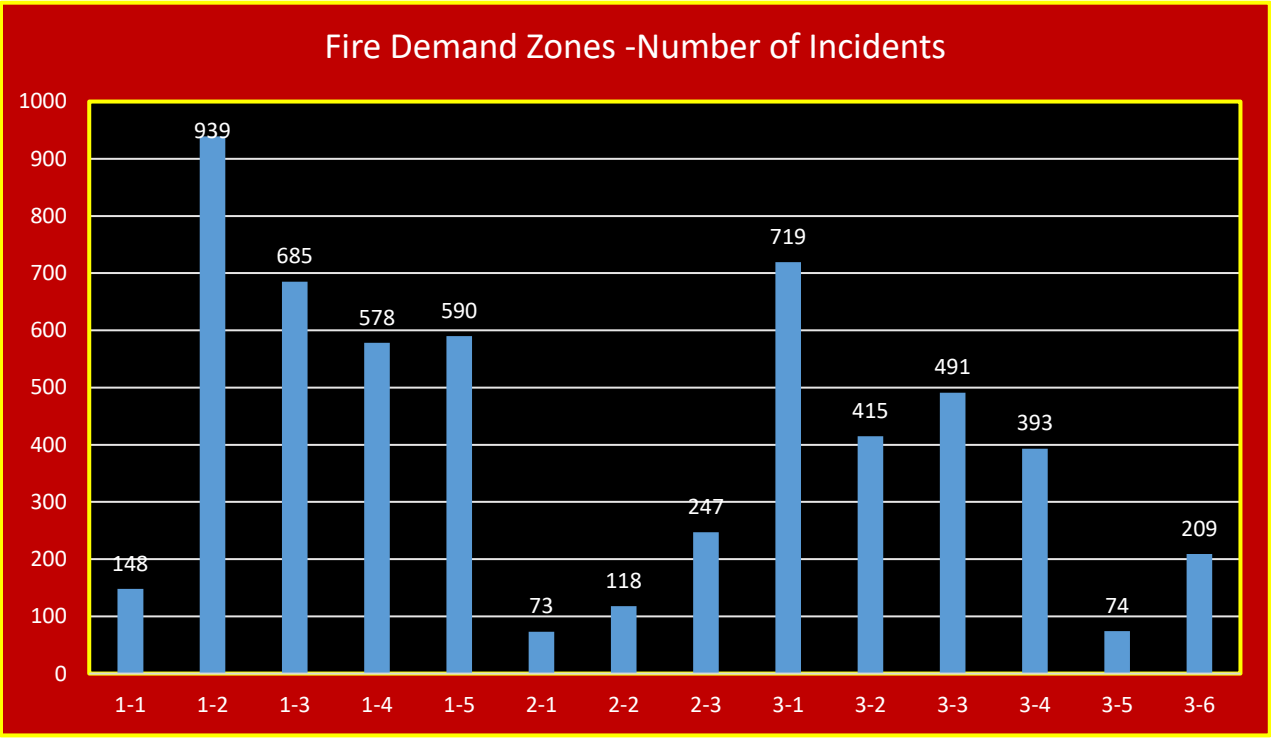
Structure Fire Map



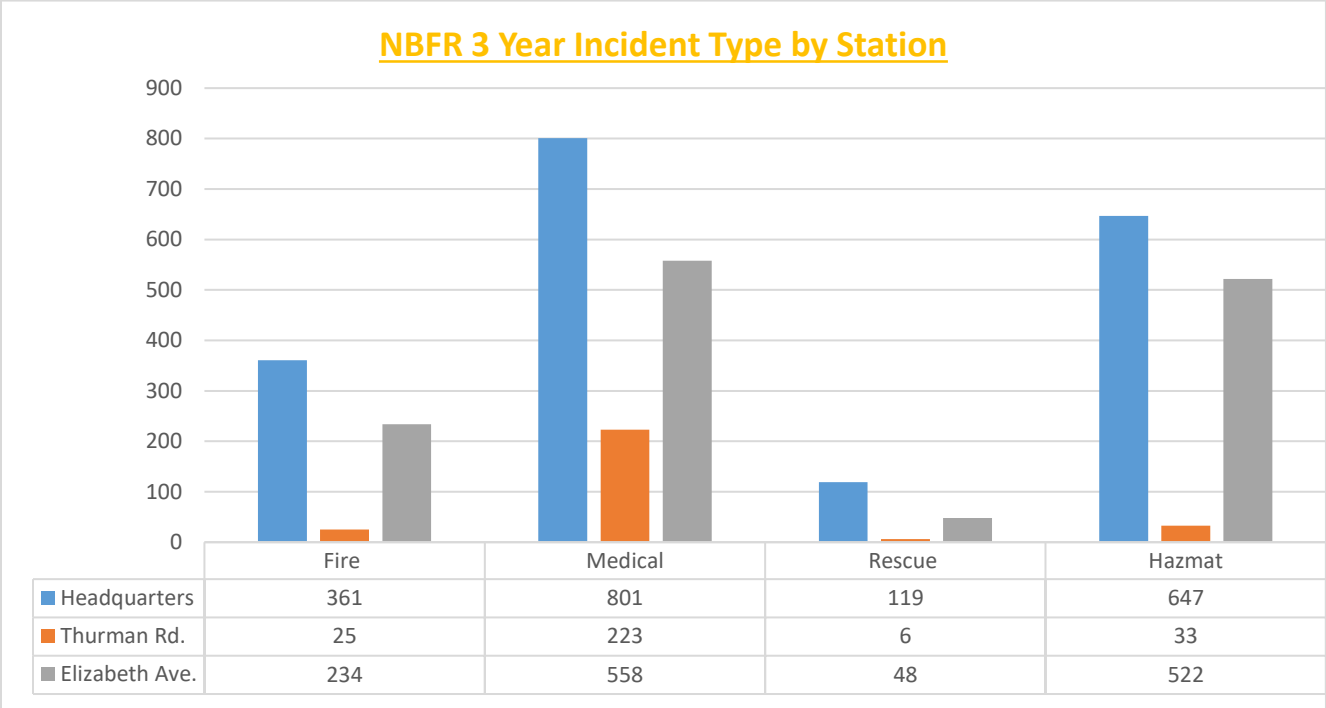
Medical Incident Map

Fire Demand Zones

NBFRD developed fire demand zones to better analyze data. In order to better define risks that are common to an area, it is imperative to be able to break districts into zones. NBFRD used natural barriers within each district to better understand the threats experienced by the district. NBFRD can then have a more clear understanding of the needs specific within each district. Most zones have a mix of commercial and residential. Some zones also have industrial zones included in the fire demand zone. The analysis shows the busiest areas are FDZ 1-2 & FDZ 3-1.



Consideration also has to be given to the service demand of each station. To do this NBFRD considered each type of call in regards to the station. Historically, Headquarters responds to more calls. Elizabeth Ave. Fire Station's district is close and with more growth on the western side of the city, the call volume is expected to increase. The primary focus of calls in the Thurman Rd. Fire Station's district is medical calls.



	Fire	Medical	Rescue	Hazmat
Headquarters	361	801	119	647
Thurman Rd.	25	223	6	33
Elizabeth Ave.	234	558	48	522

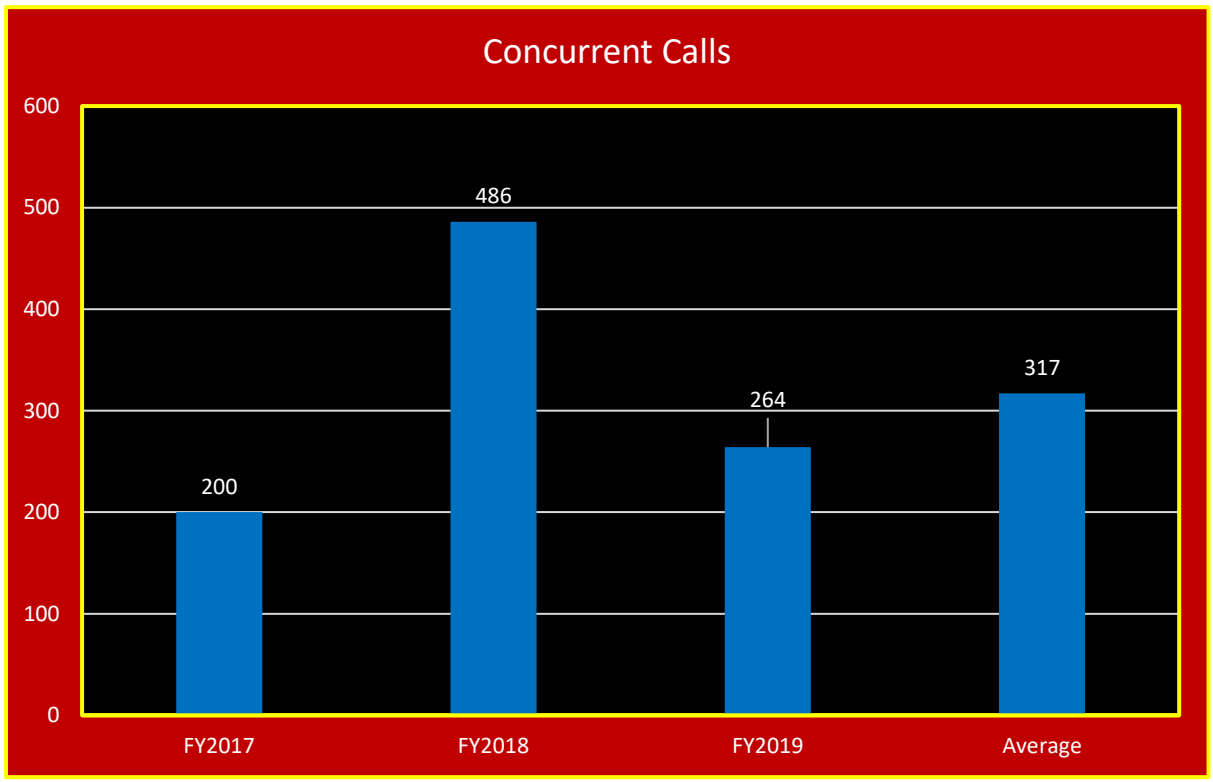
Equalization

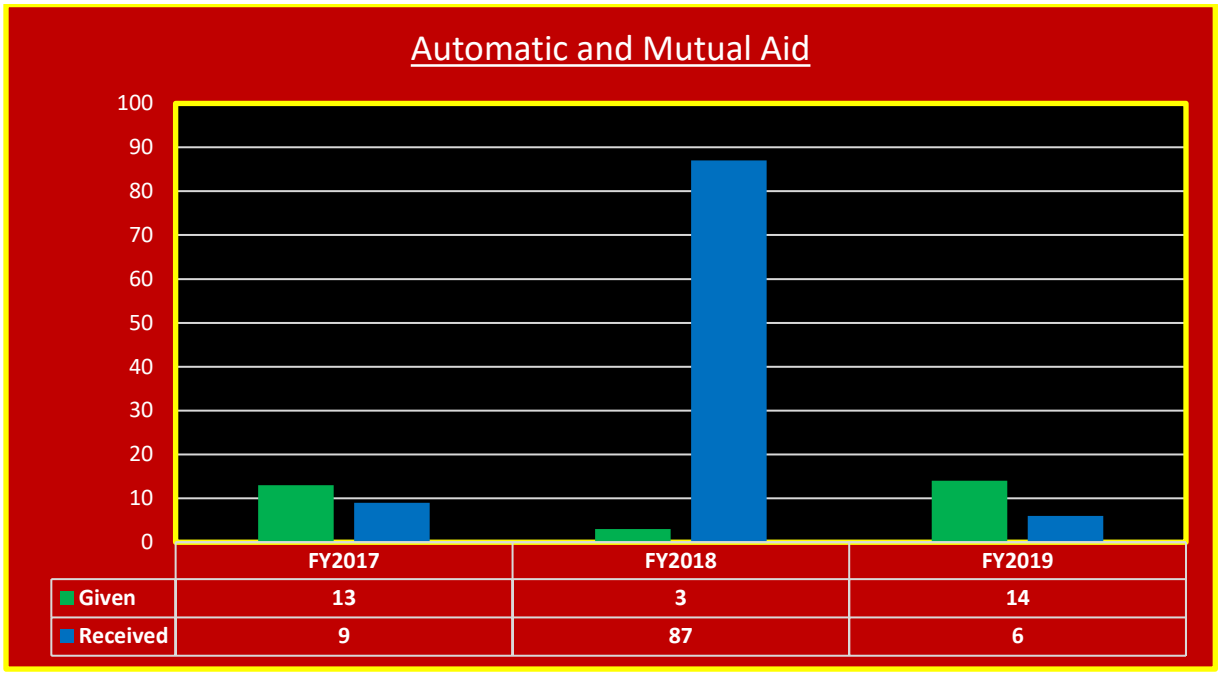
It is important to understand how each station contributes to the coverage provided to the City of New Bern. The following table illustrates the distribution of each station based on call volume, square miles, and road miles.

STATION	CALL VOLUME	SQUARE MILES COVERED	% TOTAL SQUARE MILES	ROAD MILES	% TOTAL ROAD MILES
Headquarters	3,143	8	26.9 %	113.74	51.2 %
Thurman Rd.	457	7.5	25.3 %	47.51	21.4 %
Elizabeth Ave.	2,173	14.2	47.8 %	60.89	27.4 %

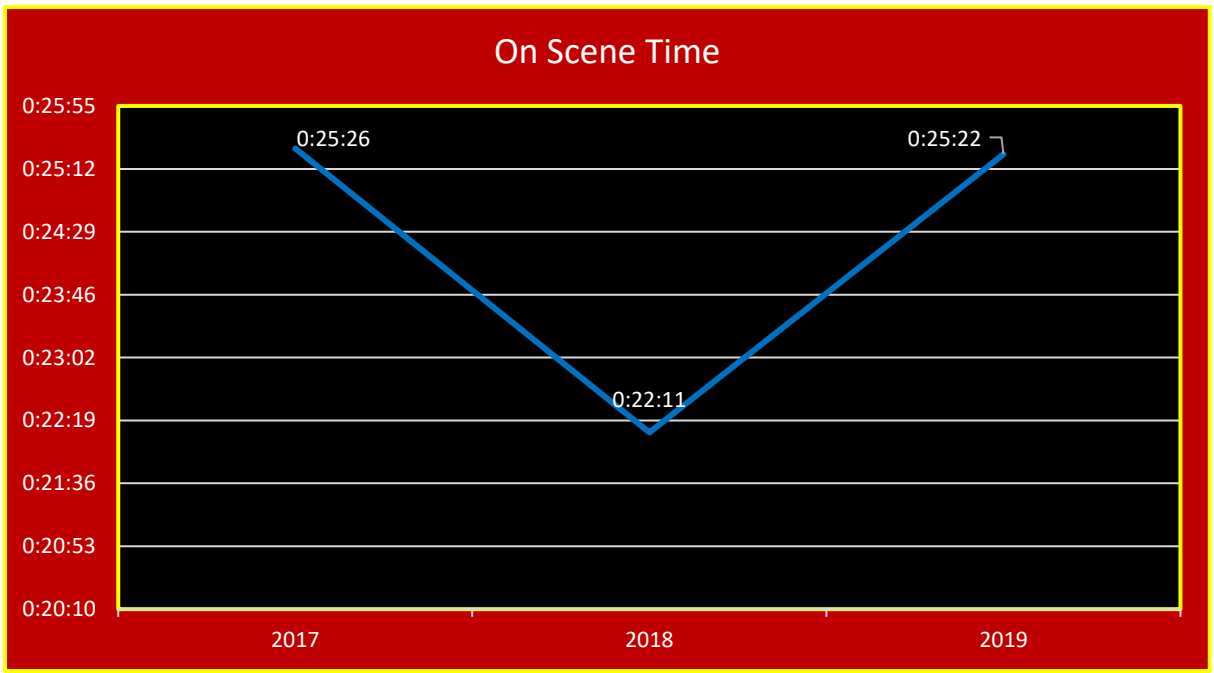
Incident Frequency and Additional Resources

It is important for a department to factor in concurrent calls when trying to understand the service demands placed on the agency. Small departments like NBFRD, are taxed by concurrent calls. This is one reason it is important to have automatic and mutual aid agreements in place. NBFRD is working hard with assistance from Craven County Emergency Management and Chiefs' from County departments to make sure each department can assist each other while still providing coverage for their district. On average NBFRD had 343 concurrent calls over the past three years. In FY2019, NBFRD received automatic/mutual aid 6 times. The increase in FY2018 was due to Hurricane Florence.



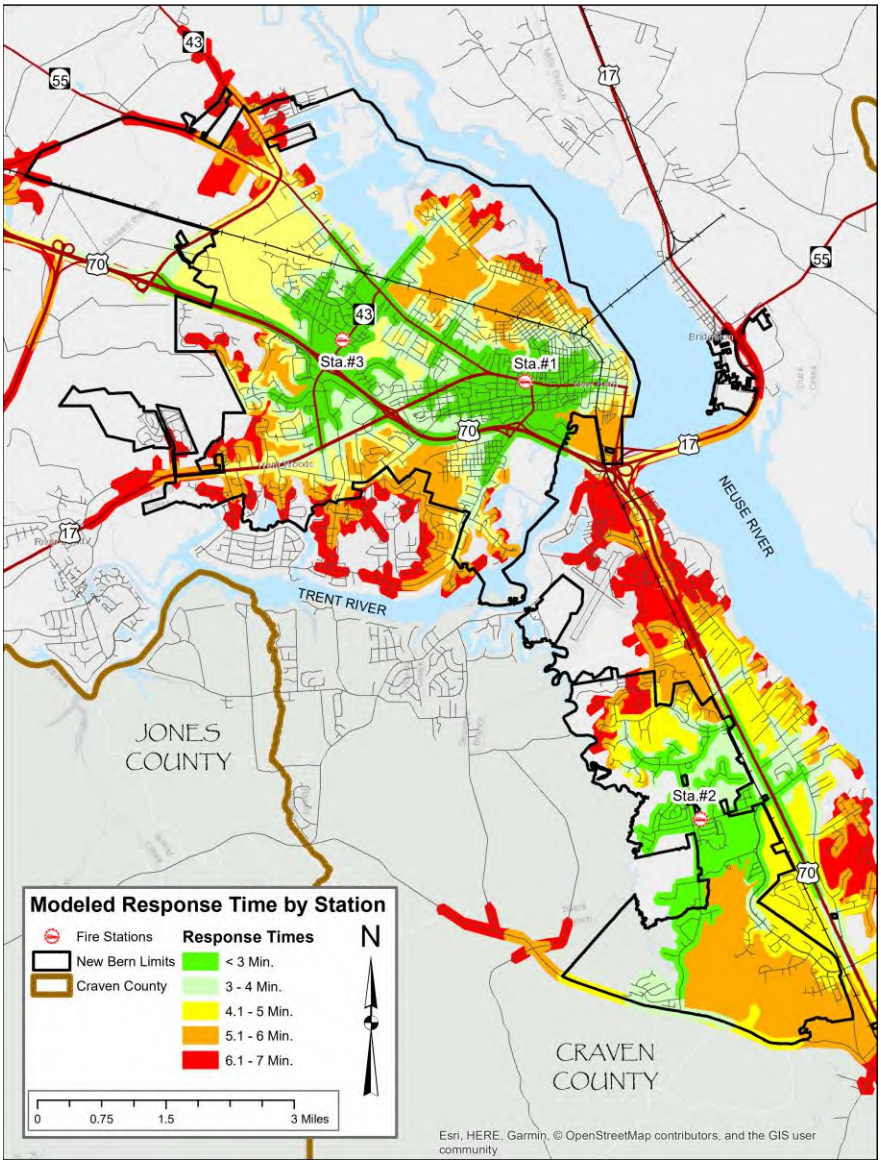


It is also important to perform an analysis of the time companies are on the scene of an incident. NBFRD has averaged just over 23.5 minutes over the past 3 years.



Current Deployment Strategies

Although NBFRD uses fire demand zones to better analyze data, fire districts are still formally utilized for station locations and response areas. It is important for the agency and city leaders to understand the effect of travel times when considering new stations and city growth. The following is a travel time map that shows the travel times from each station form less than three (3) minutes up to greater than seven (7) minutes.



Response time

Cascade of Events

A cascade of events takes place in every emergency. This sequence of critical events begins with the initiation of the event and ends with the termination of the event. The agency's goal is to return the event to the state of normalcy, as much as possible. Factors that agencies use to evaluate performance is:

- Alarm Handling
- Turnout time
- Travel time

The following explains and illustrates the chain of events that takes place during this process:

Emergency Event Initiation – Point where the need for service is recognized.

Emergency Event Awareness – The point where conditions exist requiring emergency services.

Alarm – Time when the event is transmitted to Public Safety Answering Point (PSAP)

Alarm Time – The point when the PSAP receives sufficient information to deploy resources.

Alarm Handling – The period from when the call is received from PSAP until resources are dispatched.

Dispatch Time – The time when resources are notified.

Turnout time – The time from when resources are notified of an emergency until they are en-route.

Travel Time – Time it takes resources to travel to the incident.

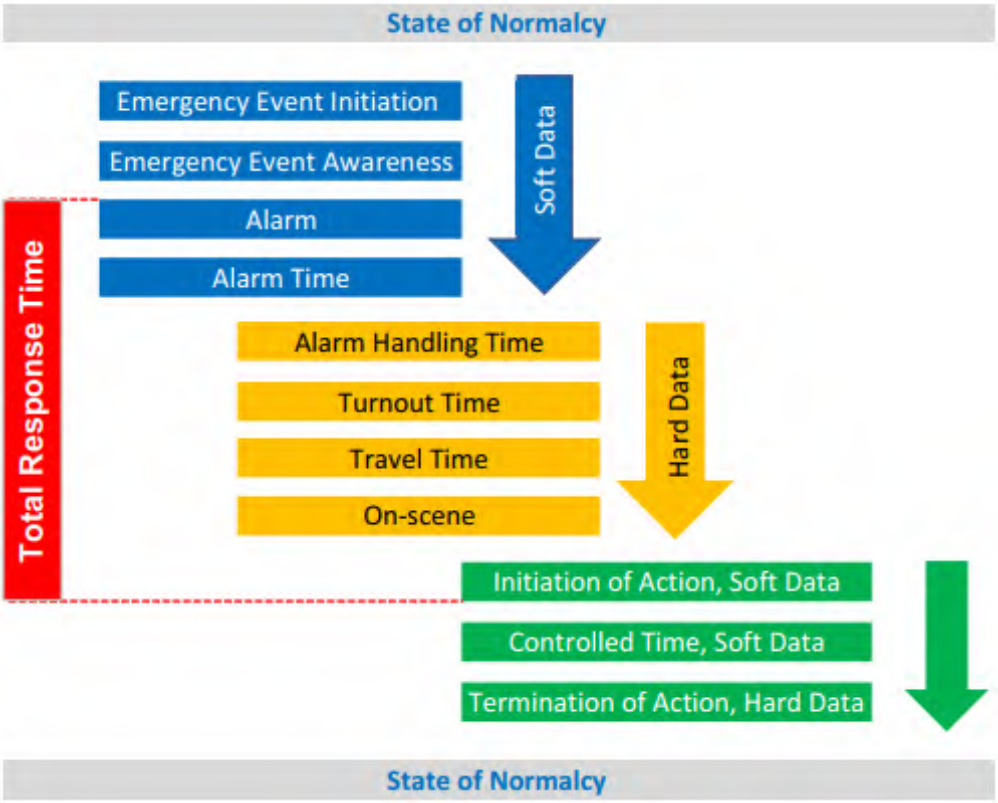
On Scene Time – The point when resources arrive at the incident.

Initiation of Action- Time when mitigation efforts commence.

Response Time – The collective time of dispatch, turnout, travel, and arrival times.

Controlled Time – Time when the fire growth has stopped. (Or basic life support concerns are addressed)

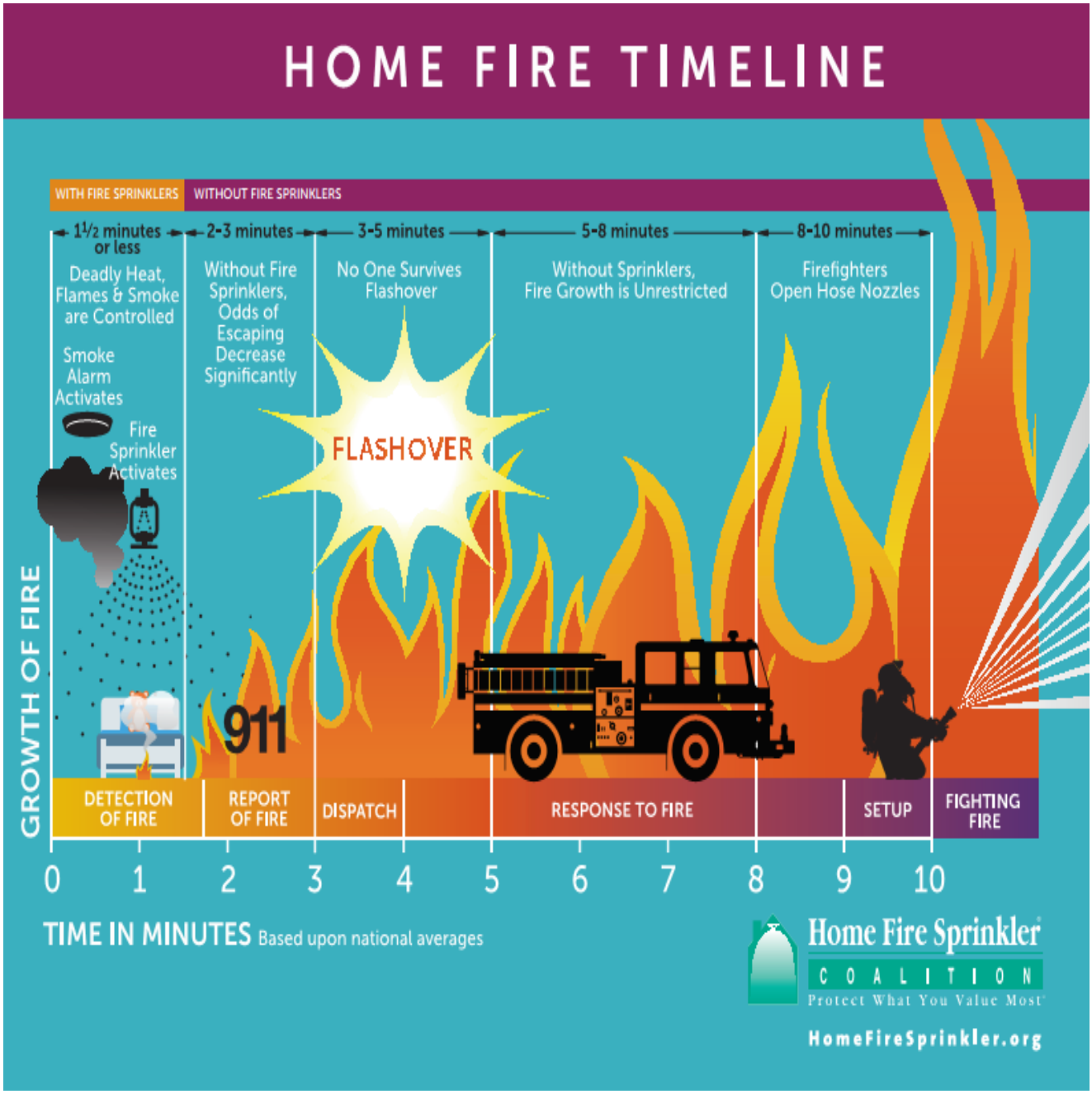
Termination of Event – Resources have completely mitigated the incident.



Fire Behavior

Fire dynamics have changed due to the changes in building construction. Homes have changed from a compartmental style floorplan to a more open floor plan. Building components and the furnishings within the structure are more of a synthetic based material. Flashover conditions are reached quicker in newer homes than older homes.

As seen in the diagram below, firefighters and victims inside a structure on fire can experience flashover conditions in as quickly as five (5) minutes. This provides less time for an escape to anyone inside. This diagram developed by Home Fire Sprinkler Coalition (HFSC) illustrates the growth of a fire in a structure with and without sprinklers. It also illustrates the elements and changes in conditions from the detection of a fire until firefighters start fighting the fire.


HOME FIRE TIMELINE
WITH FIRE SPRINKLERS
WITHOUT FIRE SPRINKLERS
1½ minutes or less
2-3 minutes
3-5 minutes
5-8 minutes
8-10 minutes
Deadly Heat, Flames & Smoke are Controlled
Without Fire Sprinklers, Odds of Escaping Decrease Significantly
No One Survives Flashover
Without Sprinklers, Fire Growth is Unrestricted
Firefighters Open Hose Nozzles
Smoke Alarm Activates
Fire Sprinkler Activates
FLASHOVER
911
GROWTH OF FIRE
DETECTION OF FIRE
REPORT OF FIRE
DISPATCH
RESPONSE TO FIRE
SETUP
FIGHTING FIRE
0 1 2 3 4 5 6 7 8 9 10
TIME IN MINUTES Based upon national averages
Home Fire Sprinkler
COALITION
Protect What You Value Most
HomeFireSprinkler.org

Chain of Survival

The chain of survival is a model developed by the American Heart Association (AHA) for individuals suffering from a cardiac emergency. The chain of survival is a proven model whether the situation is stopped blood flow to the heart (Heart Attack) or a heart malfunction (Cardiac Arrest). If cardiopulmonary resuscitation (CPR) is performed, the victim's survival rate can double or triple. The chain of survival includes the following:

1) Recognition of Cardiac Event and Activating Emergency Response System
2) Initiation of CPR
3) Rapid Defibrillation
4) Basic and Advanced Life Support
5) Advanced Life Support and Post Cardiac Care

Baseline Performance Tables (FY 2017 –FY 2019)

NBFRD has established benchmarks for all programs (Fire, EMS, Hazmat, and Rescue) based on the national standard. The tables below illustrate the baseline performance in each program. Each table depicts the alarm handling times, turnout times, travel times, and total response time, for each year and the combined years. All times are based on the 90th percentile.

- Alarm Handling Time – The time from when PSAP receives the call until the agency is dispatched.
- Turnout Time – The time from when the agency is dispatched until units are en-route.
- Travel Time – The time from when the unit is en-route until it arrives on-scene.
- Total Response Time – The time from the public safety answering point (PSAP) receives the call until the unit arrives on-scene.

Fire Suppression 90th Percentile Time Baseline Performance			FY 2017 - FY 2019	FY 2019	FY 2018	FY 2017
Alarm Handling Time	Pick-up to Dispatch	Urban	0:02:55	0:03:29	0:02:50	0:02:09
		Rural	N/A	N/A	N/A	N/A
Turnout Time	Turnout Time 1st Unit	Urban	0:02:12	0:02:08	0:02:03	0:02:25
		Rural	N/A	N/A	N/A	N/A
Travel Time	Travel Time 1st Unit **Distribution**	Urban	0:05:24	0:04:59	0:05:31	0:05:33
		Rural	N/A	N/A	N/A	N/A
	Travel Time Effective Response Force **Concentration**	Urban	0:10:00	0:08:24	0:09:29	0:11:19
		Rural	N/A	N/A	N/A	N/A
Total Response Time	Total Response Time 1st Unit On-Scene **Distribution**	Urban	0:08:58	0:09:06	0:08:47	0:08:33
			n=621	n=207	n=208	n=206
		Rural	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A
	Total Response Time Effective Response Force On-Scene **Concentration**	Urban	0:13:35	0:11:29	0:15:01	0:13:35
			n=269	n=101	n=75	n=93
		Rural	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A

N= Number of response

Medical 90th Percentile Time Baseline Performance			FY 2017 - FY 2019	FY 2019	FY 2018	FY 2017
Alarm Handling Time	Pick-up to Dispatch	Urban	0:06:09	0:06:31	0:07:54	0:04:22
		Rural	N/A	N/A	N/A	N/A
Turnout Time	Turnout Time 1st Unit	Urban	0:01:59	0:01:57	0:01:49	0:02:15
		Rural	N/A	N/A	N/A	N/A
Travel Time	Travel Time 1st Unit **Distribution**	Urban	0:05:33	0:05:11	0:05:19	0:06:05
		Rural	N/A	N/A	N/A	N/A
	Travel Time Effective Response Force **Concentration**	Urban	0:06:58	0:38:43	0:06:52	0:06:09
		Rural	N/A	N/A	N/A	N/A
Total Response Time	Total Response Time 1st Unit On-Scene **Distribution**	Urban	0:11:39	0:12:19	0:13:05	0:10:22
			n=1581	n=611	n=492	n=478
		Rural	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A
	Total Response Time Effective Response Force On-Scene **Concentration**	Urban	0:14:23	0:52:04	0:14:23	0:11:58
			n=98	n=12	n=16	n=70
		Rural	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A

N= Number of response

Hazmat 90th Percentile Time Baseline Performance			FY 2017 - FY 2019	FY 2019	FY 2018	FY 2017
Alarm Handling Time	Pick-up to Dispatch	Urban	0:03:53	0:04:15	0:04:06	0:02:31
		Rural	N/A	N/A	N/A	N/A
Turnout Time	Turnout Time 1st Unit	Urban	0:01:52	0:01:41	0:01:49	0:02:09
		Rural	N/A	N/A	N/A	N/A
Travel Time	Travel Time 1st Unit **Distribution**	Urban	0:05:50	0:05:17	0:06:08	0:06:23
		Rural	N/A	N/A	N/A	N/A
	Travel Time Effective Response Force **Concentration**	Urban	0:08:31	0:09:01	0:10:23	0:06:32
		Rural	N/A	N/A	N/A	N/A
Total Response Time	Total Response Time 1st Unit On-Scene **Distribution**	Urban	0:09:57	0:10:00	0:10:15	0:08:54
			n=1201	n=423	n=437	n=341
		Rural	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A
	Total Response Time Effective Response Force On-Scene **Concentration**	Urban	0:12:01	0:14:04	0:17:47	0:09:27
			n=121	n=34	n=21	n=65
		Rural	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A

N= Number of response

Rescue 90th Percentile Time Baseline Performance			FY 2017 - FY 2019	FY 2019	FY 2018	FY 2017
Alarm Handling Time	Pick-up to Dispatch	Urban	0:04:28	0:06:51	0:03:28	0:02:52
		Rural	N/A	N/A	N/A	N/A
Turnout Time	Turnout Time 1st Unit	Urban	0:02:11	0:02:09	0:01:54	0:02:37
		Rural	N/A	N/A	N/A	N/A
Travel Time	Travel Time 1st Unit **Distribution**	Urban	0:06:07	0:06:14	0:05:46	0:06:03
		Rural	N/A	N/A	N/A	N/A
	Travel Time Effective Response Force **Concentration**	Urban	0:21:19	1:50:57	0:09:50	0:06:03
		Rural	N/A	N/A	N/A	N/A
Total Response Time	Total Response Time 1st Unit On-Scene **Distribution**	Urban	0:11:19	0:12:07	0:13:22	0:09:56
			n=179	n=56	n=66	n=57
		Rural	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A
	Total Response Time Effective Response Force On-Scene **Concentration**	Urban	0:24:47	2:03:08	0:12:06	0:06:15
			n=23	n=5	n=8	n=10
		Rural	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A

N= Number of response

Property Preservation and Loss

It is important for NBFRD to analyze the loss versus preservation of personal property after a fire. The property value is determined based on the actual taxable value of the property. The damage estimate is based on the destruction of the property and the percentage of damage affected by fire/smoke. With these two variables, NBFRD can determine the estimated property preservation also. Content is figured at 10 % of the content value. Below is the value saved and loss analysis for the past three (3) years.

NBFRD Value Saved / Loss Analysis

	Total Value	Total Loss	Total Saved	Loss Percentage	Saved Percentage
FY 2017	$ 35,524,260	$ 9,638,066	$ 25,886,194	27.13%	72.87%
FY 2018	$ 109,719,210	$ 1,016,610	$ 108,702,600	0.9%	99.1%
FY 2019	$ 238,409,130	$ 1,857,530	$ 236,551,600	0.8%	99.2%

Evaluation of Deployment and Performance

Benchmark Performance Objectives and Baseline Performance Measures

NBFRD is constantly striving to meet the expectations of the community. One way of accomplishing this is to create benchmarks representing the desired level of performance for NBFRD. The following benchmark statements represent these performance levels. NBFRD command staff used NFPA 1710 along with historical data to set these benchmarks.

Fire Benchmark Performance Objectives

Alarm Handling 1:00

Turnout Time 1:20

Travel Time 4:00

Travel Time ERF 8:00

Total Response Time 1st Due 6:20

Total Response Time ERF 10:20

Total Response time ERF 12:30 (Special Risk Fires)

For 90 percent of all fires, the total response time for the arrival of the first-due unit, staffed with three (3) firefighters and 1 officer, shall be: 8 minutes 20 seconds in all areas.

The first-due unit for all fires shall be capable of: providing 500 gallons of water and pumping 1,500 gallons per minute (GPM); initiating command; flowing a minimum of 150 GPM; establish and maintain water supply; rescuing potential victims; advancing attack lines; containing the fire; requesting additional resources as needed. All operations shall be handled in conjunction with department policy while providing for the safety responders and citizens alike.

For 90 percent of all fires, the total response time for the arrival of the ERF, staffed with an effective number of firefighters and officers to perform critical tasking, shall be: 10 minutes 20 seconds in all areas.

The ERF shall be capable of: establishing command and safety; providing an uninterrupted water supply (as needed); deploy and advancing a backup line for fire control; establishing a rapid intervention team (RIT); completing forcible entry; searching and rescuing victims; ventilating the structure; controlling utilities; performing loss prevention; and place elevated streams into service from aerial ladders, as needed.

Fire Benchmark Staffing

Low Risk	4 personnel
Moderate Risk	13 personnel
High Risk	28 personnel
Special Risk	40 personnel

Fire Suppression Baseline Performance Measures

For 90 percent of all fires, the total response time for the arrival of the first-due unit, staffed with three (3) firefighters and 1 officer, is 8 minutes 58 seconds in all areas.

For 90 percent of all fires, the total response time for the arrival of the ERF, staffed with an effective number of firefighters and officers to perform critical tasking, is 13 minutes 35 seconds in all areas.

Medical Benchmark Performance Objectives

Alarm Handling 1:00

Turnout Time 1:00

Travel Time 4:00

Total Response Time 1st Due 6:00

For 90 percent of all medical calls, the total response time for the arrival of the first-due unit, staffed with a minimum of two (2) firefighters, shall be: 6 minutes 00 seconds in all areas.

The first-due unit for all medical calls shall be capable of: establishing command; scene size-up and safety; providing Basic Life Support; and requesting additional resources as needed.

Medical Benchmark Staffing

Staffing for all medical calls is a minimum of two (2) personnel.

Medical Baseline Performance Measures

For 90 percent of all medical calls, the total response time for the arrival of the first-due unit, staffed with a minimum of two (2) firefighters, is 11 minutes 39 seconds in all areas.

Hazmat Benchmark Performance Objectives

Alarm Handling 1:00

Turnout Time 1:20

Travel Time 4:00

Travel Time ERF 8:00

Total Response Time 1st Due 6:20

Total Response Time ERF 10:20

For 90 percent of all hazmat calls, the total response time for the arrival of the first-due unit, staffed with three (3) firefighters and one (1) officer, shall be: 8 minutes 20 seconds in all areas.

The first-due unit for all hazmat calls shall be capable of: initiating command; identifying the hazard; performing evacuation; determining safe zones; monitor air quality; rescuing potential victims; and requesting additional resources as needed. All operations shall be handled in conjunction with department policy while providing for the safety responders and citizens alike.

For 90 percent of all hazmat calls, the total response time for the arrival of the ERF, staffed with an effective number of firefighters and officers to perform critical tasking, shall be: 10 minutes 20 seconds in all areas.

Hazmat Benchmark Staffing

Low Risk	4 personnel
Moderate Risk	13 personnel

Hazmat Baseline Performance Measures

For 90 percent of all hazmat calls, the total response time for the arrival of the first-due unit, staffed with three (3) firefighters and one (1) officer, is 9 minutes 57 seconds in all areas.

For 90 percent of all hazmat calls, the total response time for the arrival of the ERF, staffed with an effective number of firefighters and officers to perform critical tasking is 12 minutes 1 second in all areas.

Rescue Benchmark Performance Objectives

Alarm Handling 1:00

Turnout Time 1:20

Travel Time 4:00

Travel Time ERF 8:00

Total Response Time 1st Due 6:20

Total Response Time ERF 10:20

For 90 percent of all rescue calls, the total response time for the arrival of the first-due unit, staffed with three (3) firefighters and one (1) officer, shall be: 8 minutes 20 seconds in all areas.

The first-due unit for all rescue calls shall be capable of: initiating command; identifying the risk; establish safe zones; deploy rescue equipment; rescuing potential victims; and requesting additional resources as needed. All operations shall be handled in conjunction with department policy while providing for the safety responders and citizens alike.

For 90 percent of all rescue calls, the total response time for the arrival of the ERF, staffed with an effective number of firefighters and officers to perform critical tasking, shall be: 10 minutes 20 seconds in all areas.

Rescue Benchmark Staffing

Low Risk	9 personnel
Moderate Risk	15 personnel

Rescue Baseline Performance Measures

For 90 percent of all rescue calls, the total response time for the arrival of the first-due unit, staffed with three (3) firefighters and one (1) officer, is 11 minutes 19 seconds in all areas.

For 90 percent of all rescue calls, the total response time for the arrival of the ERF, staffed with an effective number of firefighters and officers to perform critical tasking is 24 minutes 47 seconds in all areas.

Section 5: Plan for Maintaining and Improving Performance

Conclusion

New Bern Fire-Rescue Department strives to provide the best service to our customers. Data is analyzed weekly by the command staff in efforts to improve response times. NBFRD is currently in the process of changing our records management system (RMS) from Firehouse to Tyler technology. This change will better streamline data being analyzed. The use of Mobile Data Terminals (MDT's) has proven to benefit the agency. Continued training and use of these devices, along with the incorporation of tablets and upgraded software such as Crewforce will only improve the transfer of information between responding units and dispatch while responding to incidents.

Command staff is strengthening its relationship with the personnel and empowering the officer corp. Creating buy-in from all employees is important. Committees are being established in key roles of the agency such as community outreach, EMS, and standards. Personnel are providing more ideas with the command staff on improving outreach programs. NBFRD also petitioned to change our franchise from Medical responder to Emergency Medical Technician-Basic Treatment non-transport. This initiative took place in March 2020. The EMS committee has worked hard to take NBFRD to this next level in service. Through critical task analysis, the agency is identifying areas of improvement and strengthing positions while working incident scenes. Times and efficiencies continue to improve. Through better documentation and transparency personnel recognize areas where they can improve themselves and their companies. Recognition and training are the foundation of a strong, healthy agency.

Command staff is working diligently with management and city leaders to provide more resources to improve the quality of life within our community. Strategic planning from all involved has brought awareness to the need for new apparatus and equipment, strategic locations of new stations, and increasing the number of personnel. The training division is creating new ideas for training based on the needs of the agency and the ever-changing task that firefighters face daily. Recognizing the importance of EMS in our community has lead to doubling our training opportunities in the medical field.

Through analysis, NBFRD recognized the need to assist our Communications division. Staff personnel have worked along side New Bern Police and New Bern Communication leaders to recognize the

struggles faced by the telecommunicators. Policies have and will continue to be implemented. Studies have shown the support the communications division needs. As a strategic initiative recognized during the agency's SWOT analysis, NBFRD is improving communications with NB Communications. NBFRD is playing an active role in rebuilding run cards and assisting with Emergency Fire Dispatch. This includes the agency assisting with training, helping telecommunicators understand how their job affects the agency.

The agency will continue analyzing data, working with other divisions, training, listening to the agency's personnel and committees, listening to the customers, and working with city leaders to improve the service NBFRD provides for the community. We will continue to pride ourselves in our values of Honesty, Loyalty, Professionalism, and Dedication. Most of all we take pleasure in serving the citizens of New Bern, North Carolina, and will continue to improve our community outreach and customer service.