

# Hurricane Matthew Resilient Redevelopment Plan Johnston County



May 2017

Version 1.2

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## Change Log

Version	Date	Summary of Changes
1.1	6/16/17	Minor Revisions
1.2	8/25/17	Labor and unemployment data updated

## Executive Summary

In October 2016, Hurricane Matthew caused widespread destruction in the Caribbean and up the Eastern Seaboard of the United States. In North Carolina, at least 26 people lost their lives, and 100,000 homes, businesses, and government buildings sustained damage estimated at \$4.8 billion.<sup>1</sup> At the storm's peak, 3,744 individuals fled to 109 shelters across the region. More than 800,000 households lost power and 635 roads were closed, including the major east-west and north-south corridors.

In December 2016, the North Carolina General Assembly established the North Carolina Resilient Redevelopment Planning (NCRRP) program as part of the 2016 Disaster Recovery Act (*Session Law 2016-124*). The purpose of the program is to provide a roadmap for community rebuilding and revitalization assistance for the communities that were damaged by the hurricane. The program empowers communities to prepare locally driven recovery plans to identify redevelopment strategies, innovative reconstruction projects, and other needed actions to allow each community not only to survive but also to thrive in an era when natural hazards are increasing in severity and frequency.

The NCRRP consists of planning and implementation phases and is managed through North Carolina Emergency Management.



**Figure 1. NCRRP Counties**

This document is a snapshot of the current needs of the County regarding holistic recovery and redevelopment. The plan will evolve as the county analyzes the risk to its assets, identifies needs and opportunities, determines the potential costs and benefits of projects, and prioritizes projects. As projects are more fully defined, the potential impact on neighboring communities and the region may lead to modifications.

Implementation of the proposed projects and actions described in this plan is subject to applicable federal, state, and local laws and regulations. Proposed projects or actions may be eligible for state or federal funding, or could be accomplished with municipal, nonprofit, or private investments. However, inclusion of a project or action in this plan does not guarantee that it will be eligible for recovery funding.

<sup>1</sup> State of North Carolina Supplemental Request for Federal Assistance Hurricane Matthew Recovery, <https://governor-new.s3.amazonaws.com/s3fs-public/documents/files/Hurricane%20Matthew%20Relief--2017%20Federal%20Request%20%28002%29.pdf>.

After multiple public meetings, Johnston County has identified 12 projects in four pillars: Housing, Infrastructure, Economic Development, and Environmental. Details of these projects can be found in Section IV of this plan.

Pillar	Project/Action Count
Housing	2
Economic Development	3
Infrastructure	6
Environment	2
<b>Grand Total</b>	<b>12</b>

**Table 1. Johnston County Summary of Projects by Pillar**



An aerial photograph showing a residential neighborhood severely affected by flooding. The water is a murky brown color, inundating the yards and streets. Several houses with blue and grey roofs are visible, some partially submerged. A large area of green trees is also flooded, with only the tops of the trees visible above the water. The text "1. Background" is overlaid in the center of the image in a dark blue font.

# 1. Background

# 1. Background

## Summary of Hurricane Matthew Storm Damage

Hurricane Matthew was an extraordinarily severe and sustained event that brought record-level flooding to many areas in eastern North Carolina’s coastal plain, sound, and coastal communities. Hurricane Matthew hit North Carolina on October 8, 2016, as a Category 1 storm. Communities were devastated by this slow-moving storm primarily by widespread rainfall. During a 36-hour period, up to 18 inches of heavy rainfall inundated areas in central and eastern North Carolina.

Riverine flooding began several days after Hurricane Matthew passed and lasted for more than 2 weeks. New rainfall records were set in 17 counties in the Tar, Cape Fear, Cashie, Lumber, and Neuse River watersheds. Entire towns were flooded as water levels throughout eastern North Carolina crested well beyond previously seen stages.

During the peak of the hurricane, 800,000 households lost power and 635 roads were closed, including a section of I-40 West in Johnston County that was closed for 7 days, and sections of I-95 North and South in Robeson and Cumberland Counties that were closed for 10 days.

Approximately 88,000 homes were damaged and 4,424 were completely destroyed. Losses totaled more than \$967 million, representing an economic loss as high as 68% of the damages, or \$659 million, not expected to be covered by insurance or FEMA assistance.

North Carolina Governor McCrory requested FEMA assistance on October 9, 2016, and FEMA subsequently declared a major disaster (DR-4285) for North Carolina on October 10, 2016, for 48 counties encompassing approximately 325 cities, towns, townships, and villages.

Preliminary estimates indicate more than 30,000 businesses suffered physical or economic damage, and 400,000 employees were affected as a result. Hurricane Matthew also had a significant impact on the agriculture and agribusiness economy in eastern North Carolina. The nearly 33,000 agricultural workers and 5,000 agricultural-support workers hit by the storm account for more than half of the state’s agriculture and agriculture-support workforce.

Initial economic analysis of the impacts of crop and livestock losses caused by Hurricane Matthew estimated the loss of more than 1,200 jobs and roughly \$10 million in state and local income and sales tax revenue. <sup>2</sup>

## State / Legislative Response

North Carolina’s response to Hurricane Matthew included 2,300 swift-water rescues using 79 boats and more than 90 air rescues. North Carolina also deployed over 1,000 National Guard and State Highway Patrol to assist with rescue and sheltering missions. There were 3,744 individuals transported to 109 shelters across central and eastern North Carolina during the storm’s peak.

FEMA’s disaster declaration made 50 counties eligible for FEMA assistance, 45 of which are eligible for Individual Assistance and Public Assistance and 5 of which are eligible for Public Assistance only.

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<sup>2</sup> *Governors McCrory’s Request for Federal Assistance for Hurricane Matthew Recovery, November 14, 2016*



- There were 81,832 individuals registered for FEMA/state assistance.
- Federal/state financial assistance in the amount of \$92.5 million was approved to help flood survivors recover.
- Small Business Administration (SBA) loans approved for individuals after Hurricane Matthew totaled \$65.6 million.
- SBA loans approved for businesses after Hurricane Matthew totaled \$23.2 million.

After the immediate response period, North Carolina Governor McCrory and the North Carolina General Assembly took the steps summarized below to obtain and allocate long-term funding for Hurricane Matthew.

**November 1:** The Hurricane Matthew Recovery Committee is established. Preliminary damage assessments are completed, and the State Emergency Response Task Force continues to administer programs and identify needs unmet by existing federal programs.

**November 14:** Governor McCrory formally submits North Carolina’s request for supplemental federal disaster assistance to the delegation as Congress returns to work.

**Late November/Early December:** Congress appropriates supplemental disaster assistance for North Carolina. After the supplemental federal disaster recovery assistance package is received, Governor McCrory submits a supplemental state disaster assistance package (House Bill 2) recommendations to the General Assembly and calls a special session. Governor McCrory then signs the Hurricane Matthew Recovery Act to fund disaster recovery efforts.

This supplemental federal assistance was to focus on housing, infrastructure, economic development, and the environment. These four pillars were to be funded through the following programs and agencies: The U.S. Department of Housing and Urban Development’s Community Development Block Grant–Disaster Recovery (CDBG-DR) program, Army Corps of Engineers Operations and Maintenance, the FEMA National Dam Safety Program, the Federal Highway Administration’s Emergency Highway Funding, and the U.S. Department of Agriculture’s Emergency Conservation and Watershed Protection programs.

## **Resilient Redevelopment Planning**

The purpose of the NCRRP program is to provide a roadmap for communities in eastern North Carolina to rebuild and revitalize after being damaged by Hurricane Matthew. The program empowers communities to prepare locally driven, resilient redevelopment plans to identify redevelopment strategies, innovative reconstruction projects, and other actions to allow each community not only to survive, but also to thrive in an era when natural hazards are increasing in severity and frequency.

The NCRRP process employs a holistic approach to planning that includes four pillars: housing, infrastructure, economic development, and the environment. Redevelopment strategies and reconstruction projects for each of the four pillars is included in each plan.

The NCRRP process consists of planning and implementation phases and is managed through North Carolina Emergency Management (NCEM).

## Scope of the Plan

This document is a snapshot of the County’s current needs for achieving holistic recovery and redevelopment. The plan will evolve as the County analyzes the risk to its assets, identifies needs and opportunities, determines the potential costs and benefits of projects, and prioritizes the projects. As projects are more fully defined, the potential impact on neighboring communities and the region may lead to modifications.

Planning objectives are to (1) develop strategic, resilient redevelopment plans and actions, and (2) to define any unmet funding needed to implement such actions after taking into account other funding sources.

The resulting resilient redevelopment plans will be the foundation for any supplemental funding received through Congress, the North Carolina General Assembly, and other funding sources. These plans will also be the basis for the state’s Recovery Action Plan, which is required by the U.S. Department of Housing and Urban Development before the state can expend funds received from the CDBG-DR program.

## Local Participation and Public Engagement

Stakeholder engagement and public involvement was an essential component of the NCRRP initiative. Three robust rounds of discovery, analysis, collaboration, and interaction were held with each affected county. Each meeting had two components: an in-depth working session with county officials, subject matter experts, and planners from the affected counties and municipalities; and a public open house. The purpose of each meeting was as follows:

**Meeting 1** – Initiated the planning process and validated the existing data pertaining to damage and impacts.

**Meeting 2** – NCEM presented draft documentation of resilient redevelopment strategies and received feedback from community leaders and the public.

**Meeting 3** – NCEM presented refined resilient redevelopment strategies based on feedback from Meeting 2 and received additional feedback for finalization of the plan.

Each of the 50 counties that were declared a major disaster by the President of the United States as a result of Hurricane Matthew under the Stafford Act (P.L. 93-288) participated in the resilience redevelopment planning process. Each municipality in those counties, as well as the five economic development regions that sustained damage from Hurricane Matthew, were also invited to participate.

The counties impacted by the storm cover the eastern half of North Carolina and occupy parts of the piedmont, sand hills, and coastal areas of the state. A map depicting Johnston County and surrounding counties is shown below.

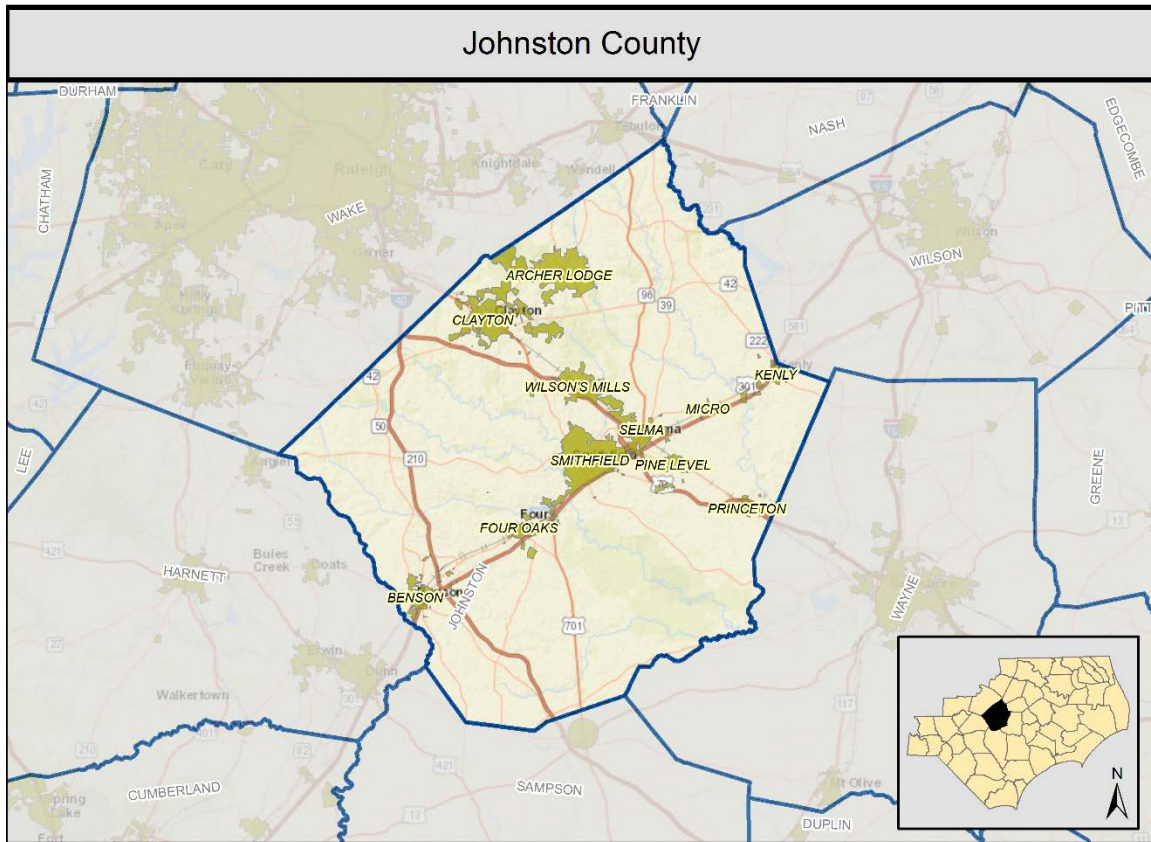


Figure 2. Johnston County and Neighboring Counties

### Data, Assumptions, and Methodologies

NCEM has assembled a wealth of data, resources, and technical expertise from state agencies, the private sector, and the University of North Carolina system to support the development of innovative best practice strategies.

Implementation of the proposed projects and actions described in this plan is subject to applicable federal, state, and local laws and regulations. Inclusion of a project or action in this plan does not guarantee that it will be eligible for recovery funding. However, proposed projects or actions may be eligible for state or federal funding or could be accomplished with municipal, nonprofit, or private investment.



An aerial photograph showing a residential neighborhood severely affected by flooding. The water is a murky brown color, inundating the yards and surrounding wooded areas. Several houses with grey roofs are visible, some partially submerged. A network of roads and paths crisscrosses the flooded area. The text "2. County Profile" is overlaid in a dark blue font in the upper-middle section of the image.

## 2. County Profile



## 2. County Profile

Johnston County is located in eastern North Carolina between the cities of Raleigh and Goldsboro. It is comprised of 11 census-designated places: Town of Archer Lodge, Town of Benson, Town of Clayton, Town of Four Oaks, Town of Kenly, Town of Micro, Town of Pine Level, Town of Princeton, Town of Selma, Town of Smithfield, and Town of Wilson's Mills. Its current population is 178,396. This section provides a profile of housing, economics, infrastructure, environment, and administration within Johnston County.

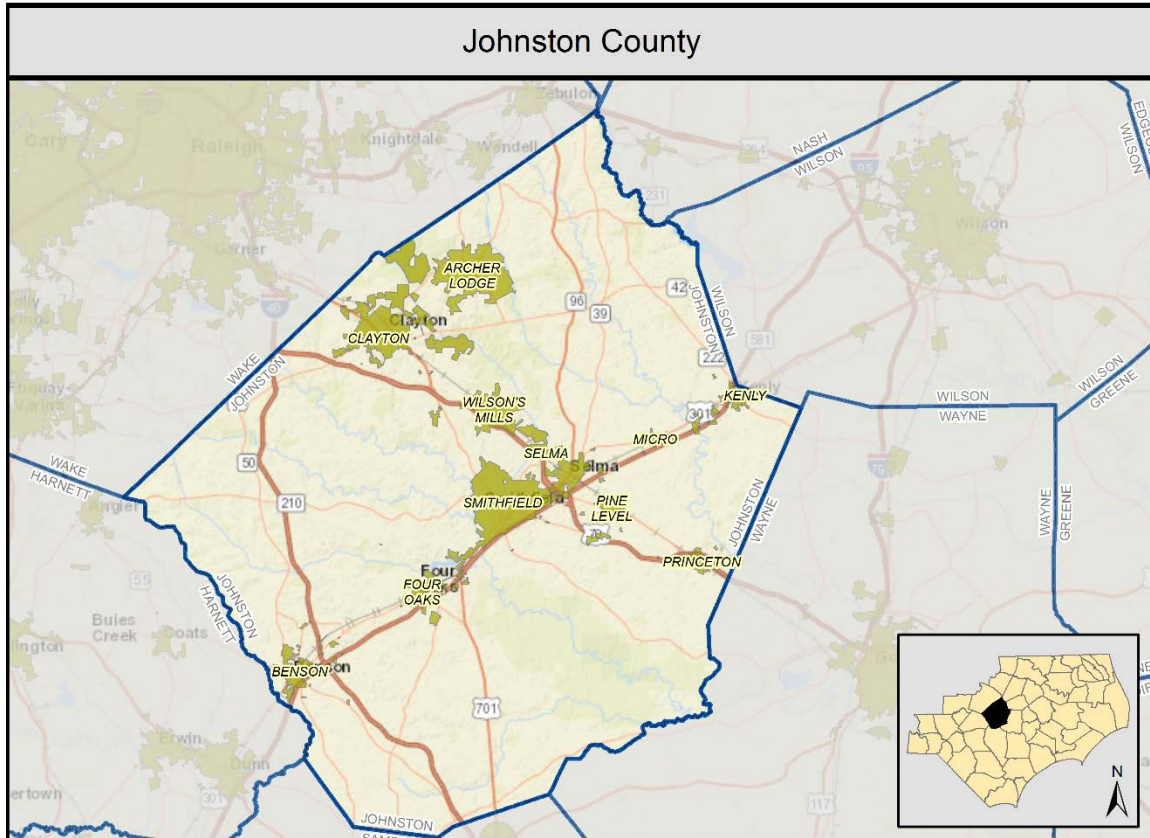


Figure 3. Johnston Base Map

### Demographic Profile

Demographics for Johnston County and census-designated places within the county are summarized and compared to statewide averages in this profile. The demographic data are from the 2000 Census, 2010 Census, and 2011-2015 American Community Survey five-year estimates.

### Population

Johnston County has a population of 178,396. Clayton is the most populous place within Johnston County, with a population of 17,869. Micro is the least populous place, with a population of 603.<sup>3</sup>

### Population Change (2000 to 2010)

The Johnston County population increased in the decade between the 2000 Census and the 2010 Census. In 2000, the population was 121,971 and in 2010 it was 168,878. The population increased by 46,907 people, or

<sup>3</sup> Source: U.S. Census Bureau, American Community Survey 5-Year Estimates (2011-2015), Table B01001, "Sex by Age."



38.5 percent. In comparison, North Carolina grew by 19 percent from 8,049,313 people in 2000 to 9,535,483 in 2010.<sup>4</sup>

## Age

The median age in Johnston County is 37.4 years old, which is lower than the average for North Carolina (41.6 years old). Within Johnston County, the Smithfield population has the oldest median age at 44 years old, and the Wilson's Mills population has the youngest median age at 28.8 years old.<sup>5</sup>

## Race and Ethnicity

Johnston County is mostly White (78.4 percent) and African American (15 percent), with other races constituting the remaining 6.6 percent. In comparison, North Carolina is 70 percent White, 22 percent African American, 1 percent American Indian and Alaska Native, 3 percent Asian, less than 1 percent Native Hawaiian/Pacific Islander, 3 percent Some Other Race, and 2 percent Two or More Races. Refer to the table below.

Within Johnston County, all municipalities are predominantly White, but to varying degrees. In Kenly, 44 percent of the population identifies as Black or African American and nearly 33 percent in Wilson's Mills identifies as Black or African American.

The Latino population in Johnston County is 13.2 percent compared to 9 percent for North Carolina. Selma has the largest Latino population (46.7 percent), while Micro has the smallest Latino population at 2 percent according to the census data.<sup>6</sup>

Geography	White	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian/ Pacific Islander	Some Other Race	Two or More Races	Total Non-White
Archer Lodge town	80.1%	10.1%	0.0%	2.7%	0.0%	4.2%	2.9%	19.9%
Benson town	70.1%	11.3%	0.0%	1.2%	0.0%	16.9%	0.5%	29.9%
Clayton town	71.5%	22.9%	1.1%	0.4%	0.0%	2.3%	1.9%	28.5%
Four Oaks town	75.8%	14.9%	0.5%	4.4%	0.0%	2.9%	1.4%	24.2%
Kenly town	51.9%	44.1%	0.6%	0.0%	0.0%	2.7%	0.7%	48.1%
Micro town	84.7%	13.4%	0.0%	0.0%	0.0%	0.3%	1.5%	15.3%
Pine Level town	79.8%	12.1%	0.1%	0.2%	0.0%	6.4%	1.5%	20.2%
Princeton town	71.8%	22.1%	0.0%	0.0%	0.0%	3.9%	2.2%	28.2%
Selma town	50.0%	30.1%	0.2%	0.4%	0.1%	17.8%	1.4%	50.0%
Smithfield town	63.2%	26.1%	0.0%	2.8%	0.0%	5.7%	2.2%	36.8%
Wilson's Mills town	59.2%	32.6%	0.0%	0.0%	0.0%	7.1%	1.1%	40.8%
Johnston County	78.4%	15.0%	0.5%	0.7%	0.0%	3.0%	2.3%	21.6%
North Carolina	69.5%	21.5%	1.2%	2.5%	0.1%	3.0%	2.4%	30.5%

**Table 2. Johnston County Race and Ethnicity**

<sup>4</sup> Source: Minnesota Population Center. National Historical Geographic Information System: Version 11.0 [Database]. Minneapolis: University of Minnesota. 2016. <http://doi.org/10.18128/D050.V11.0>. Census 2000/Census 2010 Time Series Tables Geographically Standardized

<sup>5</sup> Source: U.S. Census Bureau, American Community Survey 5-Year Estimates (2011-2015), Table B01001, "Sex by Age."

<sup>6</sup> Source: U.S. Census Bureau, American Community Survey 5-Year Estimates (2011-2015), Table B02001, "Race" and Table B03002, "Hispanic or Latino Origin by Race."

### Limited English Proficiency

Limited English Proficiency (LEP) is defined as populations 18 years or older that speak English less than very well. In Johnston County, most individuals identified as LEP speak Spanish, while others speak Indo-Euro, Asian/Pacific, or other languages. Similarly, the primary language group for LEP individuals in North Carolina is Spanish. Within Johnston County, Selma has the largest LEP population. The primary language group for LEP populations in Selma is Spanish.<sup>7</sup>

### Poverty

In Johnston County, 15.4 percent of the population is below the poverty level compared to 17 percent of the North Carolina population. In Selma, 42.7 percent of the population is below the poverty level, while Archer Lodge is only 1.9 percent.<sup>8</sup>

### Low- and Moderate-Income Individuals

In Johnston County, 48.8 percent of the population is classified as low- and moderate-income (LMI) individuals based on the U.S. Department of Housing and Urban Development's definition. In comparison, 39 percent of the North Carolina population is classified as LMI.<sup>9</sup>

### Median Household Income

The median household income of the population aged 25 years old to 64 years old is \$57,151 in Johnston County and \$53,000 in North Carolina. Clayton has the highest median household income for this age group at \$65,473, and Kenly has the lowest median income at \$25,896. The census does not include data for Four Oaks, Princeton, Selma, or Smithfield.<sup>10</sup>

### Zero Car Households

In Johnston County, nearly 5 percent of households do not have a vehicle available compared to 7 percent of North Carolina households. Within Johnston County, Kenly has the highest percentage of households without access to a vehicle at 21.7 percent, while Clayton has the lowest percentage at 2.9 percent.<sup>11</sup>

<sup>7</sup> Source: U.S. Census Bureau, American Community Survey 5-Year Estimates (2011-2015), Table B16004, "Age by Language Spoken at Home by Ability to Speak English for the Population 5 Years and Over."

<sup>8</sup> Source: U.S. Census Bureau, American Community Survey 5-Year Estimates (2011-2015), Table C17002, "Ratio of Income to Poverty Level in the Past 12 Months."

<sup>9</sup> Source: U.S. Department of Housing and Urban Development, Estimate of Low and Moderate Income Individuals, <https://www.hudexchange.info/programs/acs-low-mod-summary-data/acs-low-mod-summary-data-block-groups-places/>

<sup>10</sup> Source: U.S. Census Bureau, American Community Survey 5-Year Estimates (2011-2015), Table B19094, "Median Household Income in the Past 12 Months."

<sup>11</sup> Source: U.S. Census Bureau, American Community Survey 5-Year Estimates (2011-2015), Table B25044, "Tenure by Vehicles Available."

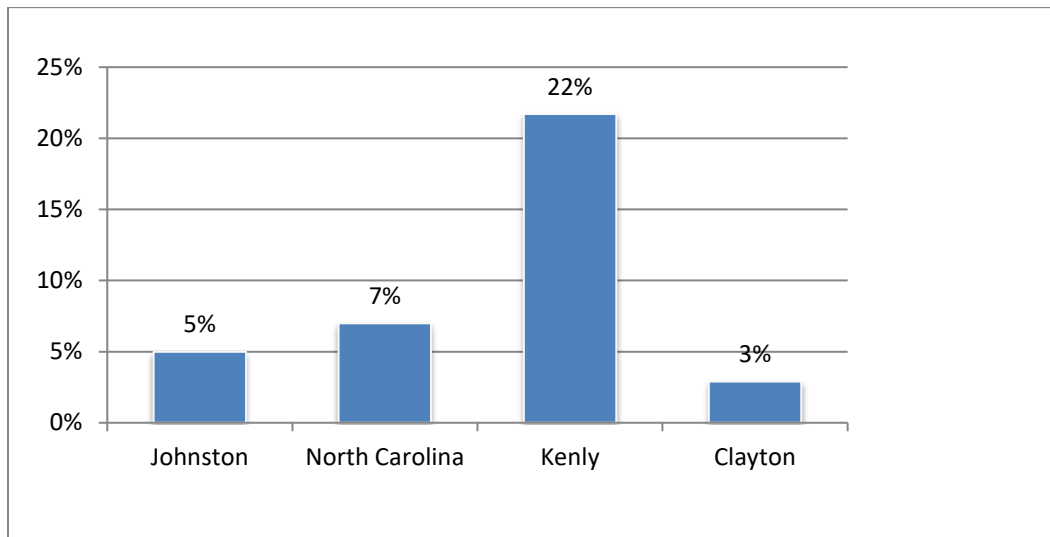


Figure 4. Zero Car Households by Percentage

### Commuting: Travel Time to Work, Means of Transportation

The majority of Johnston County residents, 82.9 percent, commute alone to work by vehicle, which is slightly higher than the North Carolina average of 81 percent. Within Johnston County, Micro has the largest percentage of commuters traveling alone at 98.6 percent, and Archer Lodge has the smallest percentage at 69.3 percent.

Four Oaks has the largest percentage of residents commuting by public transportation: 1.2 percent. In comparison, 1 percent of North Carolina commuters use public transportation. A greater percentage of Four Oaks residents, 4.8 percent, commute by walking, bicycle, or motorcycle than the North Carolina average of 2 percent.

The mean commute time to work for Johnston County residents is 29.1 minutes. In comparison, the North Carolina mean commute time is 24.7 minutes. Within Johnston County, Smithfield has the shortest mean commute time at 22 minutes, while Archer Lodge and Selma have the longest commute time at 34 minutes.<sup>12</sup>

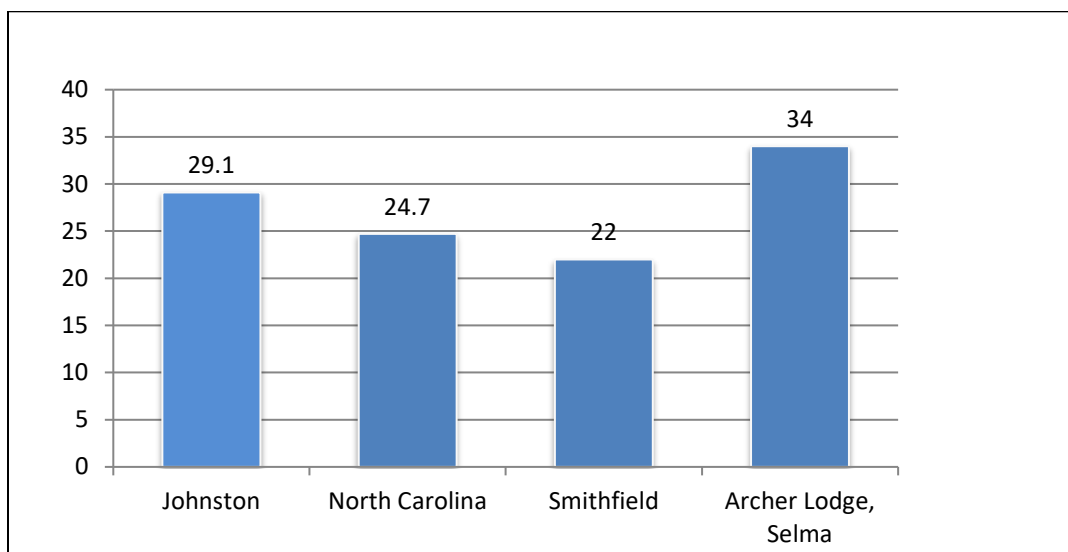


Figure 5. Mean Commute Time to Work in Minutes

<sup>12</sup> Source: U.S. Census Bureau, American Community Survey 5-Year Estimates (2011-2015), Table B08301, "Means of Transportation to Work" and Table GCT0801, "Mean Travel Time to Work of Workers 16 Years and Over Who Did Not Work at Home (Minutes)."

## Housing Profile

Johnston County has more than 69,000 housing units, 73.4 percent of which are single-family homes, 9.6 percent are multi-family units, and 17 percent is manufactured housing.

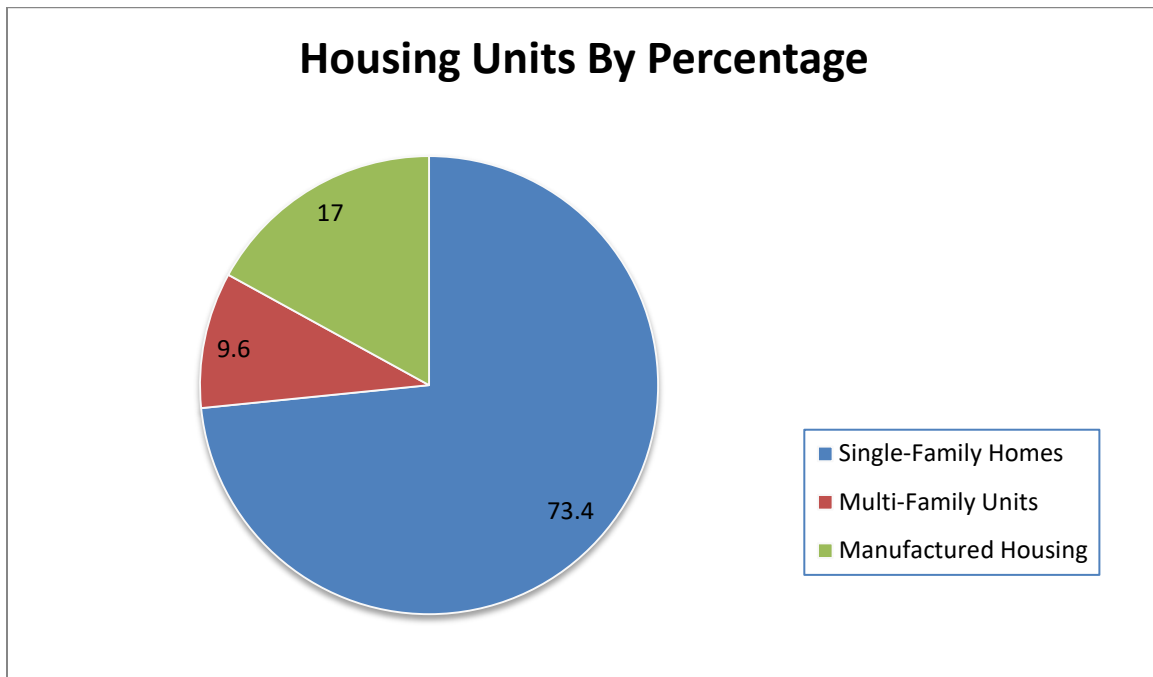


Figure 6. Housing Units By Percentage

In Johnston County, 10.8 percent of housing units are vacant, compared with 15 percent for North Carolina. Within Johnston County, Kenly has the largest percentage of vacant housing units at 26.6 percent, while Archer Lodge has the lowest vacancy rate at 3 percent.

Of the occupied housing units, 70.8 percent are owner-occupied compared to 65 percent in North Carolina; 29.2 percent are renter-occupied compared to 35 percent in North Carolina.

The median housing value in Johnston County is \$145,500. In comparison, the median housing value in North Carolina is \$140,000. Within Johnston County, Clayton has the highest median housing value: \$157,900. Micro and Selma have the lowest median housing value at \$85,400.

According to the National Housing Preservation Database, Johnston County has 2,733 affordable housing units. Most of the affordable housing is located in incorporated areas.<sup>13</sup>

## Economic / Business Profile

Johnston County is home to a diverse array of businesses, from aerospace manufacturing to biotech and pharmaceutical companies. According to the U.S. Census Bureau's Longitudinal-Employer Household Dynamics Program, the largest concentrations of jobs within Johnston County are in downtown Smithfield, at the Market

<sup>13</sup> Sources: U.S. Census Bureau, American Community Survey 5-year Estimates (2011-2015), Table B25002, "Occupancy Status," Table B25003, "Tenure," Table B25024 "Units in Structure," Table B25077, "Median Value (Dollars)." National Housing Preservation Database

Street interchange with Brightleaf Boulevard, and near the intersection of U.S. Highway 70 (US 70) and Interstate 95 (I-95).<sup>14</sup>

## Labor Force

According to the local area unemployment statistics (LAUS) from the Labor and Economic Analysis Division (LEAD) for the unadjusted data for all periods in 2016, the civilian labor force population of Johnston County is 91,112.<sup>15</sup> Within Johnston County, Archer Lodge has the largest percentage of residents in the labor force at 81.7 percent, while Smithfield has the smallest percentage at 48.7 percent.

The civilian unemployment rate in Johnston County is 5.3 percent. In comparison, the North Carolina civilian unemployment rate is 5.1 percent.<sup>15</sup> Within Johnston County, Archer Lodge has the smallest civilian unemployment rate at 4.5 percent, while Selma has the largest rate 19.9 percent.<sup>16</sup>

## Major Employers

The top 10 employers in Johnston County represent the manufacturing, public administration, education and retail, and professional services fields. They are listed in order of total employees:<sup>17</sup>

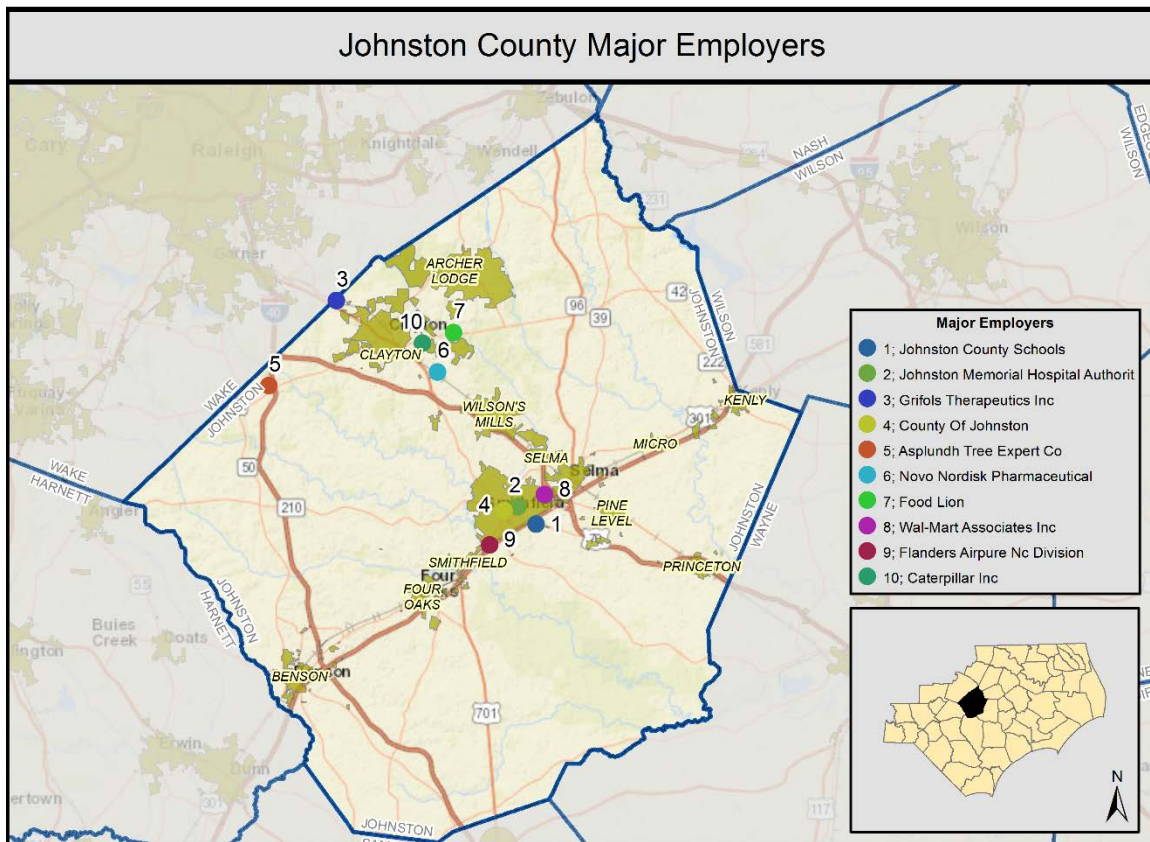


Figure 7. Major Employers by Number of Employees

<sup>14</sup> Source: U.S. Census Bureau Longitudinal-Employer Household Dynamics Program

<sup>15</sup> Source: Civilian Population and Unemployment Rate - Labor and Economic Division (LEAD) of North Carolina Department of Commerce – Local Area Unemployment Statistics <http://d4.nccommerce.com/LausSelection.aspx>

<sup>16</sup> Source: U.S. Census Bureau, American Community Survey 5-Year Estimates (2011-2015), Table B23025, "Employment Status for the Population 16 Years and Over."

<sup>17</sup> Sources: NC Department of Commerce



## Economic Development

Of Johnston County's workforce, 22 percent is employed in manufacturing. Manufacturing operations include companies such as Caterpillar, Novo Nordisk, Grifols, and more, as well as numerous distribution operations.

Because of interconnecting interstates and U.S. highways, labor migration in and out is accomplished easily. A significant portion of Johnston County's workforce commutes to work from outside the county, primarily in Wake County.

The county is strategically located east of the State Capitol of Raleigh in Wake County. The area forming the Wake County/Johnston County border has recently developed as a vibrant commercial and housing market attracting retail and residential opportunities for thousands of new residents. It is estimated that more than 70 percent of all new building permits issued within Johnston County occur within this western portion of the county.<sup>18</sup>

## Infrastructure Profile

Transportation, health, education, water, and power infrastructure are summarized for Johnston County in the sections that follow.

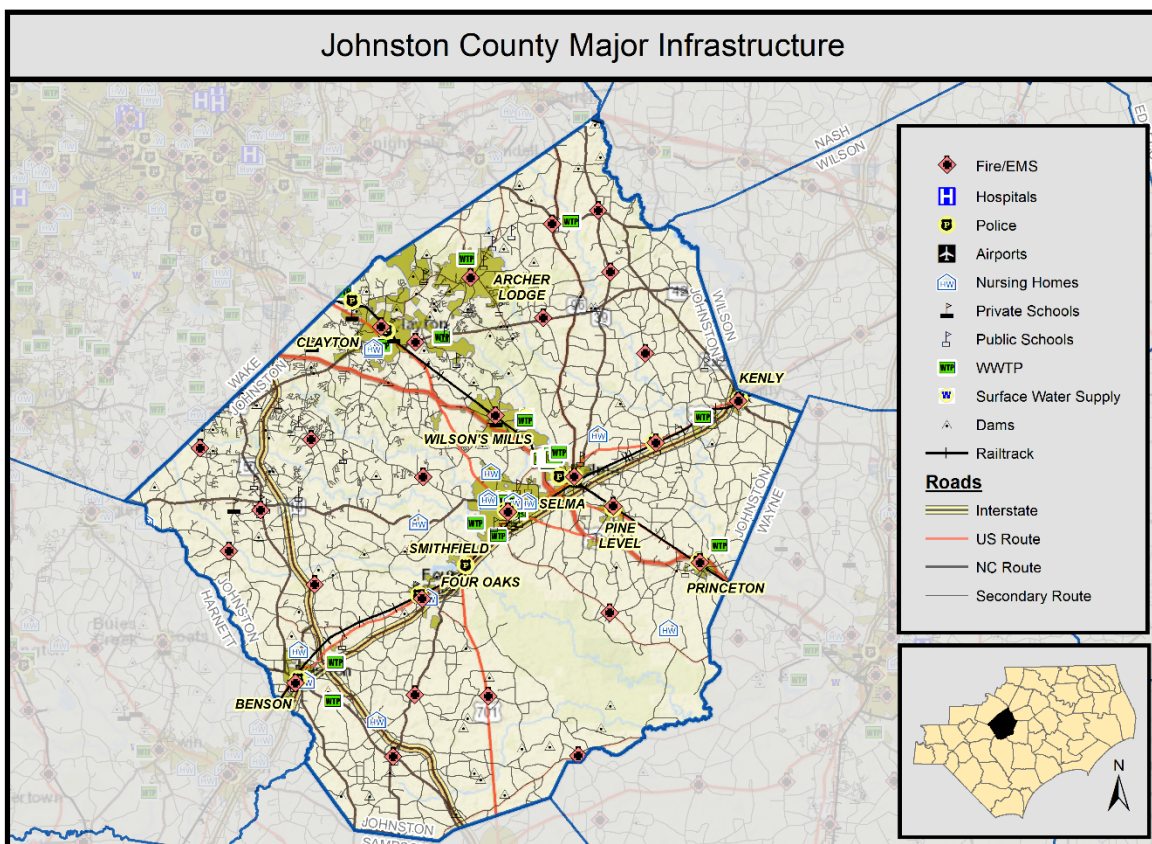


Figure 8. Johnston County Major Infrastructure

<sup>18</sup> Sources: Johnston County Economic Development

## Transportation

Johnston County has experienced explosive growth in the western portion of the county due to its proximity to the State Capitol. As a result of this growth, average daily traffic counts have increased exponentially on the interstate highway networks and four-lane divided highways of US 70 Business and Bypass. More than one million cars per month traverse the north-south corridor established by I-95. An even higher volume of traffic utilizes US 70 between I-95 and the State Capitol.

Johnston County Airport Authority operates an airport located west of Smithfield. The airport maintains a 5,500-foot-long, 100-foot-wide runway that easily supports 65,000 pounds for dual-gear aircraft. The airport offers a full instrument landing system (ILS) with distance-measuring equipment and associated approach lighting (<http://johnstonnc.com/jnx/>).

The CSX Railway runs through Johnston County as well.

## Health

There are two main hospitals in Johnston County. Both are operated by Johnston Health, Johnston County's healthcare system. One is in Clayton and the other is in Smithfield.

## Education

In terms of schools, there are 23 elementary, 13 middle, and 10 high schools within the Johnston County School System. Johnston County Community College also is located in Smithfield.<sup>19</sup>

## Water

Water and wastewater systems are critical to the county, as they not only provide services to the citizenship, but are also relied upon by the pharmaceutical manufacturing industry within the county. The central Johnston County wastewater treatment facility is in Smithfield in close proximity to the Neuse River.<sup>20</sup>

## Power

There are 14 solar farms located within Johnston County. Of the power plants, the greatest max summer capacity is 5.2 megawatts.<sup>21</sup>

## Environmental Profile

Water resources, natural areas, managed areas, biodiversity, wildlife habitat, and recreation are summarized for Johnston County in the sections that follow.

## Water Resources

The two most prominent rivers in Johnston County are the Neuse River and the Little River. The Neuse River runs the entire length of the county from the northwest to the southeast.

Other notable water features are the Buckhorn Reservoir and Holts Lake. The Buckhorn Reservoir is in the extreme northernmost tip of the county. It serves as the primary water supply for the City of Wilson, outside of

<sup>19</sup> Sources: Johnston County Public Schools and Johnston Community College

<sup>20</sup> Sources: NC Division of Water Resources, Local Water Supply Plans; and the Neuse Regional Water and Sewer Authority

<sup>21</sup> Source: U.S. Department of Energy, U.S. Energy Mapping System

Johnston County, but also doubles as a source of recreation for the citizens of the surrounding counties. Holts Lake is a private lake serving the residents of the community at the Country Club of Johnston County.

### **Natural and Managed Areas**

According to the North Carolina Natural Heritage Program, Johnston County has natural areas of high, very high, or exceptional value. There are several managed areas under state ownership within Johnston County. Managed areas are properties and easements where natural resource conservation is one of the current primary management goals, or they are of conservation interest. These areas in Johnston County include: Howell Woods and the Neuse River southeast of I-95.<sup>22</sup>

### **Biodiversity and Wildlife Habitat**

The North Carolina Natural Heritage Program produces a biodiversity and wildlife habitat assessment for the state. According to this assessment, areas with the highest rating for biodiversity and wildlife habitat are along the Neuse River and its tributaries. These areas rank between a 7 and 10, with 10 being the highest possible score. Other areas of the county rank between 5 and 6. Most of the county is unrated.<sup>23</sup>

### **Parks and Recreation**

The Johnston County Parks and Recreation Department maintains several parks and facilities in Johnston County. Facilities available include: Clemmons Educational State Forest, Howell Woods Environmental Learning Center, Legend Park—Mountain Biking Trail, Neuse Adventure Canoe & Kayak, Tucker Lake, and the Mountains to Sea Trail.<sup>24</sup>

### **Administrative Profile**

Johnston County participated in the *Cape Fear Regional Hazard Mitigation Plan*, which was last updated in 2016. The county has emergency services and planning departments with the capacities to assist in hazard mitigation planning and disaster preparedness.<sup>25</sup>

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<sup>22</sup> Source: NC Natural Heritage Program

<sup>23</sup> Source: NC Natural Heritage Program

<sup>24</sup> Sources: Johnston County Recreation Department

<sup>25</sup> Sources: Johnston County Emergency Services





### 3. Storm Impact

### 3. Storm Impact

#### Rainfall Summary

Hurricane Matthew officially made landfall as a Category 1 storm southeast of McClellanville, South Carolina, early on October 8, 2016. The track and speed of the storm resulted in nearly two days of heavy precipitation over much of North Carolina that caused major flooding in parts of the eastern Piedmont and Coastal Plain. The storm produced widespread rainfall of three inches to eight inches in the central regions of North Carolina and eight inches to more than 15 inches in parts of eastern North Carolina. A number of locations received all-time record, one-day rainfall amounts. Many locations in the Coastal Plain of North Carolina already had received above-normal rainfall in the month of September leading to wet antecedent conditions prior to Hurricane Matthew. Total rainfall depth for Johnston County is highlighted graphically in the figure below.

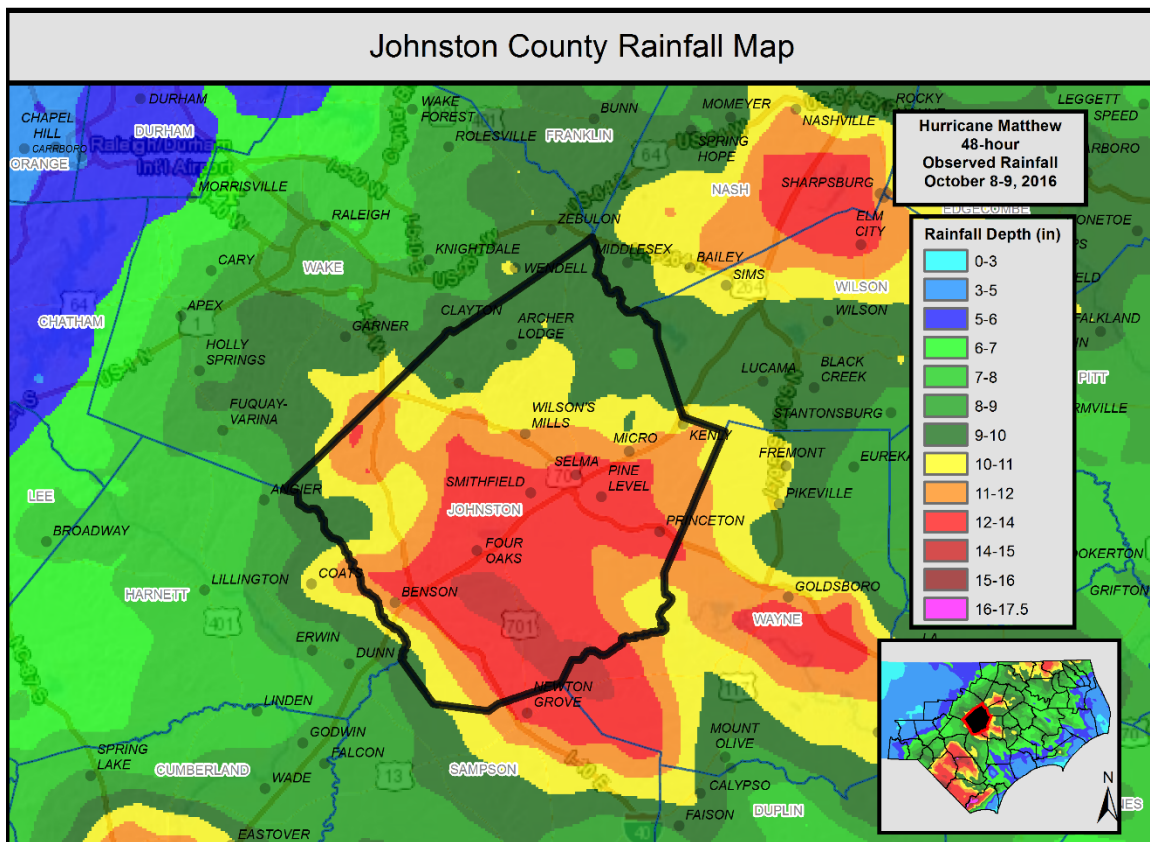


Figure 9. 48-hour Observed Rainfall Depth (October 8-9, 2016)

#### Riverine Flooding Summary

The effects of Hurricane Matthew on Johnston County were devastating, especially along the Neuse River, Little River, Hannah Creek, and where several major streams converge with the Neuse River. U.S. Geological Survey (USGS) documented stream gauge data in the report, *Preliminary Peak Stage and Streamflow Data at Selected Streamgaging Stations in North Carolina and South Carolina for Flooding Following Hurricane Matthew, October 2016*. Stream gauge data from the USGS report for Johnston County and nearby gauges is summarized below.



USGS Gage	County	River Name and Location	Drainage Area (sq mi)	Peak Matthew Elevation (ft)	Previous Record (ft)
02087500	Johnston	Neuse River near Clayton	1,150	127.4	125.7
02087570	Johnston	Neuse River at Smithfield	1,206	71.6	70.8

Table 3. Johnston County USGS Stream Gage Data

## Housing

According to FEMA Individual Assistance claims as of March 17, 2017, there were 1,683 registrations for Individual Assistance in Johnston County as a result of Hurricane Matthew. It should be noted that additional claims from Hurricane Matthew still may be pending, so this number may not reflect the final claims data from the event. This also does not take into account other historic impacts to the county or other areas of concern for flooding that may not have occurred during this storm. With that in mind, the planning team attempted to take a comprehensive look at both Hurricane Matthew impacts and any historic impacts that local officials felt would validate areas that should be considered at high risk to future flooding.

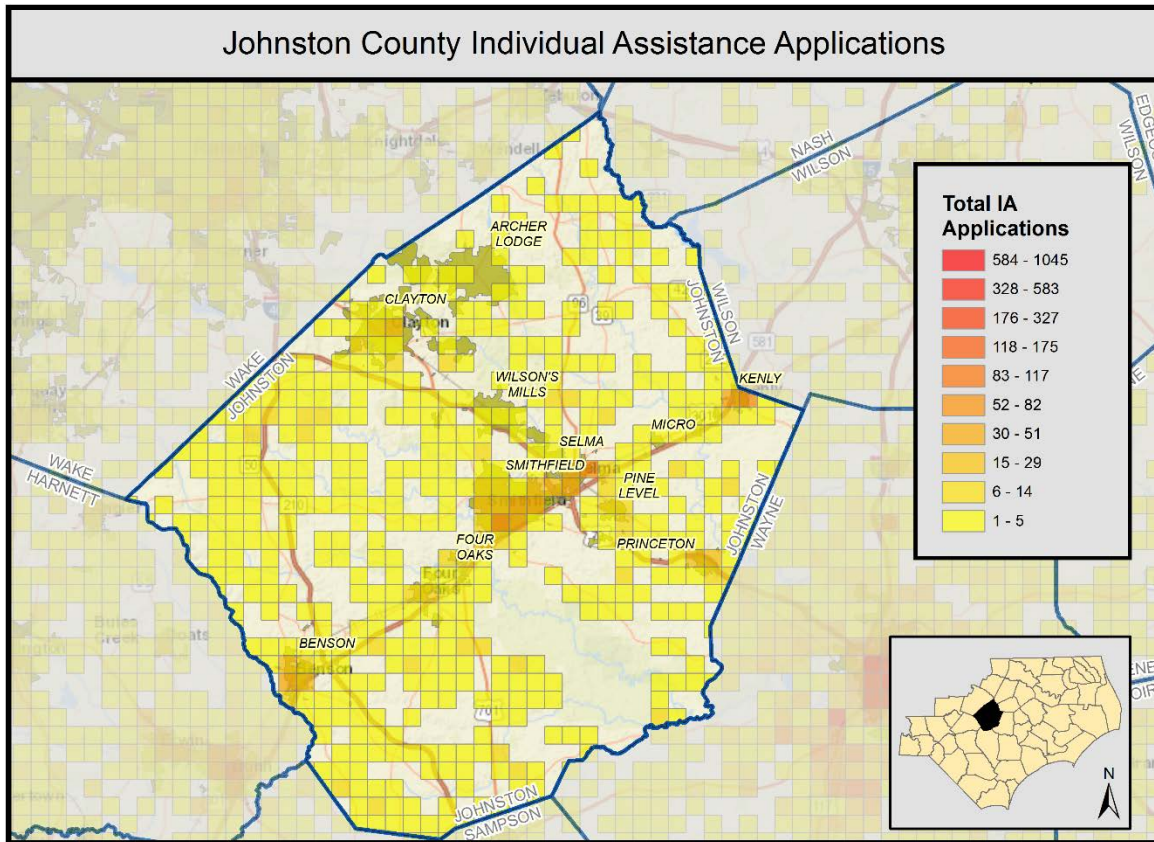


Figure 10. Johnston County IA Applications by Area

Some of the major impacts to housing that were identified by local officials from the event include:

- **Impacted Homes:** The Town of Smithfield sustained the most damage, with 25 properties flooded. Other damaged homes are spread out in the towns of Princeton, Kenly, and Benson, and in unincorporated areas in the southwest part of Johnston County near the Neuse River.

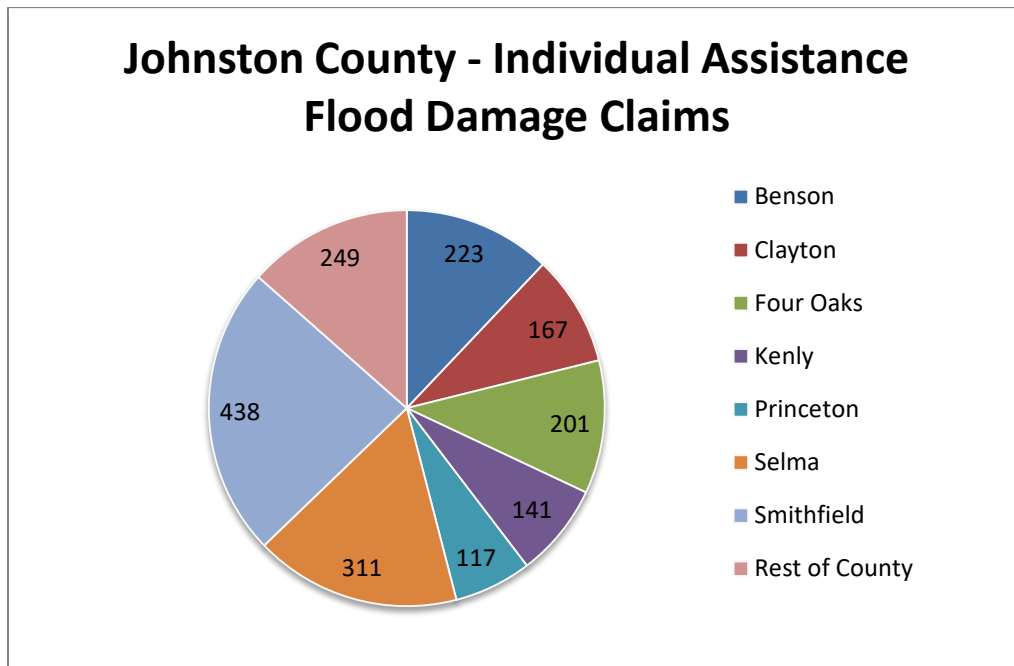


Figure 11: Number of IA Flood Damage Claims by Area

- **Shortage of Rental Housing:** There was a large shortage of rental housing for displaced families in the aftermath of Hurricane Matthew.

### Economics / Businesses / Jobs

Despite population growth and expanding urban areas, Johnston County remains predominantly rural, with approximately 91 percent of the county classified as agricultural land, forestland, water, or wetland. The most heavily impacted economic sector was the farming community and agribusiness, as standing floodwaters can have significant damage on crops. It has been estimated that the farming community sustained nearly \$19 million in crop, livestock, and structural losses.

When vital infrastructure such as electricity, natural gas, and water facilities fail, this has a huge economic impact on businesses. Within Johnston County, multiple streets and structures flooded, and power outages created issues for many businesses and their employees. Pharmaceutical manufacturing facilities used old on-site waste storage facilities to continue production while the County sewer service was interrupted. Flooded businesses did not have Business Preparedness or Recovery Plans in place and weren't sure how to even begin the recovery process.

The Top 10 major employers in the county experienced the following notable impacts:

- **Johnston County Schools:** Facilities were closed for a week due to road closures and flood/rain damaged schools. At the county facilities building, flooding damaged vehicles as well as servers and other contents. Insurance did not fully cover those losses. Several schools were used as shelters and had to be restored prior to resuming classes.
- **Johnston Memorial Hospital Authority:** Smithfield water issues required potable water to be brought in for hospital function.

- **Grifols Therapeutics, Inc.:** Though the facility is not located in a floodprone area, loss of water and wastewater service from Johnston County-owned facilities created an issue. The company found a continuity process and allocated resources on site to continue production.
- **County of Johnston:** Facilities were closed for a few days and limited services were available to the public. Multiple departments staffed 24-hour operations to support the County Emergency Operations Center which remained open for a week.
- **Novo Nordisk Pharmaceutical:** Expansion of this business currently under construction will bring one million square feet of covered work space. This \$2 billion-dollar facility will be a future concern as it will house hundreds of employees as well as thousands of contractors that need to be able to access the facility during and after flooding occurs in the county.
- **Food Lion and Wal-Mart Associates, Inc.:** Facilities along I-95 in the southern portion of the county had limited access and closed during flooding. Employees were at risk attempting travel to work due to flooding and road closures.

### Infrastructure

According to Public Assistance claims, which often are tied closely to infrastructure damage, as of March 17, 2017, there were \$11,199 of claims in Johnston County as a result of Hurricane Matthew. It should be noted that additional claims from Hurricane Matthew still may be pending, so this number may not reflect the final claims data from the event.

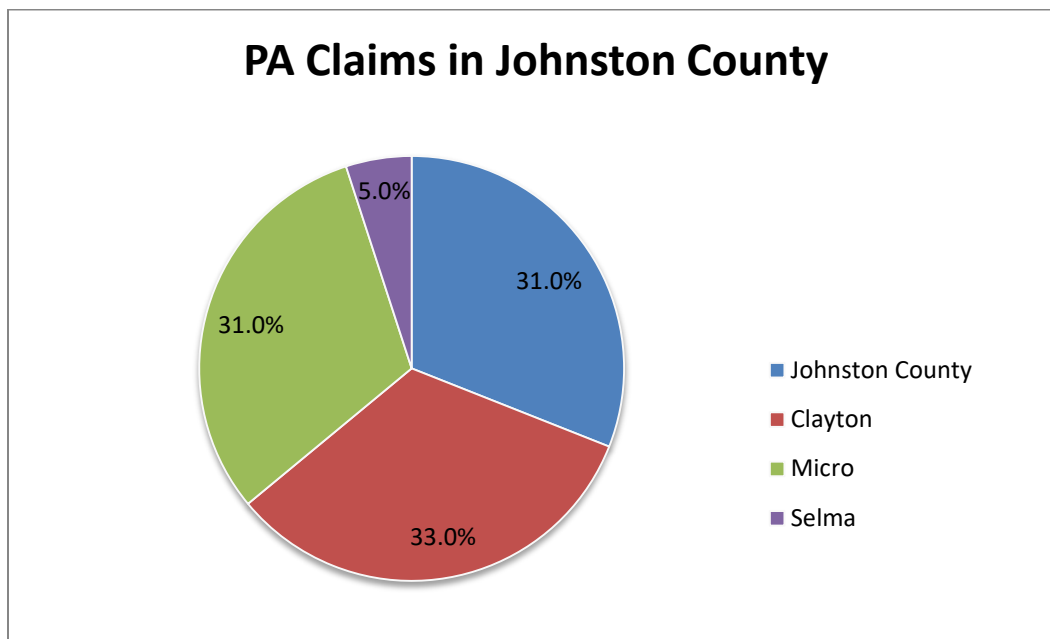


Figure 12. Johnston County PA Claims by Area and Percentage

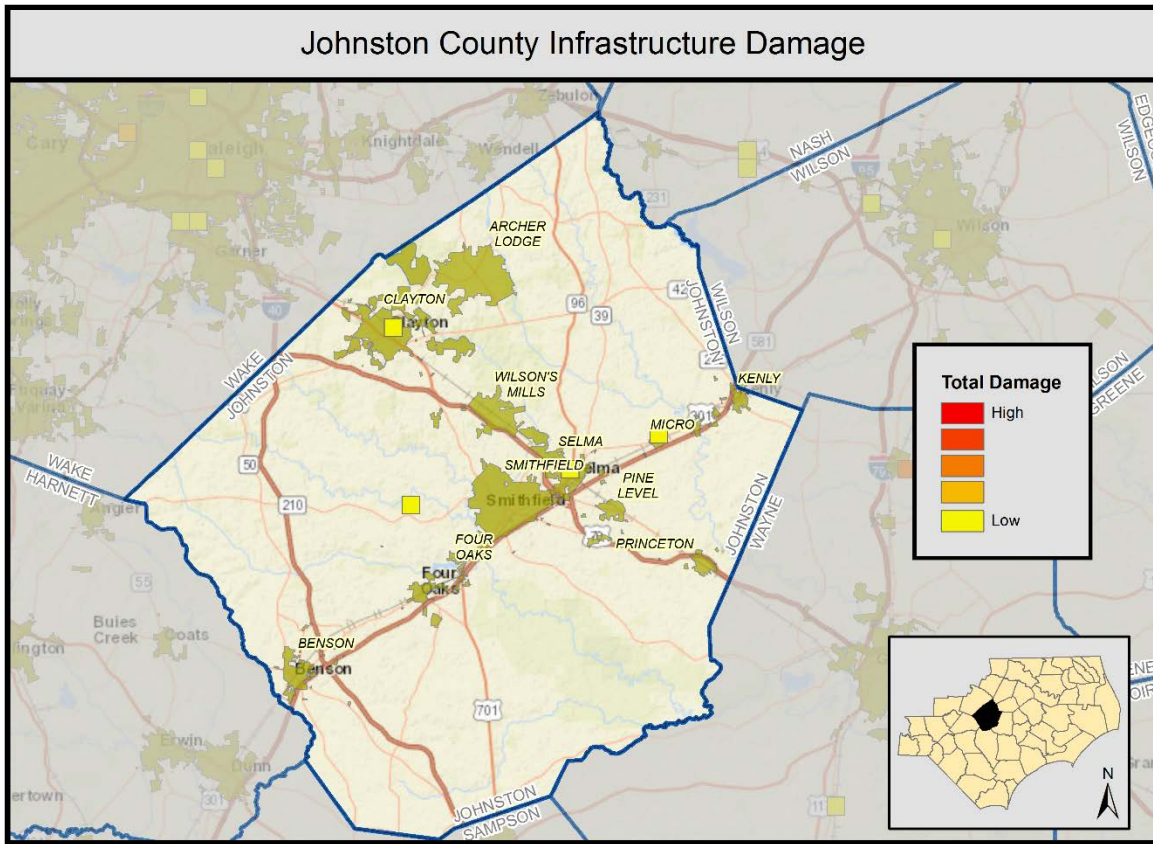


Figure 13. Johnston County Infrastructure Damage

County infrastructure was one of the greatest areas of concern in the wake of Hurricane Matthew, as there were several types of infrastructure that were damaged or threatened in multiple locations. Some of the major impacts to infrastructure that were identified by local officials from the event include:

- **Roads/Bridges:** Flooding overtopped Interstate 95 (I-95) in multiple locations, making it impassable and causing emergency services to be paralyzed. The flooding over I-95 in Four Oaks resulted in one death. Interstate 40 (I-40) also was closed in several places and many secondary roads were flooded or washed out.



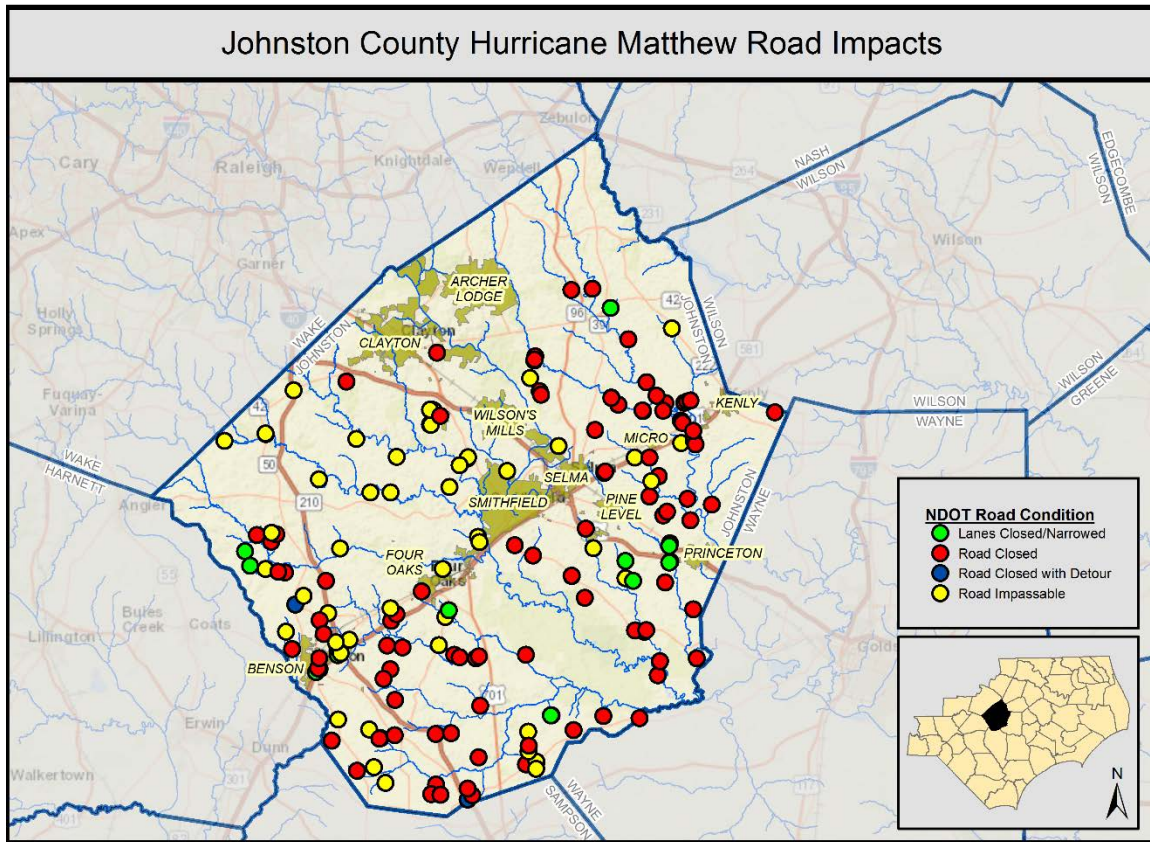


Figure 14. Impacted NCDOT Structures in Johnston County

- **Railroad:** A portion of track near Princeton was washed out.
- **Wastewater:** The Towns of Benson, Clayton, Kenly, and Princeton operate separate wastewater treatment plants. The Towns of Smithfield, Selma, Pine Level, Four Oaks, and a portion of the Town of Clayton's service areas is treated by the Central Johnston County Wastewater Treatment Plant located in Smithfield. Several of these facilities flooded due to Hurricane Matthew. The County recently completed a study on the Smithfield facility to evaluate the cost-to-benefit ratio to raise the existing levy or relocate the facility outside of the flood plain. The financial impacts range from \$4 million to \$100 million.
- **Stormwater:** Many culverts are either non-maintained or grossly undersized, which created a multitude of issues during Hurricane Matthew. Multiple culverts have been identified as high priority in the Towns of Benson, Smithfield, Princeton, Kenly, and Four Oaks, as well as in unincorporated areas of the county.
- **Drinking Water:** The County has one water treatment plant and bulk water purchase agreements with public utilities in adjacent counties. No damage occurred at the County's facility. However, there were water line breaks, and boiling alerts were issued. Due to the multiple bulk water purchase agreements the County has, when boiling alerts are issued it does cause confusion depending on which part of the county you live in.
- **Electricity:** Electricity in Johnston County is currently provided by several different electrical distributors. There were multiple power outages throughout the county; Smithfield was heavily impacted. The power outages required the police to direct traffic instead of helping the community with critical responses. The natural gas facility uses electrical pumps to remove stormwater. With the power outages, the fire department had to pump out the facility to get it back on-line.



- **Johnston County Schools:** The school district sustained structural damage at Princeton High School, flooding in the first floor at Smithfield Elementary, and the district’s maintenance facility was flooded.

### **Ecosystems / Environment**

Overall, environmental impacts in Johnston County as a result of Hurricane Matthew were relatively minimal. However, there were some impacts to the environment and ecosystems that brought to light underlying issues related to maintenance of environmental features that the county faces recurrently.

- **Natural Debris Buildup Causing Flooding:** Several low-water bridges across the county experienced a significant amount of debris buildup in streams. This debris is frequently in the form of downed trees and other buildup of natural remains. This debris then is caught underneath bridges and in culverts, causing a jam that backs up water upstream and results in flooding.
- **Flood Hazard/Risk Data:** Currently, the County is using old 2004 Flood Insurance Rate Map (FIRM) data to regulate base flood elevations throughout the county. The 2014 preliminary maps have not yet been finalized for adoption. There is concern that the 2014 preliminary base flood elevations may be too low. The lack of current credible flood hazard data causes confusion with officials and a growing concern with development to prevent future flooding.



## 4. Strategies for Resilient Redevelopment

## 4. Strategies for Resilient Redevelopment

This section provides details about the resilience and revitalization strategies and actions identified in Johnston County. These actions were identified and refined during three public meetings with local officials and county residents held in March and April 2017. The actions are tied to impacts from Hurricane Matthew and organized by the pillars of housing, economic development, infrastructure and environment. In addition to the public meetings, frequent coordination calls with County officials and data gathered from state agencies and organizations were utilized to formulate the actions listed below.

Meeting 1 was designed to introduce the community and County points of contact to the Resilient Redevelopment Planning process and goals. This meeting allowed the planning team to capture areas within the county that were damaged during Hurricane Matthew and to hear what potential mitigation actions had already been considered. Draft resilience actions were then presented at Meeting 2 of the planning process. This was done to garner general buy-in on the draft actions from the County-level planning teams and residents. More details on the actions were collected between Meetings 2 and 3 through research and follow-up phone calls and emails with the primary points of contact. Meeting 3 provided the opportunity to collect and finalize details for the draft actions. Meeting 4, scheduled in early May 2017, allowed the county points of contact to rank the identified actions, group them into High, Medium, and Low Priorities, and to approve their inclusion in the plan.

Pillar	Project/Action Count
Housing	2
Economic Development	3
Infrastructure	6
Environment	2
<b>Grand Total</b>	<b>12</b>

**Table 4. Johnston County Summary of Projects by Pillar**

The following table is ordered by the rankings and priorities provided by Johnston County during Meeting 4:

Pillar	Action Name	Priority	Overall Ranking
Environment	Improve Flood Hazard Data	High	1
Infrastructure	Public Utilities and Stormwater Mitigation	High	2
Housing	Residential Property Acquisition/Reconstruction/Elevation	High	3
Environment	Stream Restoration/ Debris Removal	Medium	4
Infrastructure	Backup/Redundant Power Solutions to Reduce Outage Issues	Medium	5
Infrastructure	Purchase Critical Emergency Response Equipment	Medium	6
Housing	Johnston County Emergency Response Shelter/Coordination	Medium	7
Economic Development	Agriculture Recovery Grant Project Technical Assistance	Medium	8
Economic Development	Johnston County Hurricane Matthew Business Recovery Advisor	Medium	9
Infrastructure	Natural Gas Storage Facility Pump Replacement and Switch	Medium	10
Infrastructure	Create Johnston County Emergency Services Building/EOC	Medium	11
Environment	Smithfield Greenway Stabilization/Repair	Medium	12

**Table 5. Projects by Rank**



On the following pages, we have organized the projects and actions by pillar. Within each pillar, the projects are grouped by county priority. Please note that maps are provided for all projects that have a specific location within the county. Projects without maps are county-wide projects that will benefit citizens throughout the county.

## Housing Strategies

### High Priority Housing Strategies

Pillar	Action Name	Priority	Overall Ranking
Housing	Residential Property Acquisition/Reconstruction/Elevation	High	3

Table 6. Johnston High Priority Housing Summary

This project represents the housing strategies that Johnston County indicated is the highest priority to address. Additional detail on the projects can be found below:

- Acquisition/Mitigation Reconstruction/Elevation of Damaged Homes:** Approximately 53 affected property owners have expressed interest in participating in acquisition (42), mitigation reconstruction (2), and elevation activities (9). Locations are in Benson, Smithfield, Princeton, Kenly, and unincorporated areas of Johnston County.

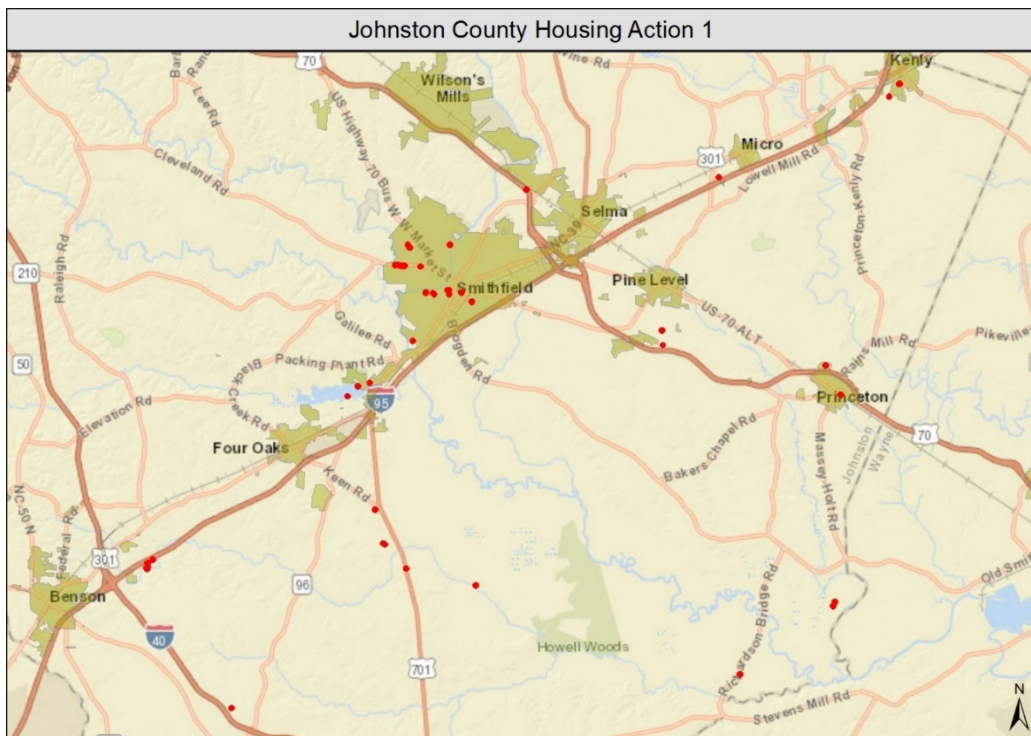


Figure 15. Acquisition/Mitigation Reconstruction/Elevation of Damaged Homes



## Residential Property Acquisition/Reconstruction/Elevation

**County:** Johnston

**Priority Grouping:** High Priority

**Priority Ranking:** 3

**Project Timeframe:** Approximately 1-3 years  
(varies among mitigation type)

**Location:** Locations are in Benson, Smithfield, Princeton, Kenly and unincorporated areas of Johnston County.

**Project Summary:** Flooding from area rivers and tributaries, as well as drainage issues near culverts, caused damage to residential properties in Benson, Smithfield, Princeton, Kenly and unincorporated areas of Johnston County. Approximately 53 affected property owners have expressed interest in participating in acquisition/demolition (42), mitigation reconstruction (2) and elevation activities (9) under Hazard Mitigation Grant Program (HMGP) applications for these activities in coordination with NCEM. CDBG-DR funds may also be needed to fund those that are not funded through HMGP.

Jurisdiction Acquisition Mitigation Reconstruction Elevation

Unincorporated areas 18 2 4

Smithfield 19 0 5

Benson 1 0 0

Princeton 2 0 0

Kenly 2 0 0

Total - Johnston County 42 2 9

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The proposed project addresses an unmet need that has been created by damage from Hurricane Matthew by enabling the removal of flood-prone properties. Until these properties are no longer inhabited there is still risk to people and property and losses will continue to occur. Preventing future impacts to residents is a high priority.	N/A
Consistent with existing plans (describe points of intersection/departure)	The proposed project is consistent with existing plans.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	N/A
Explain any benefits or impacts to the economy of the county from this project.	The proposed project will not adversely affect the local economy. The proposed project will benefit the economy of the county by decreasing damage from drainage issues and flooding.	N/A
For how long will this solution be effective?	More than 50 years	N/A
How effective is the risk reduction?	>200 year event	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	0	N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws	Yes	N/A
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	N/A
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	High confidence	N/A
What impact will this action have on the local economy/tax base?	No Impact	N/A

What impacts to the environment of the county will result from this project?	The proposed project will not create any adverse impacts to the environment.	N/A
What is the capability of the local government to administer this project?	Medium	N/A
What is the financial range of this project?	\$1M+	N/A
What is the level of public support for this project?	High	N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	Local	N/A

## Medium Priority Housing Strategies

Pillar	Action Name	Priority	Overall Ranking
Housing	Johnston County Emergency Response Shelter/Coordination Facility Construction	Medium	7

**Table 7. Johnston Medium Priority Housing Summary**

This project represents the housing strategies that Johnston County indicated is a medium priority to address. Additional detail on the projects can be found below:

- **Johnston County Emergency Response Shelter/Coordination Facility Construction:** Shelter space is important during disaster situations, not only for local evacuees but also for coastal areas evacuating west during hurricanes. Johnston County is situated at the crossroads of several major east-west thoroughfares and can receive evacuees from eight counties (Brunswick, New Hanover, Pender, Onslow, Jones, Pamlico, Carteret, and Craven) in addition to local residents in need of shelter. Adequate sheltering space is essential to accommodate a potentially large number of evacuees. This goal can be accomplished through the following proposed projects:
  - Johnston County proposes to purchase land and construct an easily accessible, centrally located, large-scale dedicated shelter facility that also serves as a warehouse for storage and a shelter during emergencies such as hurricanes. The facility would include bays for trailers so stored supplies can be easily deployed to serve evacuees in transit or for other shelter locations, as well as meeting space that could be used for remote emergency operations and coordination as needed by coastal county officials during an evacuation. A facility of this nature located in the I-40/I-95 crossroads area also would be beneficial for North Carolina Emergency Management and other disaster response agencies for staging or other coordination.
  - The Town of Benson proposes to designate an Emergency Shelter for its community where it can offer food, water, and a safe place to ride out the storm. Currently, the generator at the Town Hall is undersized and has been used as the standby generator. To provide emergency shelter, the town will need to purchase a commercial backup generator.
  - Johnston County also proposes to purchase two 175-watt generators for school shelters.

## Johnston County Emergency Response Shelter/Coordination Facility Construction

**County:** Johnston

**Priority Grouping:** Medium Priority

**Priority Ranking:** 7

**Project Timeframe:** 2-3 years

**Location:** Precise location to be determined, parcels that may be considered for County shelter would be located in the vicinity of where I-40 and I-95 intersect in Johnston County. Town of Benson shelter would be located in Benson.

**Project Summary:** Shelter space is important during disaster situations, not only for local evacuees but also for coastal areas evacuating west during hurricanes. Johnston County is situated at the crossroads of several major east-west thoroughfares and can receive evacuees from 8 counties (Brunswick, New Hanover, Pender, Onslow, Jones, Pamlico, Carteret and Craven) in addition to local residents in need of shelter. There is a need for adequate sheltering space to accommodate such a great number of evacuees, which can be accomplished through the following proposed projects:

- Johnston County proposes to purchase land and construct an easily-accessible centrally located large-scale dedicated shelter facility that also serves as a warehouse that could be used for storage and a shelter during emergencies such as hurricanes. The facility would include bays for trailers so stored supplies can be easily deployed to serve evacuees in transit or for other shelter locations, as well as meeting space that could be used for remote emergency operations and coordination as needed by coastal county officials during an evacuation. A facility of this nature located in the I-40/I-95 crossroads area would also be beneficial for NC Emergency Management and other disaster response agencies for staging or other coordination.
- The Town of Benson proposes to designate an Emergency Shelter for our community where we can offer food, water, and a safe place to ride out the storm. Currently the generator at the Town Hall is undersized and has been used as the standby generator. In order to provide emergency shelter, the town will need to purchase a commercial backup generator.
- Johnston County also proposes to purchase two 175 watt generators for existing school shelters.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The proposed project addresses an unmet need that has been created by damage from Hurricane Matthew by meeting mass sheltering needs of multiple counties as well as providing a staging location for local state and federal responders.	N/A
Consistent with existing plans (describe points of intersection/departure)	The proposed project is consistent with existing plans.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	N/A
Explain any benefits or impacts to the economy of the county from this project.	The proposed project will not adversely affect the local economy. It will benefit the county by enabling evacuees from eastern counties a place to shelter and spend money locally to meet their immediate needs.	N/A
For how long will this solution be effective?	Between 31 and 50 years	N/A
How effective is the risk reduction?	Unknown	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	1-3	N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws	Yes	N/A
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	N/A
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	Unknown	N/A
What impact will this action have on the local	Unknown	N/A



economy/tax base?		
What impacts to the environment of the county will result from this project?	The proposed project will not create any adverse impacts to the environment.	N/A
What is the capability of the local government to administer this project?	High	N/A
What is the financial range of this project?	\$1M+	N/A
What is the level of public support for this project?	High	N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	County	N/A

## Economic Development Strategies

### Medium Priority Economic Development Strategies

Pillar	Action Name	Priority	Overall Ranking
Economic Development	Agriculture Recovery Grant Project Technical Assistance	Medium	8
Economic Development	Hurricane Matthew Business Recovery Advisor position	Medium	9

**Table 8. Johnston Medium Priority Economic Development Summary**

These two projects represent the economic development strategies that Johnston County indicated are of a medium priority to address. Additional detail on the projects can be found below:

- Agriculture Recovery Grant Project Technical Assistance:** Following Hurricane Matthew, the North Carolina General Assembly allocated funding for the agricultural industry to assist with repairs to farm ponds, roads, etc. The state agency overseeing these funds requires that Natural Resources Conservation Service (NRCS) standards be met to be eligible to receive the funds; however, NRCS does not have enough staff to assist farmers in properly designing repair projects, so the farmers are not getting the assistance they desperately need. Rather than continuing to wait for NRCS assistance, the county would like to enlist contracted engineering support to assist 30 farmers with developing NRCS-compliant projects so they may access the available funding.

## Agriculture Recovery Grant Project Technical Assistance

**County:** Johnston

**Priority Grouping:** Medium Priority

**Priority Ranking:** 8

**Project Timeframe:** Less than 1 year

**Location:** Various Agricultural properties in Johnston County.

**Project Summary:** Following Hurricane Matthew, the NC General Assembly allocated funding for agriculture industry to assist with repairs to farm ponds, roads, etc. The state agency overseeing these funds requires that NRCS standards be met in order to be eligible to receive the funds; however, NRCS does not have enough staff to assist farmers in proper design of projects so the farmers are not getting the assistance they so desperately need. Rather than continuing to wait for NRCS assistance, enlist contracted engineering support to assist 30 farmers with developing NRCS-compliant projects so they may access the available funding.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The proposed project addresses an unmet need that has been created by damage from Hurricane Matthew by enabling farmers to more quickly recover and make much needed repairs to damaged farm infrastructure.	N/A
Consistent with existing plans (describe points of intersection/departure)	The proposed project is consistent with existing plans.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	N/A
Explain any benefits or impacts to the economy of the county from this project.	The proposed project will not adversely affect the local economy. The proposed project will benefit the economy of the county by enabling farmers to more quickly recover and make much needed repairs to damaged farm infrastructure.	N/A
For how long will this solution be effective?	Between 31 and 50 years	N/A
How effective is the risk reduction?	Unknown	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	0	N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws	Yes	N/A
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	N/A
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	Unknown	N/A
What impact will this action have on the local economy/tax base?	Less than 25%	N/A
What impacts to the environment of the county will result from this project?	The proposed project will not create any adverse impacts to the environment	N/A
What is the capability of the local government to administer this project?	Medium	N/A
What is the financial range of this project?	\$501K - \$1M	N/A
What is the level of public support for this project?	Unknown	N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	Unknown	N/A

- **Business Recovery Advisor:** Because most of the businesses that were flooded during and after Hurricane Matthew did not have Business Preparedness or Recovery Plans in place, the business owners weren't sure how to start the recovery process. Many months later, these businesses still feel unsure about how to rebuild and become more resilient. Johnston County wants to hire a dedicated recovery person (24-month position) to assist businesses with recovery/preparedness planning, rebuilding advice, connecting to funding assistance, etc.



## Johnston County Hurricane Matthew Business Recovery Advisor position

**County:** Johnston

**Priority Grouping:** Medium Priority

**Priority Ranking:** 9

**Project Timeframe:** 2 years

**Location:** Smithfield, NC

**Project Summary:** During and following Hurricane Matthew, flooded businesses did not have Business Preparedness or Recovery Plan in place and weren't sure how to start recovery. Johnston County desires to hire a dedicated recovery person (24-month position) to assist businesses with recovery/preparedness planning, advice, liaison to funding assistance, etc.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The proposed project addresses an unmet need that has been created by damage from Hurricane Matthew by enabling local businesses to recover from Matthew and to become more resilient in future hazard events.	N/A
Consistent with existing plans (describe points of intersection/departure)	The proposed project is consistent with existing plans.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	N/A
Explain any benefits or impacts to the economy of the county from this project.	The proposed project will not adversely affect the local economy. The proposed project will benefit the economy of the county by serving local businesses to help them become more resilient and be more prepared for future events while recovering in a smart way from Hurricane Matthew.	N/A
For how long will this solution be effective?	Between 11 and 30 years	N/A
How effective is the risk reduction?	Unknown	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	0	N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws	Yes	N/A
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	N/A
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	Minimal to low confidence	N/A
What impact will this action have on the local economy/tax base?	Less than 25%	N/A
What impacts to the environment of the county will result from this project?	The proposed project will not create any adverse impacts to the environment	N/A
What is the capability of the local government to administer this project?	High	N/A
What is the financial range of this project?	\$51K - \$100K	N/A
What is the level of public support for this project?	Unknown	N/A
What is the technical feasibility of this project?	No Impact	N/A
Who will administer this project?	County	N/A

## Infrastructure Strategies

### High Priority Infrastructure Strategies

Pillar	Action Name	Priority	Overall Ranking
Infrastructure	Public Utilities and Stormwater Mitigation	High	2

**Table 9. Johnston High Priority Infrastructure Summary**

This project represents the infrastructure strategies that Johnston County indicated is the highest priority to address. Additional detail can be found below:

**Public Utilities Mitigation:** Mitigate future flooding impacts to water and wastewater infrastructure through the following proposed projects:

- Johnston County Facilities:
  - Raise the flood protection dike and access road at the Central Johnston County Regional Wastewater Treatment Facility. Conduct a hydrologic and hydraulic study to determine adequate flood level to base future design on for raising the dike at the wastewater treatment plant.
  - Relocate the Southeast Lowgrounds Water Booster Station.
  - Relocate the electrical service for the raw water pumps at the Johnston County Water Treatment Plant.
  - Improve stormwater controls at various wastewater pump stations to prevent future flooding from rain waters.
  - Implement water main relocations where existing water mains cross over culverts in the right of way at creek crossings—especially those that are being replaced by North Carolina Department of Transportation because of damage from Hurricane Matthew.
  - Raise the control building at Selma Equalization and Wastewater Pump Station.
  - Re-locate the Buffalo Creek Wastewater Pump Station.

**Johnston County Public Utilities Mitigation****County:** Johnston**Priority Ranking:** 2**Priority Grouping:** High Priority**Project Timeframe:** 1-5 years**Location:** Various locations within Johnston County

**Project Summary:** Hurricane Matthew flooding impacted critical facilities infrastructure, including water, wastewater and stormwater infrastructure and systems throughout the county. Mitigate future flooding impacts to water and wastewater infrastructure through the following proposed projects:

- Raise the flood protection dike and access road at the Central Johnston County Regional Wastewater Treatment Facility. Conduct a hydrologic and hydraulic study to determine adequate flood level to base future design on for raising the dike at the WWTP
  - Relocate the Southeast Lowgrounds Water Booster Station
  - Relocate the electrical service for the raw water pumps at the Johnston County Water Treatment Plant.
  - Add additional stormwater controls at various wastewater pump stations to prevent future flooding from rain waters.
  - Implement water main relocations where existing water mains cross over culverts in the right-of-way at creek crossing that are being replaced by NCDOT after Matthew
  - Raise the control building at Selma Equalization and wastewater pump station
  - Re-locate the Buffalo Creek Wastewater Pump Station
  - Implement improvements to the Four Oaks water system to mitigate damaged lines and equipment.
- Potential water quality issues may impact residential and business customers in the town.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The proposed project addresses an unmet need that has been created by damage from Hurricane Matthew by repairing damage to infrastructure and prevent future losses at these facilities.	N/A
Consistent with existing plans (describe points of intersection/departure)	The proposed project is consistent with existing plans.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	N/A
Explain any benefits or impacts to the economy of the county from this project.	The proposed project will not adversely affect the local economy.	N/A
For how long will this solution be effective?	Between 31 and 50 years	N/A
How effective is the risk reduction?	>200 year event	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	>6	N/A
Is coordination with other	No	N/A

communities/counties needed to complete this project?		
Is this project consistent with Federal Laws	Yes	N/A
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	N/A
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	High confidence	N/A
What impact will this action have on the local economy/tax base?	Less than 25%	N/A
What impacts to the environment of the county will result from this project?	The proposed project will not create any adverse impacts to the environment.	N/A
What is the capability of the local government to administer this project?	High	N/A
What is the financial range of this project?	\$1M+	N/A
What is the level of public support for this project?	High	N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	County	N/A



- Implement improvements to the Four Oaks water system to mitigate damaged lines and equipment. Potential water quality issues may impact residential and business customers in the town.
- Town of Smithfield Facilities:
  - Implement the Spring Branch Stormwater Improvement Project to increase capacity and properly handle flow in this area.
  - Create a Comprehensive Stormwater Action Plan and Stormwater Implementation Plan, including inspection of drainage ponds to identify maintenance needs.
  - Water Plant:
    - “Harden” the barrier around the raw water pump chamber at the reservoir.
    - Raise the electric panels at the reservoir.
    - Install a lid at the water inlet vault on the southwest side of the plant.
    - Elevate the step-down transformer in the generator building at the reservoir.
    - Elevate the switch gear in the generator building at the reservoir.
    - Elevate the diesel fuel day tank in the generator building at the reservoir.
    - Purchase a small boat with 5-HP motor to access areas during inundation to keep systems online.
  - Collection System:
    - Elevate panels, controls, fuel tank, and generator at Lift Station #1.
    - Elevate panels, controls, and generator at Lift Station #7.
    - Elevate panels, controls, and generator at Lift Station #2.
    - Elevate panels, controls, and generator at Lift Station #18.
    - Elevate generator at Lift Station #5.
    - Install winches (2) on Town vehicles/trucks.

## Town of Smithfield Public Utility Mitigation

**County:** Johnston

**Priority Grouping:** High Priority

**Priority Ranking:** 2

**Project Timeframe:** 1-3 years

**Location:** various locations within Smithfield, NC

**Project Summary:** Hurricane Matthew flooding impacted critical facilities infrastructure, including water, wastewater and stormwater infrastructure and systems in the Town of Smithfield. Mitigate future flooding impacts to city-owned/operated water, wastewater and stormwater infrastructure and systems through the following proposed projects:

- Spring Branch Stormwater improvement project to increase capacity and properly handle flow in this area
- Create a Comprehensive Stormwater Action Plan and Stormwater Implementation Plan, include inspection of drainage ponds to identify maintenance needs
- Water Plant:
  - o “Harden” the barrier around the raw water pump chamber at the reservoir
  - o Raise the electric panels at the reservoir
  - o Install a lid at the water inlet vault on the southwest of the plant
  - o Elevate the step-down transformer in the generator building at the reservoir
  - o Elevate the switch gear in the generator building at the reservoir
  - o Elevate the diesel fuel day tank in the generator building at the reservoir
  - o Small boat with 5-hp motor is needed to access areas during inundation to keep system online
- Collection System:
  - o Elevate panels, controls, fuel tank and generator at Lift Station #1
  - o Elevate panels, controls and generator at Lift Station #7
  - o Elevate panels, controls and generator at Lift Station #2
  - o Elevate panels, controls and generator at Lift Station #18
  - o Generator at Lift station #5
  - o Winches (2) installed on Town vehicles/trucks

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The proposed project addresses an unmet need that has been created by damage from Hurricane Matthew by repairing damage to infrastructure and preventing future losses at these facilities.	N/A
Consistent with existing plans (describe points of intersection/departure)	The proposed project is consistent with existing plans.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	N/A
Explain any benefits or impacts to the economy of the county from this project.	The proposed project will not adversely affect the local economy.	N/A
For how long will this solution be effective?	Between 31 and 50 years	N/A
How effective is the risk reduction?	>200 year event	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	>6	N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws	Yes	N/A
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	N/A
To what degree will it be possible to positively quantify	High confidence	N/A

the environmental benefits and ROI of this project?		
What impact will this action have on the local economy/tax base?	No Impact	N/A
What impacts to the environment of the county will result from this project?	The proposed project will not create any adverse impacts to the environment	N/A
What is the capability of the local government to administer this project?	High	N/A
What is the financial range of this project?	\$1M+	N/A
What is the level of public support for this project?	High	N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	Local	N/A

- Town of Benson Facilities:
  - Relocate the Public Works building. This proposed project (potential new location is at 525 Market Street in Benson) will purchase the property and complete the rehab work needed to the building so that it can provide garage space for trucks and vehicles, equipment storage, a heated office, and restroom space. The building on the old Public Works property will be demolished and the land will be maintained as open space in perpetuity.
  - Elevate and replace/resurface the entrance roadway to the damaged Benson Wastewater Treatment Facility. The flooding from Hurricane Matthew caused the asphalt to lift and get carried away. Repairs will add eight inches of reinforced concrete with rebar in the affected areas and additional damaged roadway areas will add eight inches of compacted bedrock and concrete to prevent further erosion.
  - Complete a Comprehensive Stormwater Drainage Study to detail where there is a need for replacement/improvement as a result of Hurricane Matthew and estimate costs for feasible projects. This is desperately needed so that repairs consider the entire system rather than only fixing parts and inadvertently creating other issues.
  - Elevate the Benson I-40 Lift Station and replace the generator.
  - Repair damaged culvert areas where flooding caused sinkholes and culvert failures.
  - Construct a dike around the wastewater treatment plant to capture overflow water in the event of future hurricanes and flooding.
  - Install a cap on the storm drain lines to prevent floodwaters from the creek backing up into the wastewater treatment plant.



## Town of Benson Public Utility Mitigation

**County:** Johnston

**Priority Grouping:** High Priority

**Priority Ranking:** 2

**Project Timeframe:** Approximately 6 months to 3 years

**Location:** various sites in Benson, NC

**Project Summary:** Hurricane Matthew flooding impacted critical facilities infrastructure, including water, wastewater and stormwater infrastructure and systems in the Town of Benson. The Town's public works building was heavily damaged and equipment destroyed, and the wastewater treatment facility lost operations for a period during the storm. Mitigate future flooding impacts to city-owned/operated water, wastewater and stormwater infrastructure and systems through the following proposed projects:

- Public Works building relocation: This proposed project (potential new location is at 525 Market St in Benson) will purchase the property and to complete the rehab work needed to the building so that it can provide garage space for trucks and vehicles, equipment storage, as well as a heated office and restroom space. The old Public Works property will be demolished and maintained as open space in perpetuity.
- Elevate and replace/resurface entrance roadway to the damaged Benson Wastewater Treatment Facility. The flooding from Hurricane Matthew had caused the asphalt to lift and get carried away. Repairs will add 8 inches of reinforced concrete with rebar in the affected areas affected, and additional damaged roadway areas will add 8 inches of compacted bedrock and concrete to prevent further erosion.
- Complete a Comprehensive Stormwater Drainage study to detail where there is a need for replacement/improvement as a result of Hurricane Matthew and estimate costs for feasible projects. This is needed so that repairs consider the entire system rather than only fixing parts and inadvertently creating other issues.
- Elevate the Benson I-40 Lift Station and replace the generator
- Repair damaged culvert areas where flooding caused sinkholes and culvert failures.
- Construct a dike around WWTP to capture overflow water in the event of another hurricane and flooding
- Install a cap on the storm drain lines to prevent flood from the creek backing up into the WWTP plant

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The proposed project addresses an unmet need that has been created by damage from Hurricane Matthew by repairing damage to infrastructure and prevent future losses at these facilities.	N/A
Consistent with existing plans (describe points of intersection/departure)	The proposed project is consistent with existing plans.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	N/A
Explain any benefits or impacts to the economy of the county from this project.	The proposed project will not adversely affect the local economy.	N/A
For how long will this solution be effective?	Between 31 and 50 years	N/A
How effective is the risk reduction?	>200 year event	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	>6	N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws	Yes	N/A
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	N/A
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	High confidence	N/A

What impact will this action have on the local economy/tax base?	No Impact	N/A
What impacts to the environment of the county will result from this project?	The proposed project will not create any adverse impacts to the environment.	N/A
What is the capability of the local government to administer this project?	High	N/A
What is the financial range of this project?	\$1M+	N/A
What is the level of public support for this project?	High	N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	Local	N/A

- Kenly Stormwater Infrastructure:
  - Replace tile at 407 S. Alford Street—tile has a hole in it and collapsed.
  - Replace tile under parking lot at Ethco Company to address ditch and tile problems by the railroad.
  - Restore ditches, remove vegetative debris, and repair/replace tile at:
    - First Street @ Darden Street
    - Rose Lane @ Oakmont Drive
    - Entrance to K Park on Princeton Kenly Road
    - N Maple Street @ Third Street and Fourth Street
    - Ditch at Chevy Dealership on Seventh Street—coordinate with Wilson County
    - Dogwood Street
    - Ditch behind Rose Lane houses
    - Goldsboro Street to Chelsea Street
    - Fourth Street @ Branch Street

## Kenly Stormwater Drainage Improvements

**County:** Johnston

**Priority Grouping:** High Priority

**Priority Ranking:** 2

**Project Timeframe:** Approximately 1 year

**Location:** various locations within Kenly, NC

**Project Summary:** The Town of Kenly is flat and experiences flooding of structures during heavy rain events including Hurricane Matthew due to inadequate drainage. The Town proposes the following projects to improve stormwater drainage and mitigate residential flooding:

- Replace tile at 407 S Alford – tile has a hole in it and collapsed
- Ditch and tile problem by railroad @ Ethco requires replacement of tile under parking lot
- Restore ditches, remove vegetative debris and repair/replace tile
- o First St @ Darden
- o Rose Lane @ Oakmont
- o Entrance to K Park on Princeton/Kenly Road
- o N Maple @ Third St and Fourth St
- o Ditch at Chevy Dealership on Seventh St – coordinate with Wilson County at the shared county line area
- o Dogwood
- o Ditch behind Rose St houses
- o Goldsboro to Chelsea
- o Fourth St @ Branch

Note: The project area again experienced flooding April 24-25, 2017 during heavy rain events as we finalize these requests. Drainage improvements are a critical need for this location.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The proposed project addresses an unmet need that has been created by damage from Hurricane Matthew resolving lingering drainage issues. Without this project when another flood event occurs Kenly will be in a worse position than they were when Matthew occurred and flooding will damage more properties and infrastructure because the water can't flow properly in the current channels.	N/A
Consistent with existing plans (describe points of intersection/departure)	The proposed project is consistent with existing plans.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	N/A
Explain any benefits or impacts to the economy of the county from this project.	The proposed project will not adversely affect the local economy. The proposed project will benefit the economy of the county by decreasing damage from drainage issues and flooding.	N/A
For how long will this solution be effective?	Between 11 and 30 years	N/A
How effective is the risk reduction?	50-100 year event	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	>6	N/A
Is coordination with other communities/counties needed to complete this project?	Yes	N/A
Is this project consistent with Federal Laws	Yes	N/A
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	N/A



To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	High confidence	N/A
What impact will this action have on the local economy/tax base?	No Impact	N/A
What impacts to the environment of the county will result from this project?	The proposed project will not create any adverse impacts to the environment.	N/A
What is the capability of the local government to administer this project?	Medium	N/A
What is the financial range of this project?	\$1M+	N/A
What is the level of public support for this project?	High	N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	Local	N/A

## Medium Priority Infrastructure Strategies

Pillar	Action Name	Priority	Overall Ranking
Infrastructure	Backup/Redundant Power Solutions to Reduce Outage Issues	Medium	5
Infrastructure	Purchase Critical Emergency Response Equipment	Medium	6
Infrastructure	Natural Gas Storage Facility Pump Replacement and Switch Elevation	Medium	10
Infrastructure	Create Johnston County Emergency Services Building/EOC	Medium	11

**Table 10. Johnston Medium Priority Infrastructure Summary**

These projects represent the infrastructure strategies that Johnston County indicated are of a medium priority to address. Additional detail can be found below:

- **Backup/Redundant Power Solutions:** System redundancy is needed to ensure that critical facilities and businesses can function properly during power outages. Projects include:
  - The Buffalo Road Delivery Point in the Town of Smithfield needs interconnecting wires and switches so if one delivery feed goes out, then could switch the whole town to the other source temporarily. Purchase 10 pad-mounted step down transformers to be placed at strategic points in the Town system and conduct extensive electrical wiring conversion done at both substation/delivery points.
  - The Town of Benson’s electric switchover box is located near the Public Works Department, which experienced flood damage during Hurricane Matthew. The switchover must be elevated to prevent future damage and loss of power during flood events.

## Power supply switch upgrade/obtain generators

**County:** Johnston

**Priority Grouping:** Medium Priority

**Priority Ranking:** 5

**Project Timeframe:** Approximately 6 months to 1 year

**Location:** Smithfield, Benson, Kenly, Micro, Four Oaks, Princeton and Cleveland community

**Project Summary:** Power loss during Hurricane Matthew identified a need for back-up and redundant power. Smithfield lost power delivery from Duke Energy and the town only has 2 delivery points and cannot currently switch between them when one fails. The power outage also required police directing traffic at critical intersections instead of helping tend to people. System Redundancy is needed to ensure that critical facilities and businesses can properly function during power outages. Projects include:

- The Buffalo Road Delivery Point in Smithfield needs interconnecting wires and switches so if one delivery feed goes out then could switch the whole town to the other source temporarily. Purchase ten (10) pad-mounted step down transformers to be placed at strategic points in the Town system and conduct extensive electrical wiring conversion done at both substation/delivery points.
- The Town of Benson's electric switchover box is located near Public Works which experienced flood damage during Hurricane Matthew. The switchover must be elevated to prevent future damage and loss of power during flood events.
- Purchase mobile generators and complete electrical conversions at the following critical intersections that need equipment converted to add a switch so can power by generator:

Critical Intersection Locations Jurisdiction

US-70 Business (Market Street) @ US-301 (Brightleaf Blvd) Smithfield

US-70 Business (Market Street) @NC-210 Hwy Smithfield

US-70 Business (Market Street) @Durwood Stephenson (SR 1923 Extension) Smithfield

US-301 (Brightleaf Blvd) @ Peedin Rd Smithfield

US-301 (Brightleaf Blvd) @ Brogden Rd (SR 1007) Smithfield

US-301 (Brightleaf Blvd) @ North St Smithfield

US-301 (Brightleaf Blvd) @ Booker Dairy Rd (SR 1923) Smithfield

US-301 (Brightleaf Blvd) @ Wal-Mart entrance Smithfield

Buffalo Rd (SR 1003) @ Booker Dairy Rd (SR 1923) Smithfield

US-301 @ NC-50 Benson

I-95 ramps @ NC-50 Benson

US-301 @ NC-222 Kenly

US-301 @ Main St Four Oaks

US-301 @ Keen Rd Four Oaks

US-301 @ Main Street Micro

US-70 @ Rains Mill Rd Princeton

NC-210 Hwy @Raleigh Rd Unincorporated Areas

NC-42 @ NC-50 Unincorporated Areas

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The proposed project addresses an unmet need that has been created by damage from Hurricane Matthew by providing reliable power so residents and businesses can be served and protected during response and recovery from a hazard event. Also, generator-powered critical intersections will require less law enforcement personnel directing traffic which would allow them to serve and protect in better ways.	N/A
Consistent with existing plans (describe points of intersection/departure)	The proposed project is consistent with existing plans.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	N/A
Explain any benefits or impacts to the economy of the county from this project.	The proposed project will not adversely affect the local economy. The proposed project will benefit the economy of the county by enabling commerce to continue through critical	N/A

	intersections during power outages as well as minimizing power outages in Benson and Smithfield through electrical service solutions.	
For how long will this solution be effective?	Between 11 and 30 years	N/A
How effective is the risk reduction?	>200 year event	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	>6	N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws	Yes	N/A
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	N/A
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	High confidence	N/A
What impact will this action have on the local economy/tax base?	Less than 25%	N/A
What impacts to the environment of the county will result from this project?	The proposed project will not create any adverse impacts to the environment.	N/A
What is the capability of the local government to administer this project?	High	N/A
What is the financial range of this project?	\$501K - \$1M	N/A
What is the level of public support for this project?	High	N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	Local	N/A



- **Critical Emergency Response Equipment:** Jurisdictions need adequate barricades/emergency signage/equipment to protect drivers as well as public safety personnel. Proposed projects include:
  - Install new barricades and signage for the CSX railroad crossing in downtown Smithfield that can be deployed wirelessly.
  - Purchase barricades and emergency signage/equipment for road closures for Johnston County Emergency Services, the Town of Smithfield, and the Town of Benson.
  - Purchase equipment for the Town of Smithfield to use in ditch maintenance that also could assist during emergencies and preparedness activities, such as:
    - 60-HP 15,000 lb. mini excavator to help in tight areas such as blue-line ditches
    - 20-foot heavy-duty equipment trailer to transport equipment
    - Waterproof wireless winches for trucks (17,500 lb.) to remove large obstructions from culverts
    - Large pull-behind diesel trash water pumps, 30-HP or higher (minimum 1,000 GPM)
    - Jumping jacks and plate tamps for erosion control
    - Erosion control fabrics and mattings
    - Safety equipment (e.g., trench box, gloves, ladders, ropes, safety glasses, traffic cones)
  - Purchase mobile generators and complete electrical conversions at the following critical intersections that need equipment converted to add a switch so they can be powered by generator:

Critical Intersection Locations	Jurisdiction
US 70 Business (Market Street) @ US 301 (Brightleaf Boulevard)	Smithfield
US 70 Business (Market Street) @ NC 210	Smithfield
US 70 Business (Market Street) @Durwood Stephenson (SR 1923 Extension)	Smithfield
US 301 (Brightleaf Boulevard) @ Peedin Road	Smithfield
US 301 (Brightleaf Boulevard) @ Brogden Road (SR 1007)	Smithfield
US 301 (Brightleaf Boulevard) @ North Street	Smithfield
US 301 (Brightleaf Boulevard) @ Booker Dairy Road (SR 1923)	Smithfield
US 301 (Brightleaf Boulevard) @ Wal-Mart entrance	Smithfield
Buffalo Road (SR 1003) @ Booker Dairy Road (SR 1923)	Smithfield
US 301 @ NC 50	Benson
I-95 ramps @ NC 50	Benson
US 301 @ NC 222	Kenly
US 301 @ Main Street	Four Oaks
US 301@ Keen Road	Four Oaks
US 301 @ Main Street	Micro
US 70 @ Rains Mill Road	Princeton
NC 210 @Raleigh Road	Unincorporated Areas
NC 42 @ NC 50	Unincorporated Areas

Table 11. Critical Intersection Locations

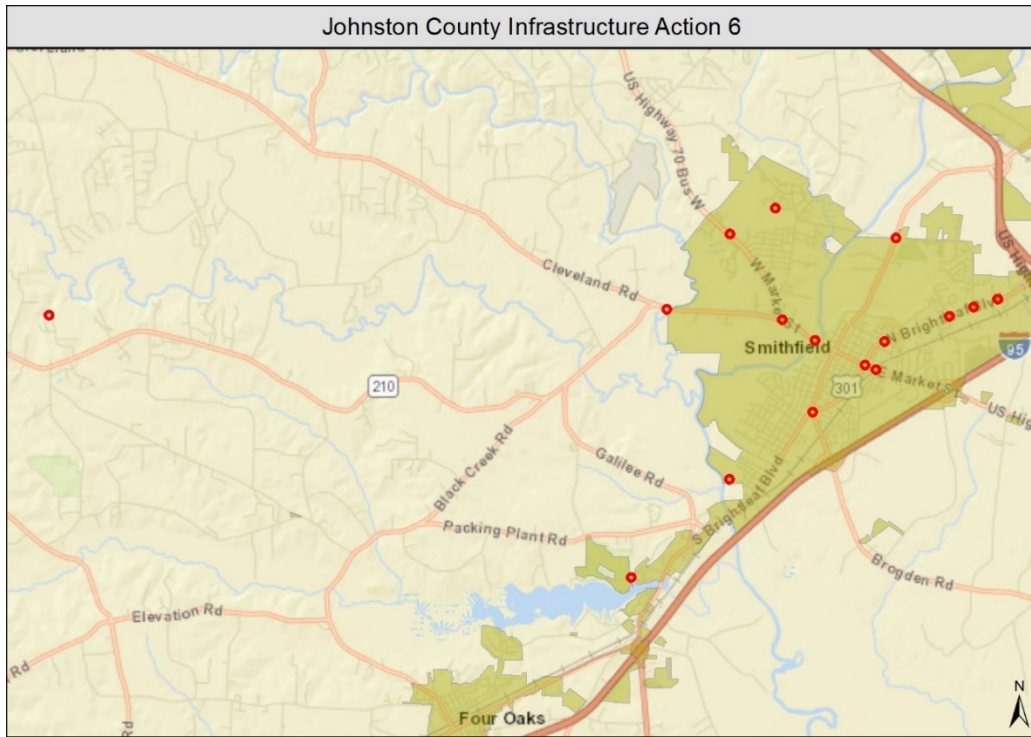


Figure 16. Critical Emergency Response Equipment – Signal Generator Locations

## Purchase Critical Emergency Response Equipment for Johnston County

**County:** Johnston

**Priority Grouping:** Medium Priority

**Priority Ranking:** 6

**Project Timeframe:** Approximately 6 months to 1 year

**Location:** Smithfield, Benson

**Project Summary:** During Hurricane Matthew, local officials had issues getting message out to residents on road closures and emergency issues and did not have adequate barricades or emergency signage for closed roads and dangerous areas. With no emergency signage available, flooded crossings were closed with tape but drivers removed the tape and proceeded to drive into flood waters. Police waded into flood waters in order to deploy gates at the CSX crossing in Downtown Smithfield to close the street to traffic. This created a public safety hazard.

Jurisdictions need adequate Barricades/Emergency signage/equipment to protect drivers as well as public safety personnel. Proposed projects include:

- Install new barricades and signage for the CSX crossing in Downtown Smithfield that can be deployed wirelessly
- Purchase barricades and emergency signage/equipment for road closures for Johnston County Emergency Services, Town of Smithfield and Town of Benson
- Purchase equipment for Town of Smithfield to use in ditch maintenance that also could assist during emergencies as well as preparedness activities such as:
  - o A 60HP 15,000lb. mini excavator to help in tight areas such as blue-line ditches.
  - o 20ft heavy duty equipment trailer to transport equipment
  - o Winches for trucks (17,500lb) waterproof wireless to remove large obstructions from culverts etc.
  - o Large pull behind diesel trash water pumps 30HP or higher. (Minimum 1,000 GPM)
  - o Jumping jacks and plate tamps for erosion control
  - o Erosion control fabrics and mattings
  - o Safety equipment (i.e. trench box, gloves, ladders, ropes, safety glasses, traffic cones)

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The proposed project addresses an unmet need that has been created by damage from Hurricane Matthew by saving lives by preventing entry into dangerous areas during flooding. Inadequate supplies during Matthew forced officials to use caution tape which was removed by citizens who then endangered themselves and others.	N/A
Consistent with existing plans (describe points of intersection/departure)	The proposed project is consistent with existing plans.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	N/A
Explain any benefits or impacts to the economy of the county from this project.	The proposed project will not adversely affect the local economy.	N/A
For how long will this solution be effective?	Between 11 and 30 years	N/A
How effective is the risk reduction?	Unknown	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	1-3	N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws	Yes	N/A
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	N/A

To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	High confidence	N/A
What impact will this action have on the local economy/tax base?	Less than 25%	N/A
What impacts to the environment of the county will result from this project?	The proposed project will not create any adverse impacts to the environment.	N/A
What is the capability of the local government to administer this project?	High	N/A
What is the financial range of this project?	\$251K - \$500K	N/A
What is the level of public support for this project?	High	N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	Local	N/A

- **Natural Gas Storage Facility Pump Replacement and Switch Elevation:** During Hurricane Matthew, heavy rains inundated the North Carolina Natural Gas Corporation facility, overwhelming the pumps and causing concerns that the quickly rising waters would overtake the electrical panel for the storage tank, which houses approximately 1 million cubic feet of natural gas for distribution. An electrical panel failure would cause heating elements to go offline, jeopardizing the natural gas that must be stored at -270 degrees. Extreme cold temperatures would cause the ground and concrete to freeze, which would result in buckling concrete that would dislodge and potentially cause failure/explosion at the storage tank, endangering residents and businesses within a few mile radius of the location. Fire crews and equipment were dispatched into the flood waters to reach the plant and assist with pumping the area near the tank to prevent a larger disaster. This response endangered public safety staff and consumed resources that could have aided citizens. The proposed project would purchase and install a submersible pump for the site to remove rainwater, as well as elevating the electrical switch panel to protect the components from rising water.

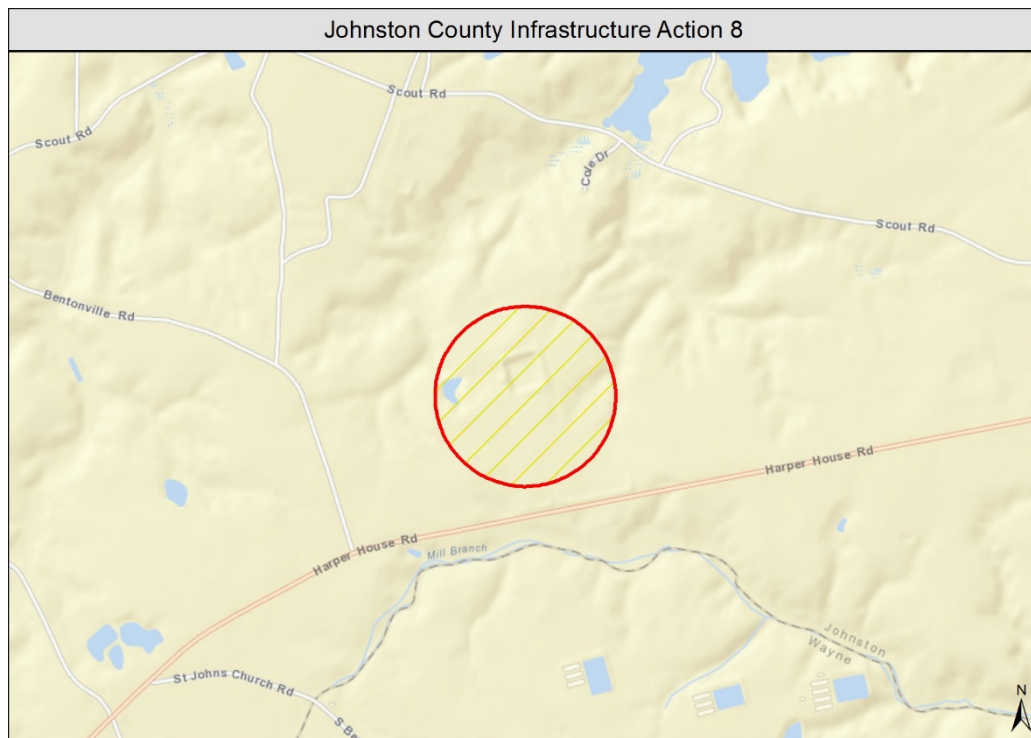


Figure 17. Natural Gas Storage Facility Pump Replacement and Switch Elevation



## Natural Gas Storage Facility Pump Replacement and Switch Elevation

**County:** Johnston

**Priority Grouping:** Medium Priority

**Priority Ranking:** 10

**Project Timeframe:** Approximately 6 months to 1 year

**Location:** NC Natural Gas Corporation, 2256 Harper House Road, Four Oaks NC 27524

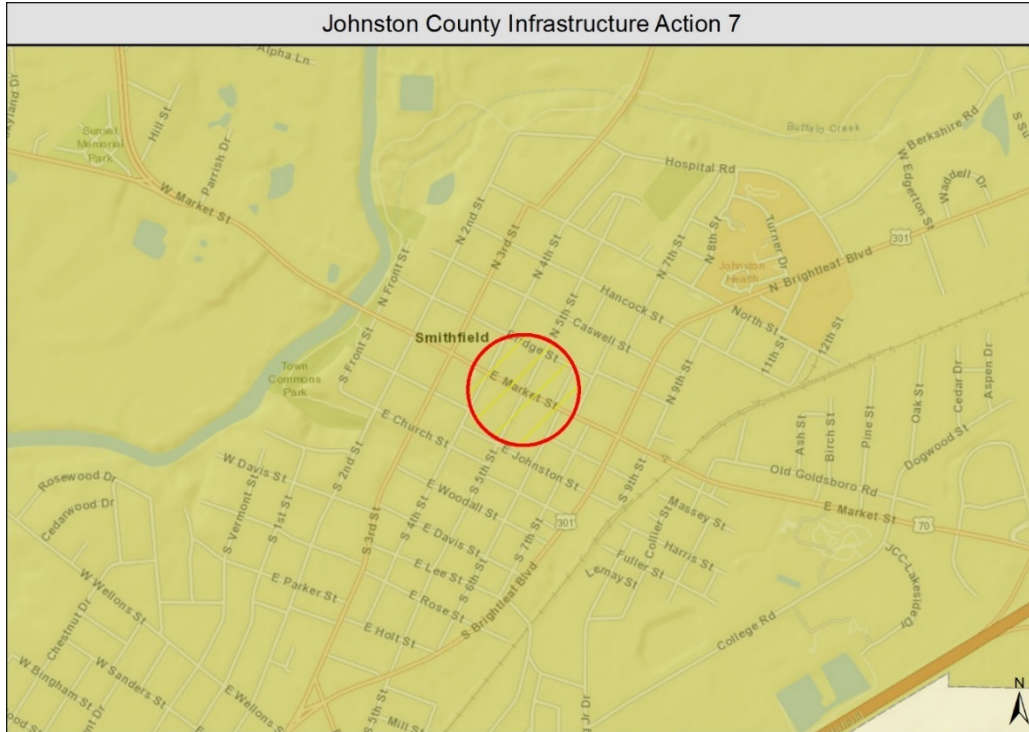
**Project Summary:** During Hurricane Matthew, heavy rains inundated the NC Natural Gas Corporation facility, overwhelming the pumps and causing concerns that the quickly rising waters would overtake the electrical panel for the storage tank which houses approximately 1 million cubic feet of natural gas for distribution. An electrical panel failure would cause heating elements to go offline, jeopardizing the natural gas that must be stored at -270 degrees. Extreme cold temperatures would cause the ground and concrete to freeze, which would result in buckling concrete that would dislodge and potentially cause failure/explosion at the storage tank, endangering residents and businesses within a few miles radius of the location. Fire crews and equipment were dispatched into the flood waters to reach the plant and assist with pumping the area near the tank in order to prevent a larger disaster. This response endangered public safety staff and consumed resources that could have aided citizens.

The proposed project would purchase and install a submersible pump for the site to remove rainwater, as well as elevating the electrical switch panel to protect the components from rising water.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The proposed project addresses an unmet need that has been created by damage from Hurricane Matthew by enabling continued operation of this important facility during and following heavy rain events as well as protecting area residents from potential explosion hazards. Natural gas customers will also benefit from not losing service which would impact commercial and industrial interests as well as residents.	N/A
Consistent with existing plans (describe points of intersection/departure)	The proposed project is consistent with existing plans.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	N/A
Explain any benefits or impacts to the economy of the county from this project.	Not mitigating the problem could result in adverse impacts to the local economy as well as regional natural gas customers if the facility were to explode.	N/A
For how long will this solution be effective?	Between 31 and 50 years	N/A
How effective is the risk reduction?	Unknown	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	0	N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws	Yes	N/A
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	N/A
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	High confidence	N/A
What impact will this action have on the local economy/tax base?	No Impact	N/A
What impacts to the environment of the county will	Not mitigating the problem could result in adverse impacts to	N/A

result from this project?	the environment if the facility were to explode.	
What is the capability of the local government to administer this project?	High	N/A
What is the financial range of this project?	\$101K - \$250K	N/A
What is the level of public support for this project?	Unknown	N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	County	N/A

- **Create Johnston County Emergency Services Building/EOC:** Create a dedicated Johnston County Emergency Services facility away from the courthouse complex with state-of-the-art EOC space for the county, secure hardened server storage, staff offices, and bay access for emergency services vehicles and equipment. This centralized location will allow the county to more efficiently deploy resources and manage response for all types of emergency situations.



**Figure 18. Create Johnston County Emergency Services Building/EOC**

## Create Johnston County Emergency Services Building/EOC

**County:** Johnston

**Priority Grouping:** Medium Priority

**Priority Ranking:** 11

**Project Timeframe:** 1-3 years

**Location:** Proposed location is currently 406 W Market St, Smithfield

**Project Summary:** Johnston County's Emergency Services functions are located in multiple offices and Emergency Operations Center (EOC) is too small to efficiently manage operations for such a large and populous county. The EOC is located in the courthouse which may be susceptible to incidents that could prevent usage in a bomb, anthrax or terrorism incident.

The proposed project will create a dedicated Johnston County Emergency Services facility away from the courthouse complex with state-of-the-art EOC space for the county, secure/hardened server storage, staff offices, and bay access for emergency services vehicles and equipment. This centralized location will allow the County to more efficiently deploy resources and manage response for all types of emergency situations.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The proposed project addresses an unmet need that has been created by damage from Hurricane Matthew by providing adequate space for emergency operations so residents and businesses can be served and protected during response and recovery from a hazard event.	N/A
Consistent with existing plans (describe points of intersection/departure)	The proposed project is consistent with existing plans.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	N/A
Explain any benefits or impacts to the economy of the county from this project.	The proposed project will not adversely affect the local economy.	N/A
For how long will this solution be effective?	Between 31 and 50 years	N/A
How effective is the risk reduction?	Unknown	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	1-3	N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws	Yes	N/A
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	N/A
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	High confidence	N/A
What impact will this action have on the local economy/tax base?	No Impact	N/A
What impacts to the environment of the county will result from this project?	The proposed project will not create any adverse impacts to the environment.	N/A
What is the capability of the local government to administer this project?	High	N/A
What is the financial range of this project?	\$1M+	N/A
What is the level of public support for this project?	Unknown	N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	County	N/A

## Environmental, Ecosystem, and Agricultural Strategies

### High Priority Environmental Strategies

Pillar	Action Name	Priority	Overall Ranking
Environment	Improve Flood Hazard Data	High	1

**Table 12. Johnston High Priority Environmental Summary**

This project represents the environmental strategy that Johnston County indicated is the highest priority to address. Additional detail can be found below:

- **Improve Flood Hazard Data:** County Flood Insurance Rate Maps (FIRMs) are in the process of being updated, but there are areas of the county that are experiencing dramatic, ongoing growth which still do not have detailed flood studies. Also, there is a lack of adequate data on flow rates along critical water bodies, which left the county vulnerable to rising waters without enough warning during Hurricane Matthew and also increases the uncertainty of flood modeling shown on the FIRMs. There is a need for better hazard data identification of flood risk areas, including updated flood profiles and mapping in areas of frequent and nuisance flooding to regulate growing development in these areas, as well as additional river gauges to better understand overall risk of future events.
  - Coordinate with the U.S. Geological Survey (USGS) to install permanent river gauges on:
    - Little River at Rains Crossroads Road in Selma
    - Hannah Creek
    - Middle Creek
    - Swift Creek
  - Need detailed flood hazard study and credible regulatory data for:
    - Buffalo Creek and Moccasin Swamp in Smithfield
    - Hannah Creek in unincorporated Johnston County
    - Swift Creek Watershed
    - Middle Creek Watershed
    - Town of Benson Highway 301 Corridor from J-Lee Road to Hale Street



## Improve Johnston County Flood Hazard Data with mapping and gages

**County:** Johnston

**Priority Grouping:** High Priority

**Priority Ranking:** 1

**Project Timeframe:** 1-5 years

**Location:** Little River at Rains Crossroads road in Selma; Buffalo Creek and Moccasin Swamp in Smithfield; Hannah Creek in unincorporated Johnston County; Swift Creek Watershed; Middle Creek watershed

**Project Summary:** Flood Insurance Rate Maps (FIRMs) are in the process of updates but there are areas of the county that still do not have detailed flood studies that are experiencing dramatic growth that will continue. Also, there is a lack of adequate data on flow rates along critical water bodies, which left the county vulnerable to rising waters without enough warning and also increases the uncertainty of flood modeling shown on the FIRMs.

There is a need for better hazard data identification of flood risk areas including updated flood profiles and mapping in areas of frequent and nuisance flooding in order to regulate growing development trend in that area as well as additional river gauges to better understand overall risk of future events.

- Coordinate with USGS to install permanent river gauges on:

- o Little River at Rains Crossroads Road in Selma

- o Hannah Creek

- o Middle Creek

- o Swift Creek

- Need detailed flood hazard study and credible regulatory data for:

- o Buffalo Creek and Moccasin Swamp in Smithfield

- o Hannah Creek in unincorporated Johnston County

- o Swift Creek Watershed

- o Middle Creek watershed

- o Town of Benson Highway 301 Corridor from J-Lee Rd to Hale St

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The proposed project addresses an unmet need that has been created by damage from Hurricane Matthew by better accounting for flooding that more regularly occurs as development has increased as well as better understanding risk in order to inform regulatory and enforcement decisions.	N/A
Consistent with existing plans (describe points of intersection/departure)	The proposed project is consistent with existing plans.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	N/A
Explain any benefits or impacts to the economy of the county from this project.	The proposed project will not adversely affect the local economy	N/A
For how long will this solution be effective?	Less than 10 years	N/A
How effective is the risk reduction?	<50 year event	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	0	N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws	Yes	N/A
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	N/A
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	Unknown	N/A

What impact will this action have on the local economy/tax base?	No Impact	N/A
What impacts to the environment of the county will result from this project?	The proposed project will not create any adverse impacts to the environment	N/A
What is the capability of the local government to administer this project?	Medium	N/A
What is the financial range of this project?	\$501K - \$1M	N/A
What is the level of public support for this project?	High	N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	Unknown	N/A

### Medium Priority Environmental Strategies

Pillar	Action Name	Priority	Overall Ranking
Environment	Stream Restoration/ Debris Removal	Medium	4
Environment	Smithfield Greenway Stabilization/Repair	Medium	12

**Table 13. Johnston Medium Priority Environmental Summary**

These projects represent the environmental strategies that Johnston County indicated are of a medium priority to address. Additional detail can be found below:

- **Stream Restoration/Debris Removal:** Restoration of streams includes, but is not limited to, debris removal, streambank stabilization, and naturalization of channel. Specific locations identified by local county officials include the Neuse River, Middle Creek, Swift Creek, Little River and its tributaries, and the Spring Branch wetlands facility in Smithfield.

## Johnston County Stream Restoration/ Debris Removal

**County:** Johnston

**Priority Grouping:** Medium Priority

**Priority Ranking:** 4

**Project Timeframe:** Approximately 1-3 years

**Location:** Neuse River, Middle Creek, Swift Creek, Little River and its tributaries, and the Spring Branch wetlands facility in Smithfield

**Project Summary:** As a result of Hurricane Matthew, many trees and other debris litter the county. During heavy rains, this debris will continue to dam up water and alter flows, which could cause flooding of additional roads and structures during future storm events. These unnatural changes in the water flow puts more properties at risk to future flooding and would cause additional road closures and utility line crossing damage. The proposed project would remove large vegetative debris from these waterways and remove silt to restore the channel to its proper depth and allow proper flow. This effort will restore natural floodplain functions and protect water-adjacent areas and infrastructure.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	Stream restoration has been needed for many years and the heavy flows during Matthew exacerbated the issue. When another flood event occurs the County will be in a worse position than they were when Matthew occurred and flooding will damage more properties and infrastructure because the water can't flow properly in the current channels.	N/A
Consistent with existing plans (describe points of intersection/departure)	The proposed project is consistent with existing plans. The Cape Fear Regional Hazard Mitigation Plan includes a relevant goal to Protect and preserve the natural resources and environmentally sensitive areas within the region and this project helps achieve this.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	N/A
Explain any benefits or impacts to the economy of the county from this project.	The proposed project will not adversely affect the local economy. The proposed project will benefit the economy of the county by decreasing damage from drainage issues and flooding.	N/A
For how long will this solution be effective?	Less than 10 years	N/A
How effective is the risk reduction?	100-200 year event	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	>6	N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws	Yes	N/A
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	N/A
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	Medium to high confidence	N/A
What impact will this action have on the local economy/tax base?	No Impact	N/A
What impacts to the environment of the county will result from this project?	The proposed project will not create any adverse impacts to the environment. The environment will benefit from this project as the project will allow better conveyance which will reduce erosion. This project will allow the natural intended	N/A

	functions to resume again.	
What is the capability of the local government to administer this project?	Medium	N/A
What is the financial range of this project?	\$1M+	N/A
What is the level of public support for this project?	High	N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	County	N/A

- **Smithfield Greenway Stabilization/Repair:** Repair damage on the Smithfield Greenway and restore functionality as soon as possible, particularly in the area just south of NC 70, where the bank and trail have eroded and exposed a county sewer line.

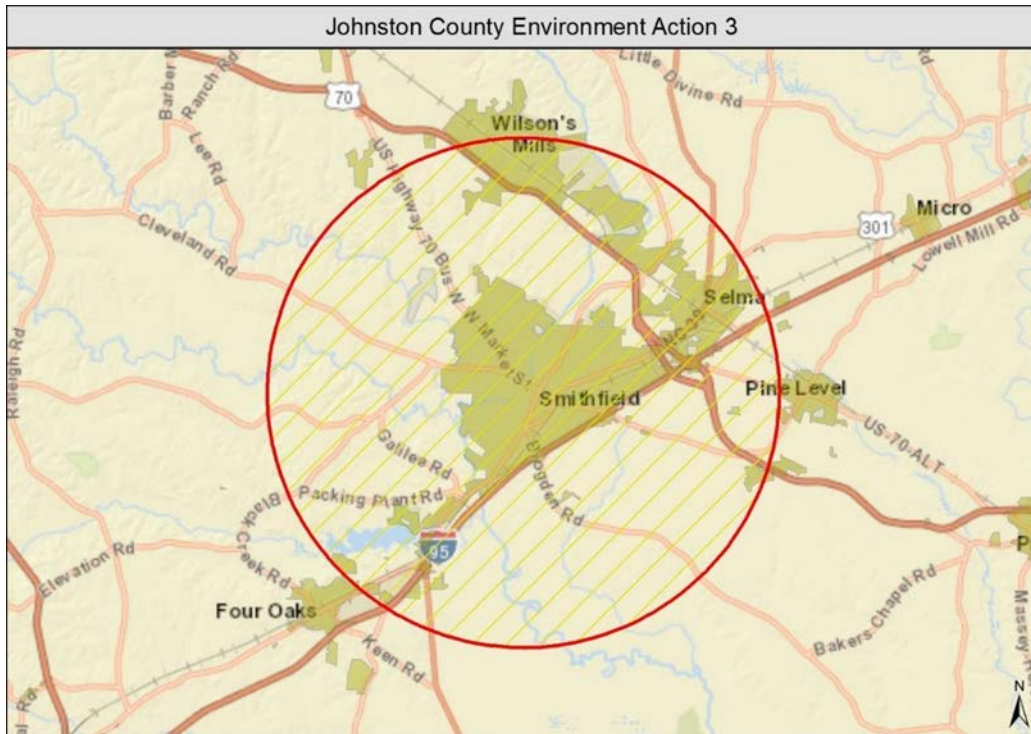


Figure 19. Smithfield Greenway Stabilization/Repair



## Smithfield Greenway Stabilization/Repair

**County:** Johnston

**Priority Grouping:** Medium Priority

**Priority Ranking:** 12

**Project Timeframe:** Approximately 6 months to 1 year

**Location:** Smithfield, NC

**Project Summary:** The Smithfield Greenway was damaged during Hurricane Matthew and still has eroded areas, debris and downed trees caused by Hurricane Matthew. The proposed project will repair the Hurricane Matthew damage on the Smithfield Greenway and restore functionality as soon as possible, particularly in the area just south of Hwy 70 where bank has eroded and exposed a county sewer line.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The proposed project addresses an unmet need that has been created by damage from Hurricane Matthew by preventing future losses to the Greenway and enable this infrastructure to become more resilient in future hazard events.	N/A
Consistent with existing plans (describe points of intersection/departure)	The proposed project is consistent with existing plans. The Cape Fear Regional Hazard Mitigation Plan includes relevant goals to Strive to maintain existing structures and infrastructure in such a manner that they will be as resilient as possible from natural hazards and Protect and preserve the natural resources and environmentally sensitive areas within the region and this project helps achieve this.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	N/A
Explain any benefits or impacts to the economy of the county from this project.	The proposed project will not adversely affect the local economy. Maintaining recreational opportunities is important to quality of life for residents and visitors.	N/A
For how long will this solution be effective?	Less than 10 years	N/A
How effective is the risk reduction?	50-100 year event	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	1-3	N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws	Yes	N/A
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	N/A
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	Medium to high confidence	N/A
What impact will this action have on the local economy/tax base?	Less than 25%	N/A
What impacts to the environment of the county will result from this project?	The proposed project will not adversely affect the environment of the county. It will restore functionality of the greenway and prevent further erosion while protecting the natural function of the river.	N/A
What is the capability of the local government to administer this project?	High	N/A

What is the financial range of this project?	\$101K - \$250K	N/A
What is the level of public support for this project?	High	N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	Local	N/A

## Summary

Implementation has already begun for some of these actions but for those that have not already been funded, the State of North Carolina will begin a process of prioritizing the actions and seeking to match a funding stream to each action. Those that are not matched with a funding source will be added to the State's Unmet Needs Report. Funding for Unmet Needs will be sought through additional funding from Congress and from the North Carolina General Assembly. Any action that cannot be matched to a funding source should be incorporated into the County's Hazard Mitigation Plan for consideration for future funding. It is important to seek to implement as many of these actions as feasible. Doing so will significantly contribute to helping improve the resiliency of North Carolina's communities.