

Hurricane Matthew Resilient Redevelopment Plan

Brunswick County



May 2017

Version 1.2

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Change Log

Version	Date	Summary of Changes
1.1	6/15/17	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 \$4.8¹ billion. 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.

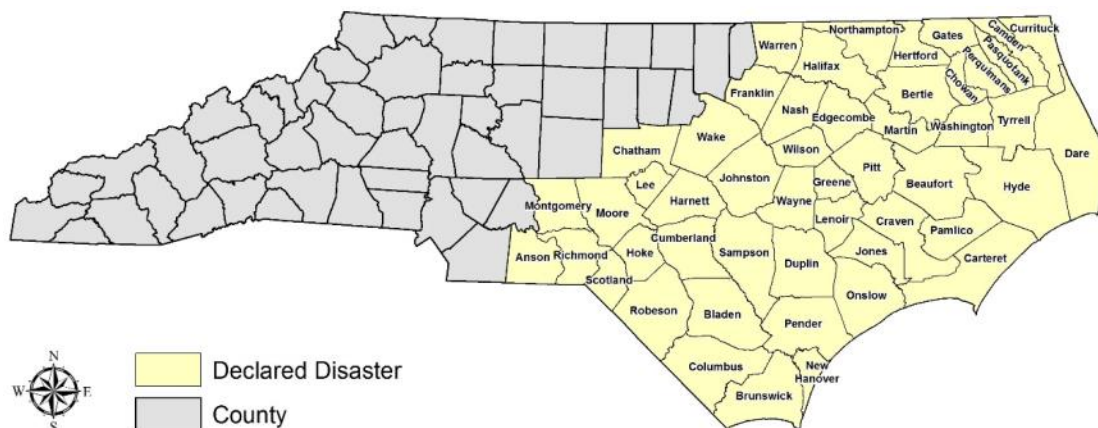


Figure 1: NCRRP Counties

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.

¹ 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, Brunswick County has identified 22 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	1
Economic Development	0
Infrastructure	19
Environment	2
Grand Total	22

Table 1. Brunswick 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 between the houses. The houses are mostly two-story structures with light-colored siding and dark roofs. Some trees are partially submerged, with only their tops visible above the water. The overall scene depicts a significant natural disaster impact on a community.

1. Background

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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.²

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.

- There were 81,832 individuals registered for FEMA/state assistance.

² *Governors McCrory's Request for Federal Assistance for Hurricane Matthew Recovery, November 14, 2016*

- 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 Brunswick County and surrounding counties is shown below.

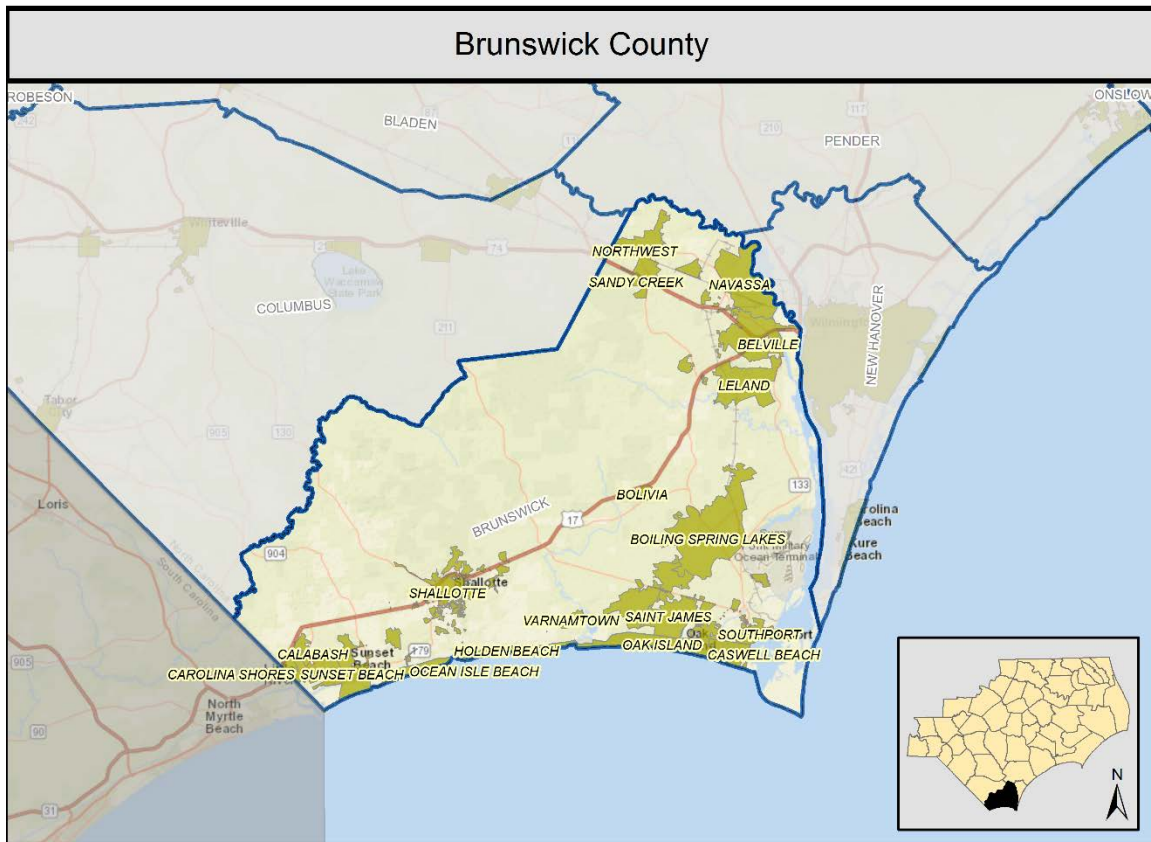


Figure 2: Brunswick County and Neighboring Counties

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 streets between the houses. The houses are mostly two-story structures with light-colored siding and dark roofs. Some trees are partially submerged, with only their tops visible above the water. The overall scene depicts a significant natural disaster impact on a community.

2. County Profile

2. County Profile

Brunswick County is located along the southeastern coast of North Carolina. It is comprised of 19 census-designated places: Bald Head Island, Belville, Boiling Spring Lakes, Bolivia, Calabash, Carolina Shores, Caswell Beach, Holden Beach, Leland, Navassa, Northwest, Oak Island, Ocean Isle Beach, St. James, Sandy Creek, Shallotte, Southport, Sunset Beach, and Varnamtown. Its current population is 115,926. This section provides a profile of housing, economics, infrastructure, environment, and administration within Brunswick County.

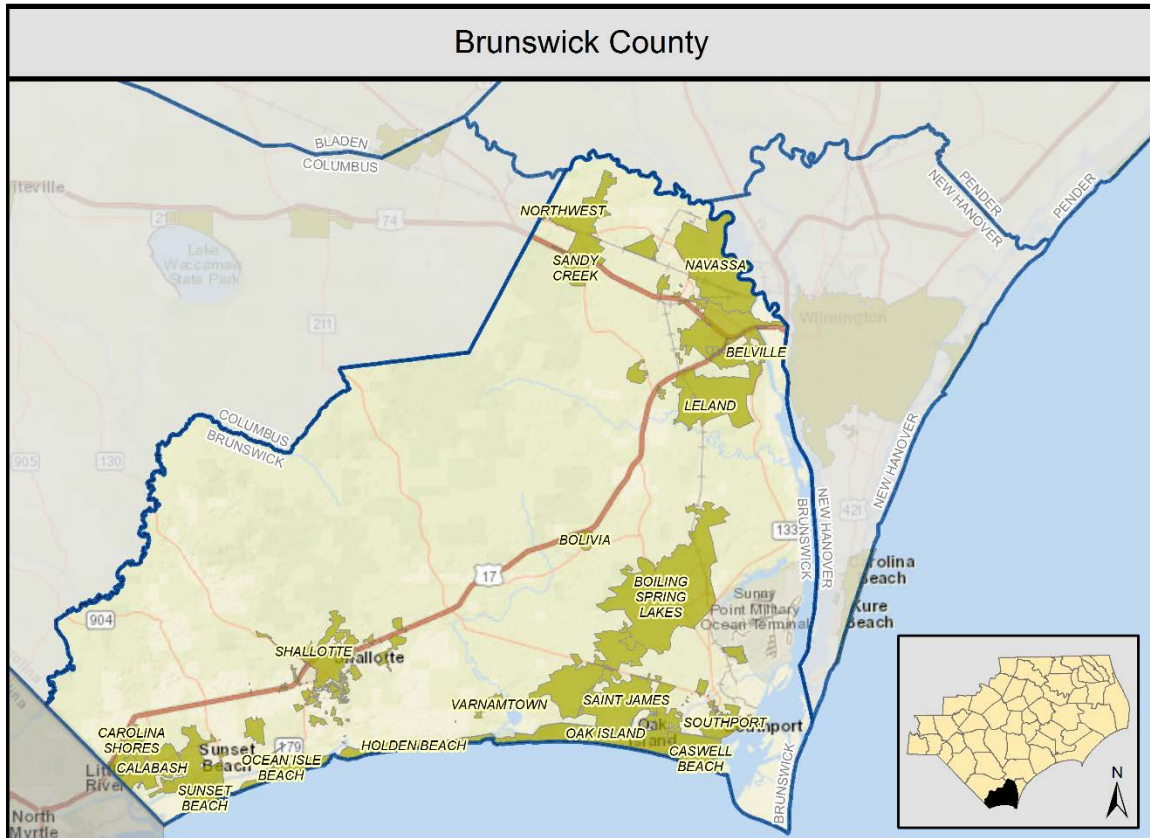


Figure 3: Brunswick Base Map

Demographic Profile

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

Population

Brunswick County has a population of 115,926. Leland is the most populous place within Brunswick County with a population of 16,122, and Bald Head Island is the least populous place with a population of 205.³

³ Source: US Census Bureau, American Community Survey 5-year Estimates (2011-2015), Table B01001, "Sex by Age."

Population Change (2000 to 2010)

The Brunswick County population increased between the 2000 and 2010 Census. In 2000, the population was 73,143, and in 2010, it was 107,431. The population increased by 34,288 people, or more than 46 percent. In comparison, North Carolina grew by 19 percent from 8,049,313 people in 2000 to 9,535,483 in 2010.⁴

Age

The median age in Brunswick County is 50, which is higher than the median age in North Carolina. Within Brunswick County, the St. James population has the oldest median age (67) and the Bolivia population has the youngest median age (26).⁵

⁴ 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*

⁵ Source: US Census Bureau, *American Community Survey 5-year Estimates (2011-2015)*, Table B01001, "Sex by Age."

Race and Ethnicity

Brunswick County is mostly White (83 percent) and African American (11 percent) with other races constituting the remaining 6 percent. In comparison, North Carolina is approximately 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, and 5 percent other and multiple races.

Within Brunswick County, most towns are predominantly White while Navassa and Northwest are majority African American. In Boiling Spring Lakes, 8 percent of the population identifies as “Some Other Race.”

The Latino population in Brunswick County is 5 percent compared to 9 percent for North Carolina. Leland has the largest Latino population (877) while Calabash has the largest Latino population by percentage (12). Bolivia does not have a Latino population according to the census data.

Geography	White	Black or African American	American Indian and Alaska Native Alone	Asian	Native Hawaiian/ Pacific Islander	Some Other Race	Two or More Races	Total Non-White
Bald Head Island	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Belville	76.4%	13.9%	0.1%	1.3%	0.0%	4.9%	3.4%	23.6%
Boiling Springs Lake	87.6%	1.2%	0.0%	1.0%	0.0%	8.0%	2.2%	12.4%
Bolivia	98.4%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	1.6%
Calabash	86.9%	7.4%	0.4%	0.7%	0.6%	0.0%	3.9%	13.1%
Carolina Shores	98.1%	0.3%	0.0%	1.6%	0.0%	0.0%	0.0%	1.9%
Caswell Beach	89.9%	0.0%	0.0%	8.3%	0.0%	0.0%	1.8%	10.1%
Holden Beach	96.6%	3.1%	0.0%	0.2%	0.0%	0.0%	0.0%	3.4%
Leland	83.8%	7.0%	0.1%	2.3%	0.0%	3.3%	3.5%	16.2%
Navassa	22.0%	54.2%	0.2%	0.0%	18.2%	2.3%	3.1%	78.0%
Northwest	30.7%	64.3%	0.0%	0.0%	0.0%	0.0%	5.0%	69.3%
Oak Island	96.4%	1.1%	0.1%	0.0%	0.0%	1.4%	1.0%	3.6%
Ocean Isle Beach	98.7%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	1.3%
St. James	97.9%	1.6%	0.0%	0.6%	0.0%	0.0%	0.0%	2.1%
Sandy Creek	90.5%	3.6%	1.6%	0.0%	0.0%	0.0%	4.3%	9.5%
Shallotte	80.1%	8.6%	0.6%	2.1%	0.1%	5.7%	2.8%	19.9%
Southport	84.9%	11.7%	0.0%	0.0%	0.0%	0.5%	2.9%	15.1%
Sunset Beach	98.7%	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	1.3%
Varnamtown	98.4%	0.0%	0.0%	0.5%	0.0%	0.0%	1.0%	1.6%

Table 2: Brunswick County Race and Ethnicity

Limited English Proficiency

Limited English Proficiency (LEP) is defined as populations 18 years or older that speak English less than very well. In Brunswick County, most individuals that 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 Brunswick County, Navassa has the largest LEP population. The primary language group for LEP

populations in Navassa is Asian/Pacific at 11 percent. The highest Spanish speaking population by percentage is Calabash. Bolivia and Varnamtown have no LEP population.⁶

Poverty

In Brunswick County, 16 percent of the population is below the poverty level compared to 17 percent of the North Carolina population. Calabash, Navassa, Northwest, and Varnamtown have populations above the state poverty level average. Bolivia has the lowest percentage of residents living below the poverty level with 1 percent.⁷

Low and Moderate Income Individuals

In Brunswick County, 39 percent of the population are classified as low and moderate income (LMI) individuals based on the US Department of Housing and Urban Development's definition. In comparison, 39 percent of the North Carolina population is classified as LMI.⁸

Median Household Income

The median household income of the population 25 to 64 years old is just under \$47,000 in Brunswick County and \$53,000 in North Carolina. Bald Head Island has the highest median household income for this age group (\$137,500) and Navassa has the lowest (\$37,000). Median household income was not available for Carolina Shores, Caswell Beach, and Sandy Creek.⁹

⁶ Source: US 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."

⁷ Source: US Census Bureau, American Community Survey 5-year Estimates (2011-2015), Table C17002, "Ratio of Income to Poverty Level in the Past 12 Months."

⁸ Source: US 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/>

⁹ Source: US Census Bureau, American Community Survey 5-year Estimates (2011-2015), Table B19094, "Median Household Income in the Past 12 Months."

Zero Car Households

In Brunswick County, 4 percent of households do not have a vehicle available compared to 7 percent of North Carolina households. Within Brunswick County, Bald Head Island has the highest percentage of households without access to a vehicle (32 percent) while Leland has the lowest percentage (0 percent).¹⁰

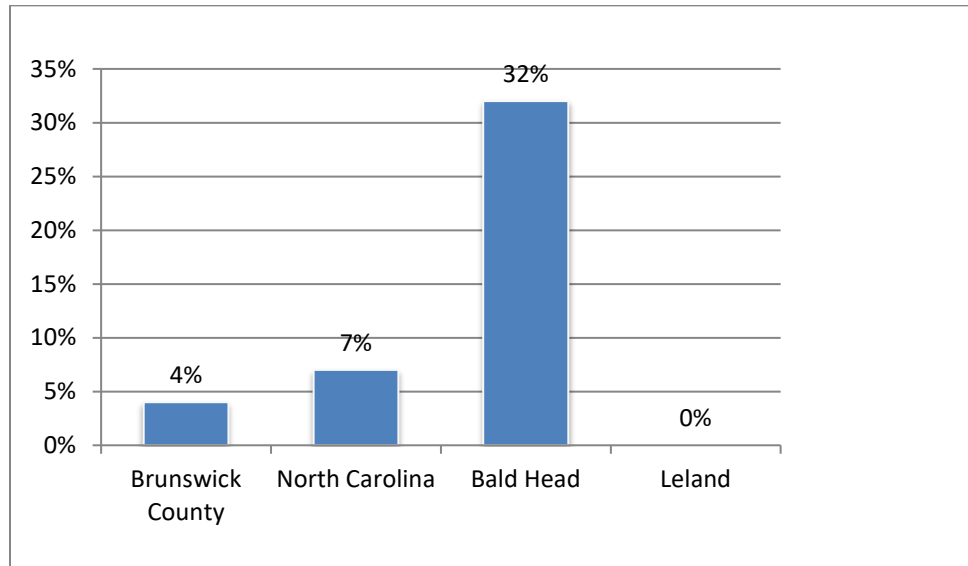


Figure 4. Zero Car Households by Percentage

Commuting: Travel Time to Work, Means of Transportation

The majority of Brunswick County residents commute alone to work by vehicle, 80 percent, which is similar to North Carolina average of 81 percent. Within Brunswick County, Sandy Creek has the largest percentage of commuters commuting alone (88 percent) and Bald Head Island has the least (9 percent).

Southport has the largest percentage of residents commuting by public transportation (5.5 percent). In comparison, 1 percent of North Carolina commuters use public transportation. A greater percentage of residents in Carolina Shores, Ocean Isle Beach, St. James, Shallotte, and Sunset Beach commute by walking, bike, or motorcycle than the North Carolina average of 2 percent.

The mean commute time to work for Brunswick County residents is 23.7 minutes. In comparison, the North Carolina mean commute time is 24.7 minutes. Within Brunswick County, Bald Head Island has the shortest mean commute time at 12.2 minutes while Boiling Spring Lakes has the longest at 31.1 minutes.¹¹

¹⁰ Source: US Census Bureau, American Community Survey 5-year Estimates (2011-2015), Table B25044, "Tenure by Vehicles Available."

¹¹ Source: US 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)."

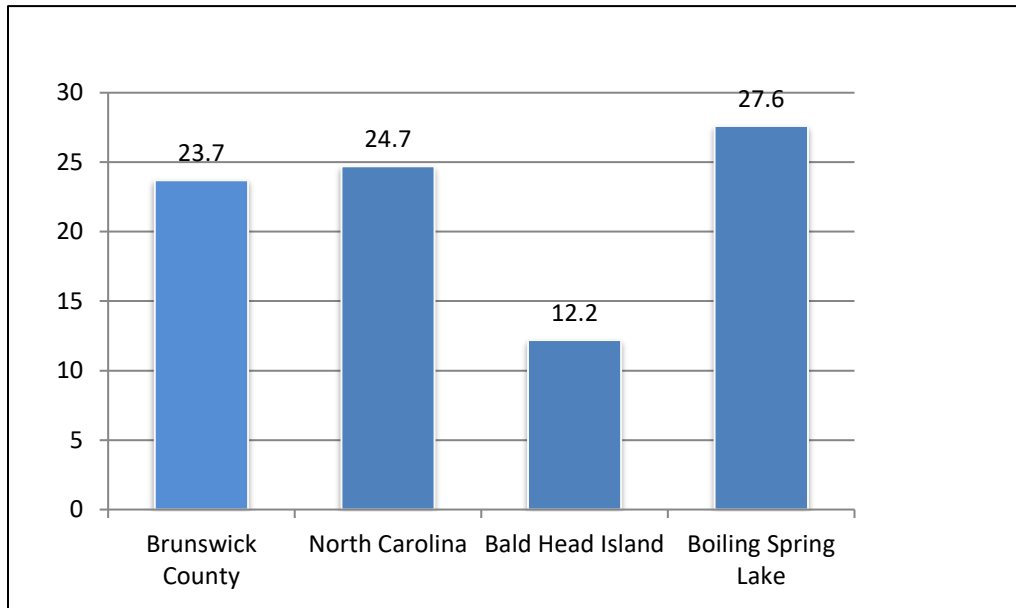


Figure 5. Mean Commute Time to Work in Minutes

Housing Profile

Brunswick County has over 80,412 housing units, 64 percent of which are single-family homes, 13 percent multi-family units, and 23 percent manufactured housing.¹²

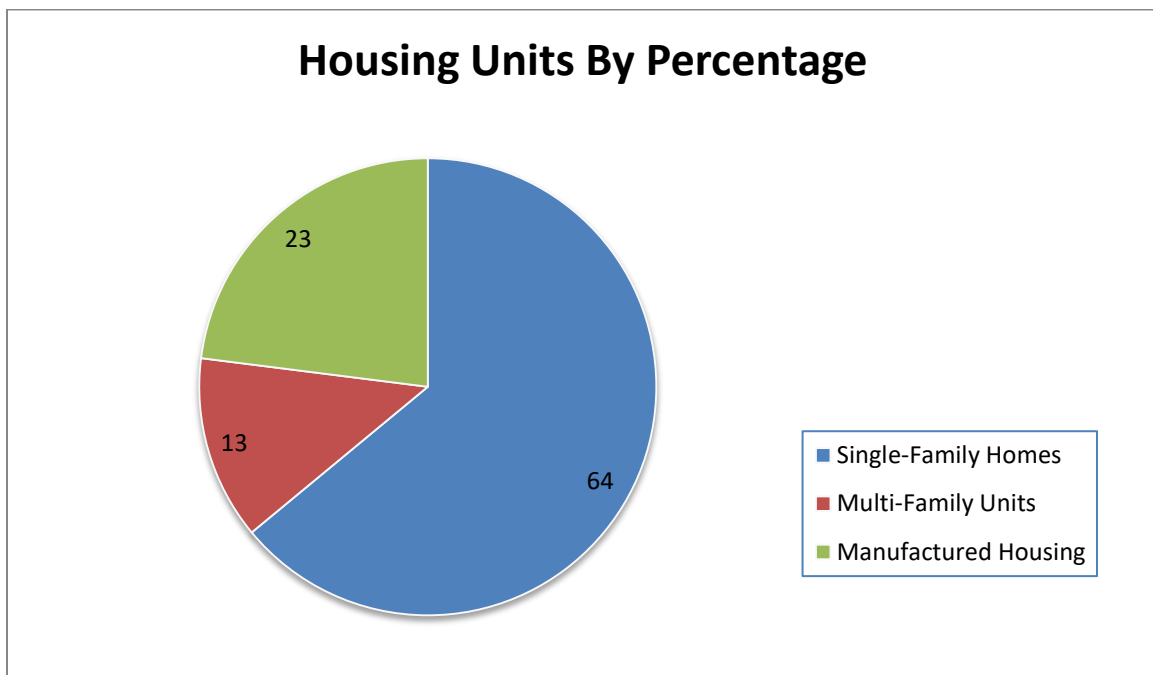


Figure 6. Housing Units by Percentage

¹² Sources: US 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

In Brunswick County, 39 percent of housing units are vacant, which is above the 15 percent for North Carolina. Within Brunswick County, Bald Head Island has the largest percentage of vacant housing units (90.4 percent) while Sandy Creek has the least (0 percent).

Of the occupied housing units, 96 percent are owner-occupied compared to 65 percent in North Carolina; 24 percent of housing units are renter-occupied compared to 35 percent in North Carolina.

The median housing value in Brunswick County is \$182,500. In comparison, the median housing value in North Carolina is \$140,000. Within Brunswick County, Ocean Isle Beach has the highest median housing value (\$467,000), and Northwest has the lowest median housing value (\$88,000).

According to the National Housing Preservation Database, Brunswick County has 641 affordable housing units. A majority of the affordable housing is located within Southport. Affordable housing can also be found in Shallotte.

Economic / Business Profile

Brunswick County is home to a diverse array of businesses from retail, health care, and food service, to real estate and construction. According to the US Census Bureau's Longitudinal-Employer Household Dynamics Program, the largest concentrations of jobs within Brunswick County are in Shallotte and in the coastal areas of the County.¹³

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 Brunswick County is 49,758.¹⁴ Within Brunswick County, Leland has the largest number of residents 16 years or over in the labor force (13,031) while Bald Head Island has the fewest (204).¹⁵

The civilian unemployment rate in Brunswick County is 6.4 percent. In comparison, the North Carolina civilian unemployment rate is 5.1 percent.¹⁴ Within Brunswick County, Caswell Beach has the smallest civilian unemployment rate at 2.7 percent while Varnamtown has the largest at 16.8 percent.¹⁵

Major Employers

The top ten employers in Brunswick County¹⁶ represent the retail, public administration, education, and health service industries, and are listed in order of total employees:

¹³ Source: US Census Bureau Longitudinal-Employer Household Dynamics Program

¹⁴ 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>

¹⁵ Source: US Census Bureau, American Community Survey 5-year Estimates (2011-2015), Table B23025, "Employment Status For The Population 16 Years And Over."

¹⁶ Sources: NC Department of Commerce

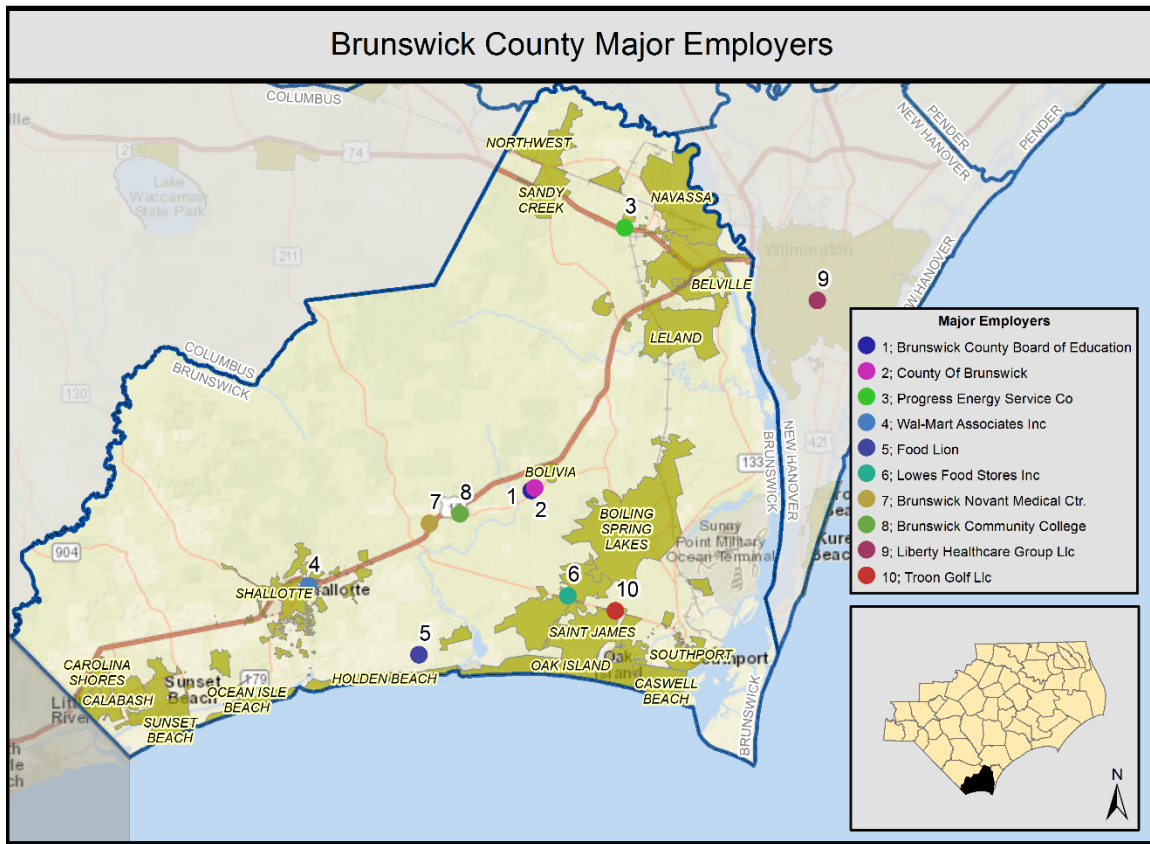


Figure 7: Major Employers by Number of Employees

Economic Development

The International Logistics Park of North Carolina is located in Brunswick County just outside Leland. The Park contains 1,029 acres and is ideal for manufacturing and warehousing. The County also has the Mid Atlantic Industrial Rail Park and the Leland Industrial Park.¹⁷

“Brunswick County encourages and promotes the development of new business and industry and the growth of existing businesses in the County.”

“The mission of Brunswick Community College is to provide opportunities for individuals to be successful through accessible, high quality, student-centered programs and services that meet the educational, cultural and workforce needs of a diverse community.”

Infrastructure Profile

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

¹⁷ Sources: Brunswick County Economic Development and Brunswick Community College

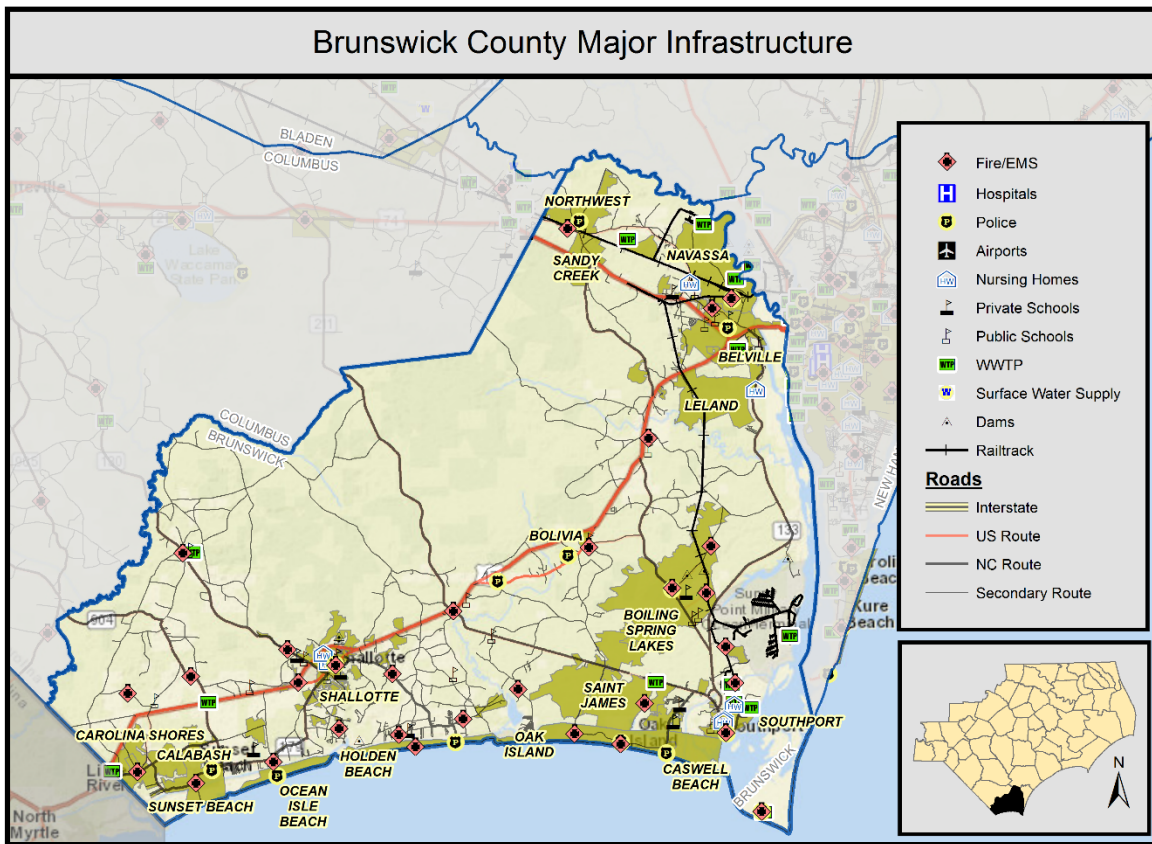


Figure 8: Brunswick County Major Infrastructure

Transportation

Brunswick County is connected to the region by US 74 and US 17. US 74 is a major east-west highway that provides Brunswick County with access to western North Carolina and deep water ports to the east. US 17 is a north-south highway connecting the County with Myrtle Beach, SC. Brunswick County is home to the Port of Wilmington, “one of the few South Atlantic ports with readily available berths and storage areas for containers and cargo.” Brunswick County has one regional airport, Cape Fear Airport, and is in close proximity to two International airports: Myrtle Beach and Wilmington. CSX has a rail line that connects to the West and South and has a rail yard in Leland.¹⁸

Health

Brunswick County is home to two Hospitals: Brunswick Novant Medical Center and Doshier Memorial Hospital.

Education

Brunswick County Public Schools administer nine elementary, three middle, and five high schools. Brunswick Community College is located in Bolivia and is a member of the North Carolina Community College System.¹⁹

¹⁸ Sources: Brunswick County Economic Development

¹⁹ Sources: Brunswick County Economic Development and Brunswick Community College

Water

The Brunswick County water system is comprised of three service areas: Cape Fear, Shallotte, and Waccamaw. Its finished storage capacity is 18 million gallons per day. The County has 9 different wastewater treatment facilities including the Ocean Isle Beach facility acquired in 2015.²⁰

Power

Brunswick County is home to the Brunswick Nuclear plant operated by Duke Energy along US 70 and north. These power plants have a net summer capacity of 5 megawatts each.²¹

Environmental Profile

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

Water Resources

The Juniper Creek flows west to east through the middle of Brunswick County. Wetlands are present throughout the County. The most common wetland type in Brunswick County is freshwater forested/shrub wetland. The coastal areas contain a large swath of Estuarine and Marine Wetland.²²

Natural and Managed Areas

According to the NC Natural Heritage Program, there are a number of natural areas of high to exceptional value in Brunswick County. There are several managed areas under state ownership within Brunswick County. Managed areas are properties and easements where natural resource conservation is either one of the current primary management goals or are of conservation interest.²³

Biodiversity and Wildlife Habitat

The NC 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. Most of the County is ranked 5 or above.²⁴

Parks and Recreation

The Brunswick County Parks and Recreation Department maintains several parks and facilities throughout the County. Brunswick County also has 39 maintained golf courses in the County with an additional 100+ courses located in nearby Myrtle Beach, SC. Other recreational activities in Brunswick County include fishing, water sports, hiking, and hunting.²⁵

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

²¹ Source: US Department of Energy, US Energy Mapping System

²² Source: NC Natural Heritage Program

²³ Source: NC Natural Heritage Program

²⁴ Source: NC Natural Heritage Program

²⁵ Sources: NC Natural Heritage Program, Brunswick County Parks and Recreation Department

Administrative Profile

The administrative capabilities of Brunswick County and the municipalities within the County are discussed in great detail within Section 4 of the Southeastern NC Regional Hazard Mitigation Plan (2016). The assessment evaluates the capabilities of the County and municipalities to implement mitigation actions across the areas of planning and regulatory capabilities, administrative and technical capabilities, fiscal capabilities, and political capabilities. Many more details about the capabilities of Brunswick County and the municipalities can be found in that document.

In terms of administrative capabilities, the County has many of the staff and the necessary plans, policies and procedures in place that are found in communities with “high” capabilities. Brunswick County has Emergency Management and Planning departments with the capacities to assist in implementing the resilience strategies proposed in this plan. Some of the other indicators of capability for the County include the following: Comprehensive Land Use Plan, Zoning Ordinance, Subdivision Regulations, and Floodplain Management Ordinance. These plans, policies and procedures help ensure that new development in the County will be managed in a responsible manner and will take place in non-hazardous areas.

All of the municipalities in Brunswick County have high capabilities as well. All of the municipalities have a Planning department that would likely be able to assist with implementing the strategies in this plan as well. In addition, the municipalities have the plans, policies and procedures in place that indicate high capability.

An aerial photograph showing a residential neighborhood severely impacted by flooding. The houses, which are mostly two-story structures with grey roofs, are surrounded by deep, brown floodwater. The water has inundated the yards and streets, leaving only the roofs and some upper floors of the houses visible. In the background, a large body of water, possibly a lake or a wide river, is also flooded, with trees and vegetation partially submerged. The foreground is dominated by a dense forest of green trees, providing a stark contrast to the flooded area. The overall scene depicts the significant damage and displacement caused by a storm.

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 3-8 inches in the central regions of North Carolina and 8 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 had received above normal rainfall in the month of September leading to wet antecedent conditions prior to Hurricane Matthew. Total rainfall depth for Brunswick county is highlighted graphically in the figure below;

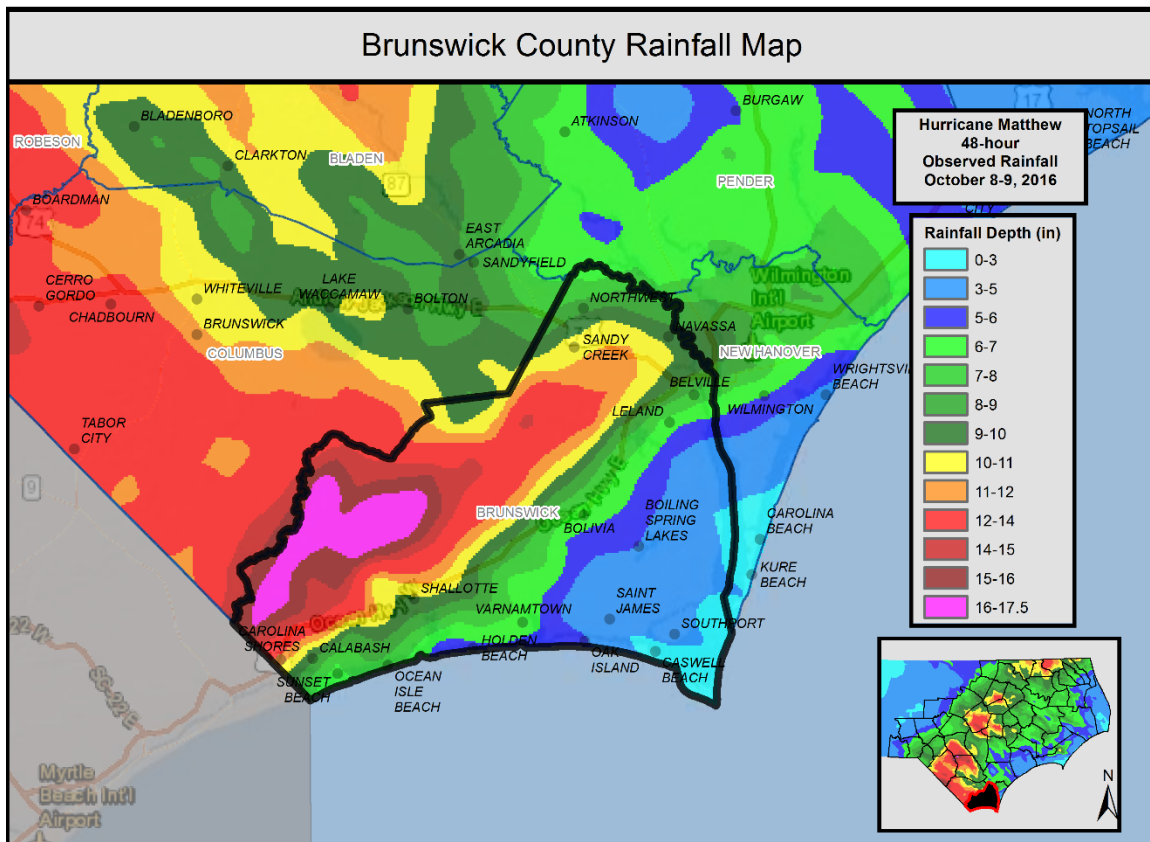


Figure 9: 48-hour Observed Rainfall Depth (October 8-9, 2016)

Riverine Flooding Summary

The effects of Hurricane Matthew on Brunswick County were most pronounced along the Waccamaw River in western Brunswick County. Several roads in the area were closed during the storm as a result of flooding. USGS documented stream gage 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 gage data from the USGS report for Brunswick County and nearby gages is summarized below.

USGS Gage	County	River Name and Location	Drainage Area (sq mi)	Peak Matthew Elevation (ft)	Previous Record (ft)
02109500	Brunswick	Waccamaw River at Freeland, NC	680.0	19	19.3
02110500	Horry, SC	Waccamaw River near Longs, SC	1,110.0	16.95	17.94
02110400	Horry, SC	Buck Creek near Longs, SC	49.4	16.88	15.75

Table 3: Brunswick County USGA Stream Gage Data

The USGS gage data generally validates the flooding experienced in the towns of Carolina Shores and Calabash and unincorporated areas in the western part of Brunswick County. It should be noted that the peak gage elevations along the Waccamaw River occurred several days after the peak rainfall in the area.

Caw Caw Swamp and Little Caw Caw Swamp experienced significant flooding during Hurricane Matthew. Due to the very flat topography in the region, localized flooding of drainage systems discharging into the Caw Caw Swamp was experienced. Although these areas did not experience widespread flooding during Hurricane Matthew, they have frequently experienced flooding in other major storms such as Hurricane Floyd in September 1999.

Other areas of Brunswick County experienced some localized riverine flooding, but in general, riverine flooding during and after Hurricane Matthew was not a county-wide event impacting large areas of the population.

Coastal Flooding Summary

Brunswick County experienced coastal flooding as well as beach and dune erosion due to Hurricane Matthew. Hurricane Matthew peak surge elevations were measured at several USGS and NOAA coastal/tidal gage stations during the storm. Station records were analyzed along the coast of Brunswick County to compare Hurricane Matthew to the FEMA flood recurrence intervals. An approximate recurrence interval was determined for each site and this information is summarized for Brunswick County in the table below.

County	Site Description	Body of Water	Estimated Peak Surge (ft)	Estimated Recurrence Interval
Brunswick	Ocean Isle Pier	Open Coast	7.7	50
Brunswick	Holden Beach Fishing Pier	Open Coast	7.5	50
Brunswick	Ocean Crest Fishing Pier	Open Coast	7.4	50
Brunswick	Sunset Beach Boating Access Area	Sound	6.9	25
Brunswick	Ocean Isle Beach Boating Access	Sound	6.9	25
Brunswick	Village Point Rd at Bowen Point	Sound	6.8	25
Brunswick	Stone Chimney Rd at Lockwoods Folly Inlet	Sound	6.7	25
Brunswick	Holden Beach Marina at AIW	Sound	6.5	25
Brunswick	Oak Island Pier	Open Coast	6.5	25
Brunswick	Waterway Park at AIW	Sound	6	25
Brunswick	Southport Waterfront Park	Sound	5.4	25
Brunswick	NC Baptist Assembly at Ft Caswell	Sound	5.4	25

Table 4: Brunswick County Coastal Flooding

Based on a review of Public Assistance requests, the beach communities in Brunswick County experienced beach erosion, loss of sea oats, and dune loss in several locations. Some areas also had damage to public beach access ramps or need new ramps designed and constructed over dunes that have shifted significantly. The pier at Oak Island was significantly damaged and has been closed to the public.

Power outages were common in the coastal communities during and following the storm. However, power was restored to most areas quickly.

Housing Impacts

According to FEMA Individual Assistance claims as of March 20, 2017, there were 784 registrations for Individual Assistance in Brunswick County as a result of Hurricane Matthew. NFIP claims totaled 398 and SBA home loan applications totaled 57. Additional claims from Hurricane Matthew may still be pending, so these totals may not reflect the final claims data from the event.

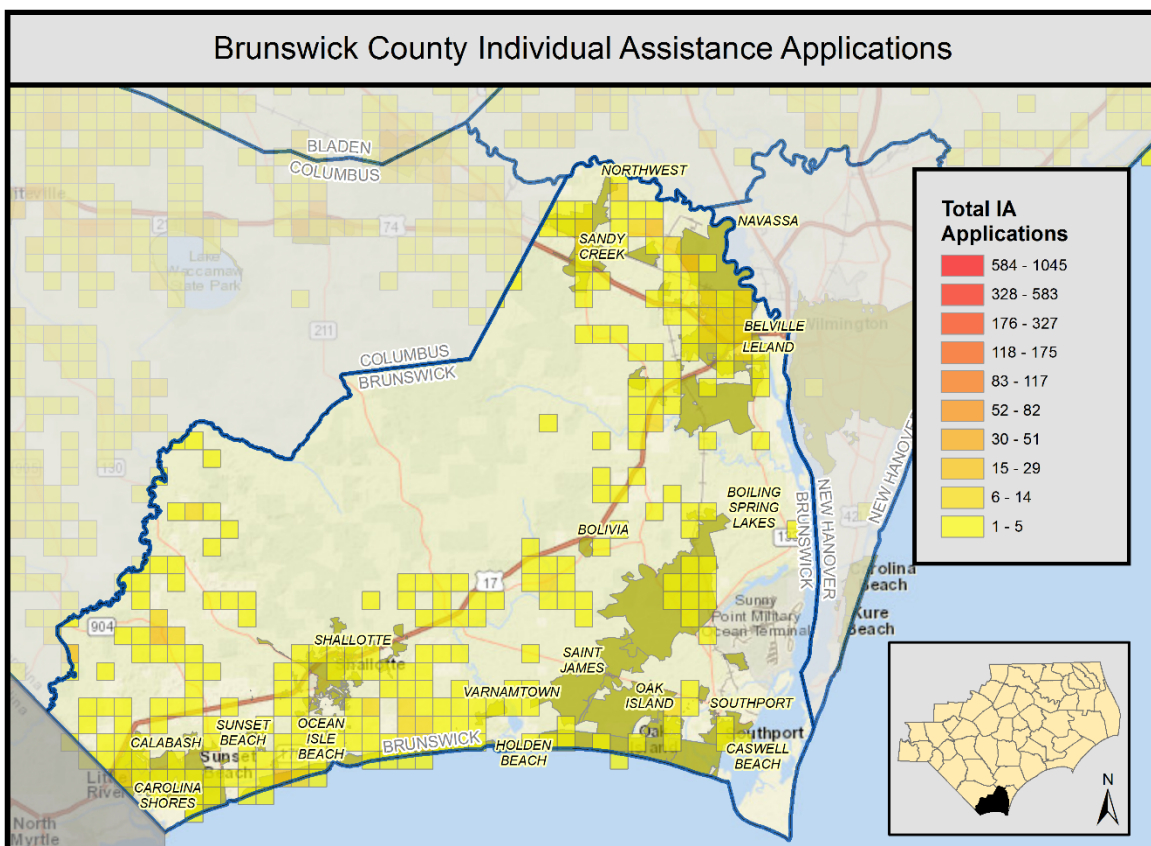


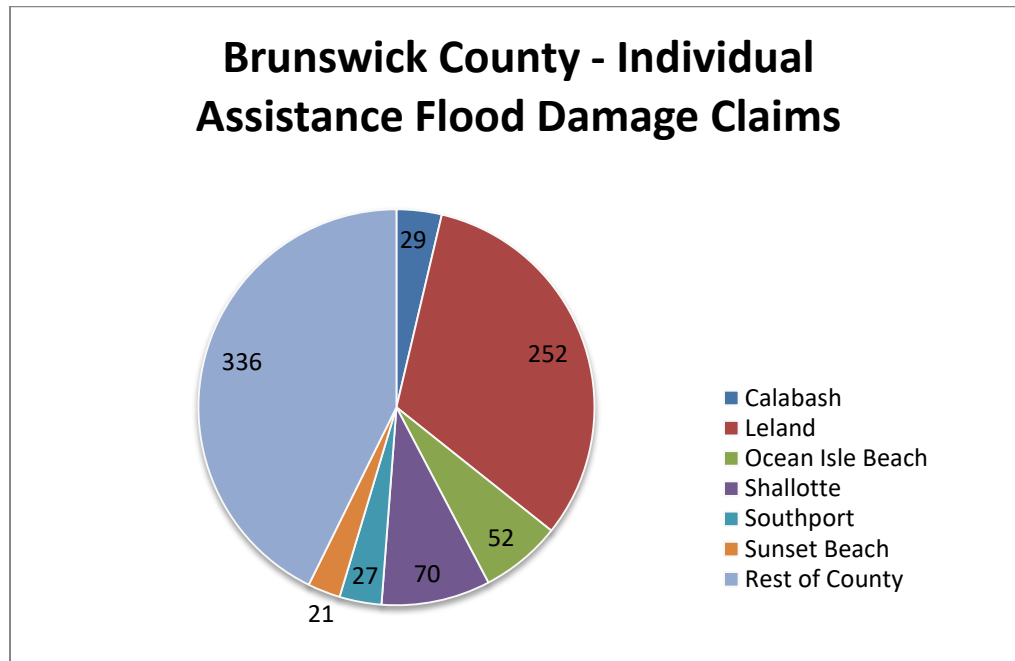
Figure 10: Brunswick County IA Applications by Area

Based on meetings with County personnel and representatives from several of the towns in Brunswick County, impacts to housing from Hurricane Matthew were far less than other storms that have hit the area. With that in mind, the planning team attempted to take a comprehensive look at both Hurricane Matthew impacts and historic impacts that local officials felt would validate areas that should be considered at high risk to future flooding.

Based on a review of Individual Assistance Claims, NFIP Claims, and SBA home applications, it seems that housing was significantly impacted in Brunswick County as a result of Hurricane Matthew. However, actual payouts and loans were limited, potentially revealing that damage to housing was not as widespread as the

claims data would indicate. The bullets below summarize some of the major impacts to housing that were identified.

- Homes damaged from Hurricane Matthew:** In Brunswick County, NFIP claims were concentrated along coastal areas. Local officials indicated that most of the damage was wind related as opposed to coastal flooding. Local officials reported some structure flooding in the Carolina Shores area, but NFIP claims in that area were minimal, and officials indicated that flooding has been worse in previous storm events. There were also a number of IA claims in Shallotte and inland areas of Holden Beach as well as in the communities of Belville, Leland, and Northwest. However, there is no clear pattern between IA claim location and FEMA mapped Special Flood Hazard Areas (SFHA) in Brunswick County.



• **Figure 11: Number of IA Flood Damage Claims by Area**

- Homes At-Risk of Future Flooding:** Concentrations of structures in the SFHA are found in Carolina Shores along Caw Caw Swamp and Little Caw Caw Swamp, in nearly all coastal areas of the county, and in the community of St. James. Based on an analysis of claims data, there are approximately 36.5 miles of unstudied streams in Brunswick County that may have experienced flooding during Hurricane Matthew. It is not known if flooding of these unmapped streams caused flooding of homes in Brunswick County.

Economics / Business / Jobs

There were only minor impacts to the economy in Brunswick County from Hurricane Matthew compared to the harder hit counties. As of March 20, 2017, there were 90 business applications for loans from the SBA, and a majority of those were located along the coastal areas of the county. Impacts to the economy/businesses/jobs that were identified by local officials from the event are summarized below.

- Downtown Areas Impacted:** Local officials did not report any concentrated or widespread damage to downtown areas in any of the 19 municipalities in Brunswick County.

- **Identified Economic Development Zones:** There are three economic development areas in Brunswick County. All three are located along US Hwy 74 in the northeast corner of the county near the communities of Leland and Sandy Creek. Local officials did not report any significant damage from Hurricane Matthew in these areas.
- **Employment:** There are no known impacts to employment in Brunswick County resulting from Hurricane Matthew.

Infrastructure

According to Public Assistance claims data, which are often closely tied to infrastructure, as of March 17, 2017, there were 17 submitted projects for a total of \$5,028,762 in Brunswick County as a result of Hurricane Matthew. Additional claims from Hurricane Matthew may still be pending, so this number may not reflect the final claims data from the event.

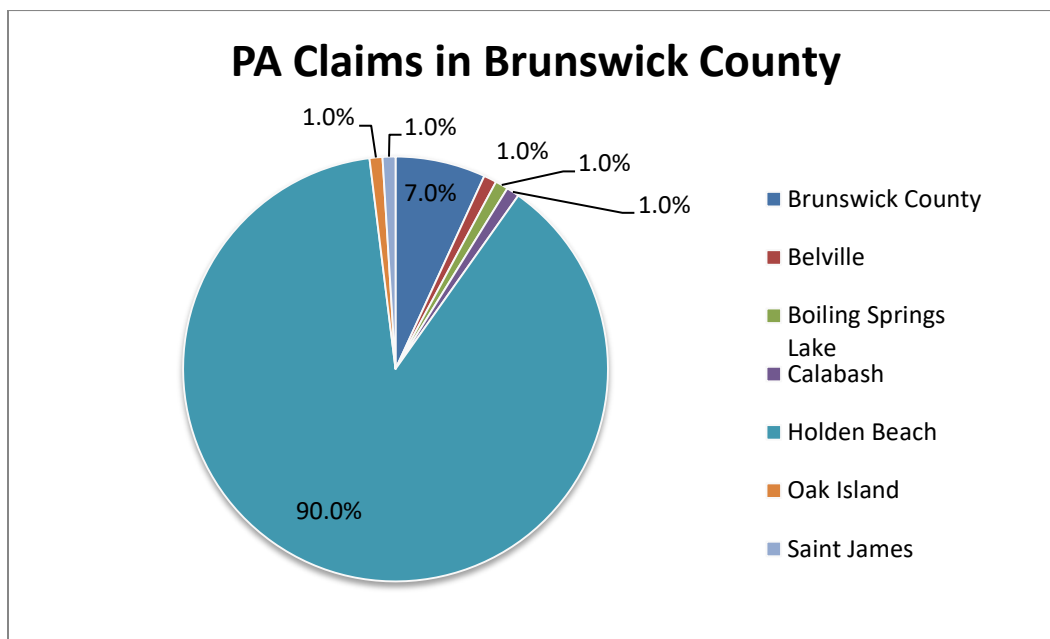


Figure 12. Brunswick County PA Claims by Area and Percentage

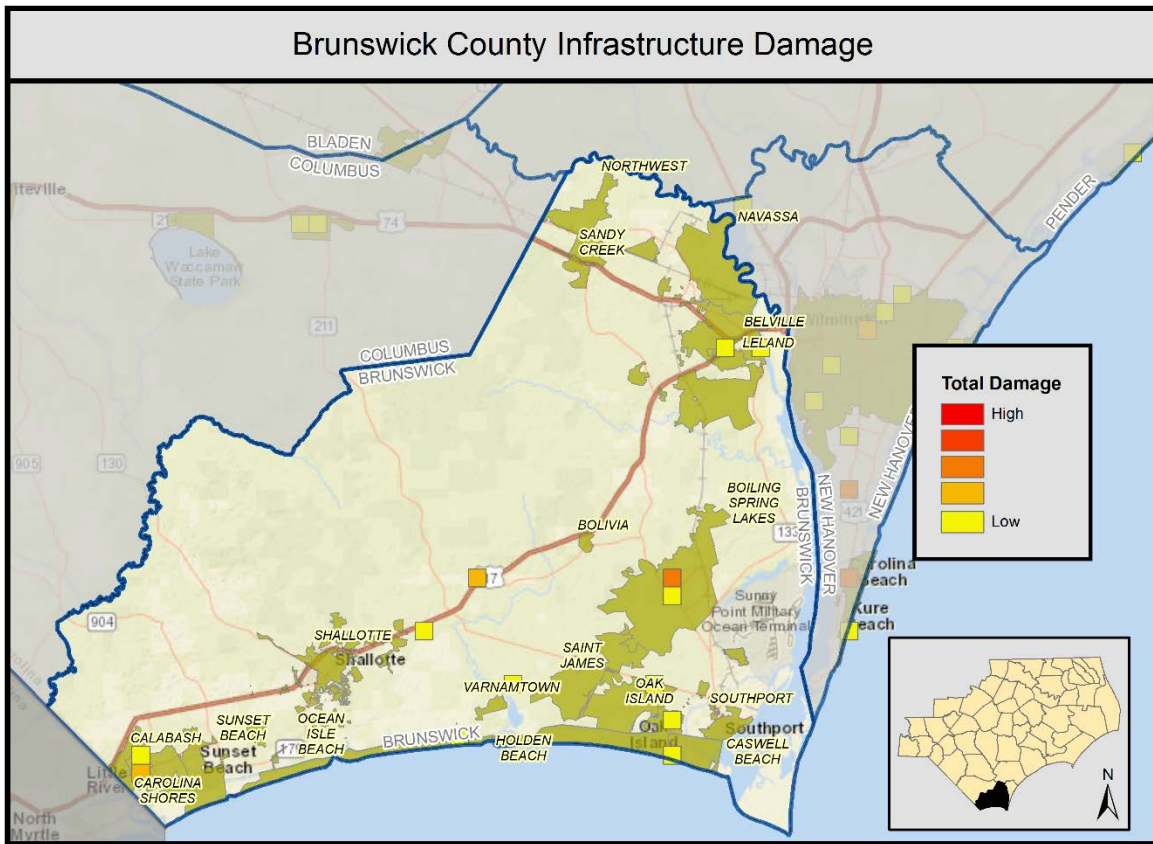


Figure 13: Brunswick County Infrastructure Damage

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 in multiple locations. The bullets below summarize some of the major impacts to infrastructure that were identified by local officials from the event.

- **Dam Issues:** Brunswick County has 4 high hazard dams and one intermediate hazard dam. There were no reported issues with any dams in Brunswick County during or following Hurricane Matthew.
- **Road/Bridge Flooding:** Numerous Brunswick county roads and bridges experienced flooding during Hurricane Matthew. Many of these locations have a history of flooding and are often affected by heavy rainfall events. For example:
 - NCDOT reported several roads closed due to flooding. NC-904, SR-1300, SR-1333, SR-1335, SR-1412, and SR-1426 were impassable during the peak of the storm. Most of these are located in the northwest part of the county along the Waccamaw River and tributaries to the Waccamaw that experience backwater flooding from the Waccamaw river.
 - Many private roads and roads owned and maintained by the 19 municipalities in Brunswick County experienced flooding for some period of time during the storm.
 - In the Town of Calabash, a private road over a non-classified golf course lake dam at The Pearl golf course was washed away due to the dam overtopping. Residents have been forced to access their homes using golf cart paths since Hurricane Matthew.
 - In the Town of Carolina Shores, recurring flooding problems occur along Persimmon Swamp Canal and in other neighborhoods in the vicinity of Persimmon Swamp Canal that were

constructed prior to the adoption of State-required stormwater controls. Many of the roadway culverts are frequently flooded during heavy rainfall events.

- In the Town of Calabash, the HWY 179 bridge over the Calabash River has flooded in past events, and nearby, Shoreline drive overwashed by storm surge. The concurrent inundation of these two roadways cut off access to approximately 900 residential homes. There is no other way for emergency responders to access the stranded residents.
- The Town of St. James owns and maintains a bridge over Polly Gulley Creek that provides the only access to approximately 621 residential homes. There is no other way for emergency responders to access the stranded residents. This bridge has been flooded in several storm events prior to Hurricane Matthew.

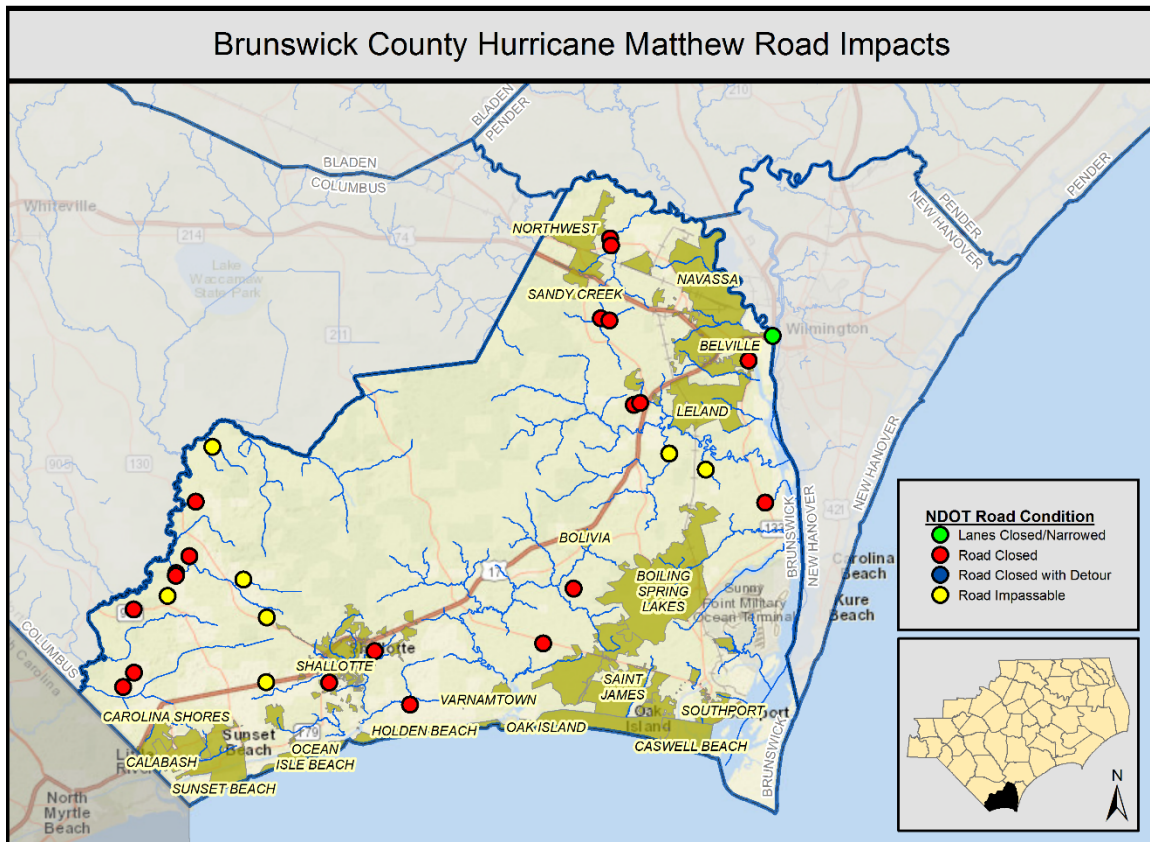


Figure 14: Impacted NCDOT Structures in Brunswick County

- **Water/Wastewater Infrastructure:** Water and wastewater infrastructure is critical to maintaining the health and well-being of the public in the wake of a storm event. Often, this infrastructure is threatened due to the necessity of placing it near water bodies, which naturally causes the risk to flooding. During Hurricane Matthew, a number of water/wastewater facilities were impacted in Brunswick County.
 - Three sewer lifts stations in the Town of Leland experienced electrical systems failure and damage due to floodwater infiltration.
 - Major damage occurred to the 48-inch primary raw water transmission main crossing the Cape Fear River. This is the main water supply infrastructure for Brunswick, Pender, and New Hanover

Counties. The damage created an emergency water supply situation for Brunswick, Pender, and New Hanover Counties following Hurricane Matthew.

Ecosystems / Environment

Overall, environmental impacts in Brunswick County as a result of Hurricane Matthew were relatively minimal. However, there were some noteworthy underlying issues related to maintenance of environmental features that may contribute to flooding.

- **Caw Caw Swamp:** In the southwest portion of the county, in and around the Town of Carolina Shores, the Caw Caw Drainage District has suffered major flooding for many years. Topographic challenges, debris build-up, and ditch siltation have all compounded flooding in the area.



4. Strategies for Resilient Redevelopment

4. Strategies for Resilient Redevelopment

This section provides details about the resilience and revitalization strategies and actions identified in Brunswick 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	1
Economic Development	0
Infrastructure	19
Environment	2
Grand Total	22

Table 5. Brunswick County Summary of Projects by Pillar

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

Pillar	Action Name	Priority	Overall Ranking
Infrastructure	Brunswick Infrastructure Action 8: 48-inch Raw Water Main Break	High	1
Infrastructure	Brunswick Infrastructure Action 7: Town of Carolina Shores Wastewater Treatment Plan Enhancement	High	2
Infrastructure	Brunswick Infrastructure Action 9: Sanford Dam Spillway Enhancement	High	3
Infrastructure	Brunswick Infrastructure Action 6: Town of Leland Lift Station Improvements	High	4
Infrastructure	Brunswick Infrastructure Action 18: Town of Ocean Isle Beach Pump Station Enhancements	High	5
Infrastructure	Brunswick Infrastructure Action 22: Redundant Raw Water Supply Line	High	6
Infrastructure	Brunswick Infrastructure Action 4: Bald Head Island Stormwater Outfall Repair	High	7
Infrastructure	Brunswick Infrastructure Action 5: Town of Navassa Storm Drainage Repair	High	8
Infrastructure	Brunswick Infrastructure Action 13: Sandy Creek Drive Roadway Enhancements	High	9
Infrastructure	Brunswick Infrastructure Action 15: Install 4 Flood Gages to Enhance FIMAN Coverage	High	10

Pillar	Action Name	Priority	Overall Ranking
Infrastructure	Brunswick Infrastructure Action 1: Town of Ocean Isle Beach Fire Department Restoration	High	11
Housing	Brunswick Housing Action 19: Town of Carolina Shores Residential Flooding	High	12
Infrastructure	Brunswick Infrastructure Action 2: Carolina Shores Stormwater Infrastructure Retrofit	High	13
Infrastructure	Brunswick Infrastructure Action 3: Town of Leland Stormwater Improvements	High	14
Infrastructure	Brunswick Infrastructure Action 12: Sunset Lake Blvd SW Spillway Upgrades	High	15
Infrastructure	Brunswick Infrastructure Action 10: NC Hwy 179 Bridge Elevation in Calabash, NC	High	16
Infrastructure	Brunswick Infrastructure Action 11: Shoreline Drive West Elevation	High	17
Infrastructure	Brunswick Infrastructure Action 14: St. James Drive Bridge Elevation	High	18
Infrastructure	Brunswick Infrastructure Action 16: Town of Holden Beach Public Access Ramp Reconstruction	High	19
Infrastructure	Brunswick Infrastructure Action 17: Town of Sunset Beach Public Access Ramp Reconstruction	High	20
Environment	Brunswick Environment Action 20: Town of Caswell Beach Dune and Sea Oats Replacement	High	21
Environment	Brunswick Environment Action 21: Caw Caw Drainage District Maintenance	High	22

Table 6. 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	Brunswick Housing Action 19: Town of Carolina Shores Residential Flooding	High	12

Table 7. Brunswick High Priority Housing Summary

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



Town of Carolina Shores Residential Flooding

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 12

Project Timeframe: 1 to 5 years

Location: Town of Carolina Shores, NC

Project Summary: The Town has identified 43 homes/structures that have experienced repetitive flooding from Persimmon Swamp in storms prior to Hurricane Matthew. Many of these homes are not in the SFHA. The Town requests that these homes/structures be made eligible for structural retrofit, elevation, or relocation.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The Town of Carolina Shores has identified 43 homes that have repetitive flooding issues. These structures need some type of mitigation to ensure that future flooding events are not worsened. The Town's preference in dealing with these structures is to retrofit elevate or relocate in that order.	N/A
Consistent with existing plans (describe points of intersection/departure)		Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	Agree
Explain any benefits or impacts to the economy of the county from this project.	There should be minimal impacts to the economy of the county from this project. Ideally any relocation of residences will be such that the tax base is maintained.	Agree
For how long will this solution be effective?	More than 50 years	Agree
How effective is the risk reduction?	100-200 year event	Agree
How many public facilities are involved in this project (buildings and infrastructure)?	0	Agree
Is coordination with other communities/counties needed to complete this project?	No	Agree
Is this project consistent with Federal Laws		Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	Agree
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?		Agree
What impacts to the environment of the county will result from this project?	None except homes may be removed from the floodplain reducing flooding issues in the area.	N/A
What is the capability of the local government to administer this project?	High	Agree
What is the financial range of this project?		Agree
What is the level of public support for this project?	High	Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	Local	Agree

Infrastructure Strategies

High Priority Infrastructure Strategies

Pillar	Action Name	Priority	Overall Ranking
Infrastructure	Brunswick Infrastructure Action 8: 48-inch Raw Water Main Break	High	1
Infrastructure	Brunswick Infrastructure Action 7: Town of Carolina Shores Wastewater Treatment Plan Enhancement	High	2
Infrastructure	Brunswick Infrastructure Action 9: Sanford Dam Spillway Enhancement	High	3
Infrastructure	Brunswick Infrastructure Action 6: Town of Leland Lift Station Improvements	High	4
Infrastructure	Brunswick Infrastructure Action 18: Town of Ocean Isle Beach Pump Station Enhancements	High	5
Infrastructure	Brunswick Infrastructure Action 22: Redundant Raw Water Supply Line	High	6
Infrastructure	Brunswick Infrastructure Action 4: Bald Head Island Stormwater Outfall Repair	High	7
Infrastructure	Brunswick Infrastructure Action 5: Town of Navassa Storm Drainage Repair	High	8
Infrastructure	Brunswick Infrastructure Action 13: Sandy Creek Drive Roadway Enhancements	High	9
Infrastructure	Brunswick Infrastructure Action 15: Install 4 Flood Gages to Enhance FIMAN Coverage	High	10
Infrastructure	Brunswick Infrastructure Action 1: Town of Ocean Isle Beach Fire Department Restoration	High	11
Infrastructure	Brunswick Infrastructure Action 2: Carolina Shores Stormwater Infrastructure Retrofit	High	13
Infrastructure	Brunswick Infrastructure Action 3: Town of Leland Stormwater Improvements	High	14
Infrastructure	Brunswick Infrastructure Action 12: Sunset Lake Blvd SW Spillway Upgrades	High	15
Infrastructure	Brunswick Infrastructure Action 10: NC Hwy 179 Bridge Elevation in Calabash, NC	High	16
Infrastructure	Brunswick Infrastructure Action 11: Shoreline Drive West Elevation	High	17
Infrastructure	Brunswick Infrastructure Action 14: St. James Drive Bridge Elevation	High	18
Infrastructure	Brunswick Infrastructure Action 16: Town of Holden Beach Public Access Ramp Reconstruction	High	19
Infrastructure	Brunswick Infrastructure Action 17: Town of Sunset Beach Public Access Ramp Reconstruction	High	20

Table 8. Brunswick High Priority Infrastructure Summary

These projects represent the infrastructure strategies that Brunswick County indicated are the highest priority to address. Additional details can be found below:

- 48-inch Raw Water Main Break:** The Lower Cape Fear Water and Sewer Authority raw water main failure in Riegelwood, NC impacted water supply in Brunswick County in the aftermath of Hurricane Matthew. The failure occurred in an area affected by flooding from Hurricane Matthew. Brunswick County Public Utilities purchases approximately 80% of the raw water and therefore was responsible for a significant portion of the repair costs.

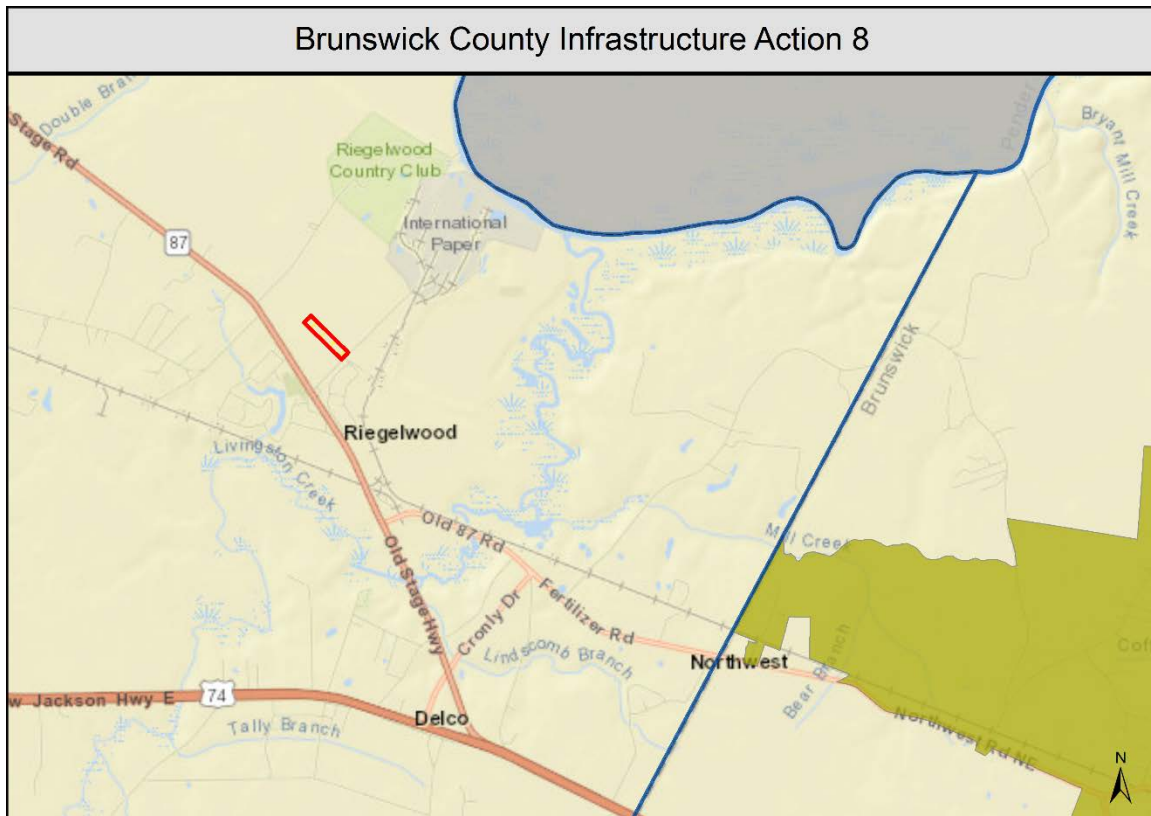


Figure 16. 48-inch Raw Water Main Break

48-inch Raw Water Main Break

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 1

Project Timeframe: 1 year

Location: Riegelwood, NC

Project Summary: The Lower Cape Fear Water and Sewer Authority raw water main failure in Riegelwood, NC impacted water supply in Brunswick County in the aftermath of Hurricane Matthew. The failure occurred in an area affected by flooding from Hurricane Matthew. Brunswick County Public Utilities purchases approximately 80% of the raw water and therefore was responsible for a significant portion of the repair costs.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The water transmission pipe failed during Hurricane Matthew and Brunswick County is looking to receive funds to recoup the money spent repairing the pipe. Future efforts will build infrastructure redundancy but receiving the funds from the repair will allow Brunswick County to be financially resilient.	N/A
Consistent with existing plans (describe points of intersection/departure)	Occurred as a result of Hurricane Matthew so not included in any existing plans.	Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?		Agree
Explain any benefits or impacts to the economy of the county from this project.	Water supply is vital to the county.	Agree
For how long will this solution be effective?		Agree
How effective is the risk reduction?	Unknown	Agree
How many public facilities are involved in this project (buildings and infrastructure)?	1-3	Agree
Is coordination with other communities/counties needed to complete this project?	Yes	Agree
Is this project consistent with Federal Laws		Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	Agree
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?		Agree
What impacts to the environment of the county will result from this project?	None known	N/A
What is the capability of the local government to administer this project?	High	Agree
What is the financial range of this project?	\$1M+	Agree
What is the level of public support for this project?	High	Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	County	Agree

- Town of Carolina Shores WWTP Enhancement:** The Town's WWTP has overflowed into Persimmon Swamp during heavy rainfall events due to Persimmon Swamp flooding and lack of a stormwater attenuation lagoon or tank. Construct a new stormwater attenuation tank or lagoon to prevent overflows into Persimmon Swamp from WWTP. The stormwater attenuation lagoon should be properly sized to adequately hold untreated emergency discharges from the WWTP in the event of significant inflow/infiltration.

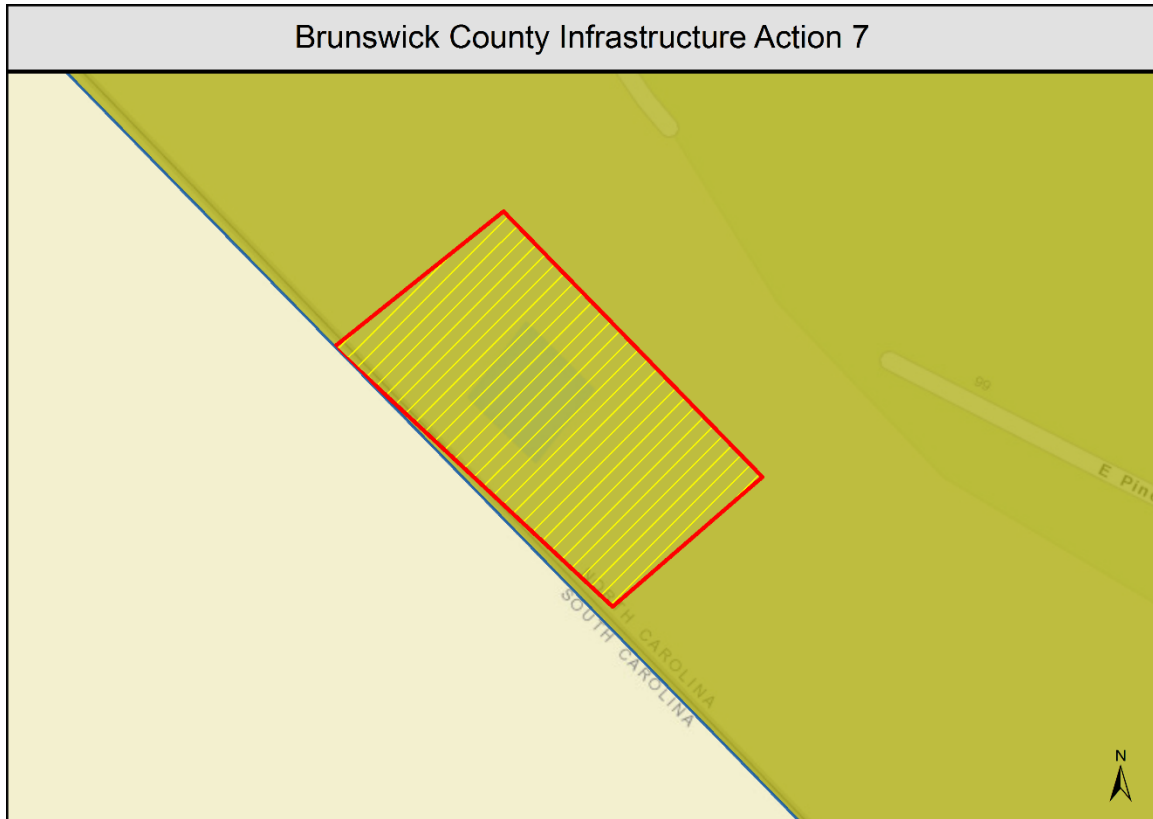


Figure 17. Town of Carolina Shores Wastewater Treatment Plant Enhancement

Town of Carolina Shores WWTP Enhancement

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 2

Project Timeframe: 2 to 5 years

Location: Town of Carolina Shores, NC

Project Summary: The Town's WWTP has overflowed into Persimmon Swamp during heavy rainfall events due to Persimmon Swamp flooding and lack of a stormwater attenuation lagoon or tank. Construct a new stormwater attenuation tank or lagoon to prevent overflows into Persimmon Swamp from WWTP. The stormwater attenuation lagoon should be properly sized to adequately hold untreated emergency discharges from the WWTP in the event of significant inflow/infiltration.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	I am unsure whether the WWTP overflowed during Hurricane Matthew but this is a clear need that has not been addressed to prevent untreated discharges during a major storm event.	N/A
Consistent with existing plans (describe points of intersection/departure)	This is a recurring issue and is consistent with plans of the community.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?		N/A
Explain any benefits or impacts to the economy of the county from this project.	More capacity at the WWTP during flooding events could allow for additional growth within the Town and county due to this project.	N/A
For how long will this solution be effective?		N/A
How effective is the risk reduction?		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?	Yes	N/A
Is this project consistent with Federal Laws		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?		N/A
What impacts to the environment of the county will result from this project?	Constructing a stormwater attenuation lagoon at the WWTP will prevent untreated discharges into the Caw Caw system. It will be a huge benefit to the environment of the county.	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?		N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	County	N/A

- **Sanford Dam Spillway Enhancement:** The Sanford dam is a High Hazard dam spillway that does not meet State standards. The Town has completed a new design but lacks sufficient funding to construct the project. The project is partially funded from several sources. Upgrading the spillway will allow for better control of lake water levels during storm events and prevent flooding of Route 87 upstream of the dam. Route 87 is a major evacuation route for coastal areas of Brunswick County.



Figure 18. Sanford Dam Spillway Enhancement

Sanford Dam Spillway Enhancement

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 3

Project Timeframe: 2 to 3 years

Location: Town of Boiling Spring Lakes, NC

Project Summary: High Hazard dam spillway does not meet State standards. The Town has completed a new design but lacks sufficient funding to construct the project. The project is partially funded from several sources. Upgrading the spillway will allow for better control of lake water levels during storm events and prevent flooding of Route 87 upstream of the dam. Route 87 is a major evacuation route for coastal areas of Brunswick County.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	This project is not a result of Hurricane Matthew but has been persistent during past Hurricanes and needs to be implemented to ensure public safety during future storm events.	N/A
Consistent with existing plans (describe points of intersection/departure)	This has been an ongoing plan for a while in the Town of Boiling Spring Lakes. They are working to raise the money to finish this project.	Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	Agree
Explain any benefits or impacts to the economy of the county from this project.	This is an overall improvement that will promote all areas of the community.	Agree
For how long will this solution be effective?		Agree
How effective is the risk reduction?	Unknown	Agree
How many public facilities are involved in this project (buildings and infrastructure)?	1-3	Agree
Is coordination with other communities/counties needed to complete this project?	No	Agree
Is this project consistent with Federal Laws	Yes	Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	Agree
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?	Unknown	Agree
What impacts to the environment of the county will result from this project?	This will help the environment by maintaining consistent water levels and discharge downstream.	N/A
What is the capability of the local government to administer this project?	High	Agree
What is the financial range of this project?	\$1M+	Agree
What is the level of public support for this project?	High	Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	Local	Agree

- **Town of Leland Lift Station Improvements:** Excessive stormwater infiltration damaged electrical equipment during Hurricane Matthew at 3 sewer lift stations. Modifications to protect equipment from future flooding will increase resiliency of the Town's sewer system.

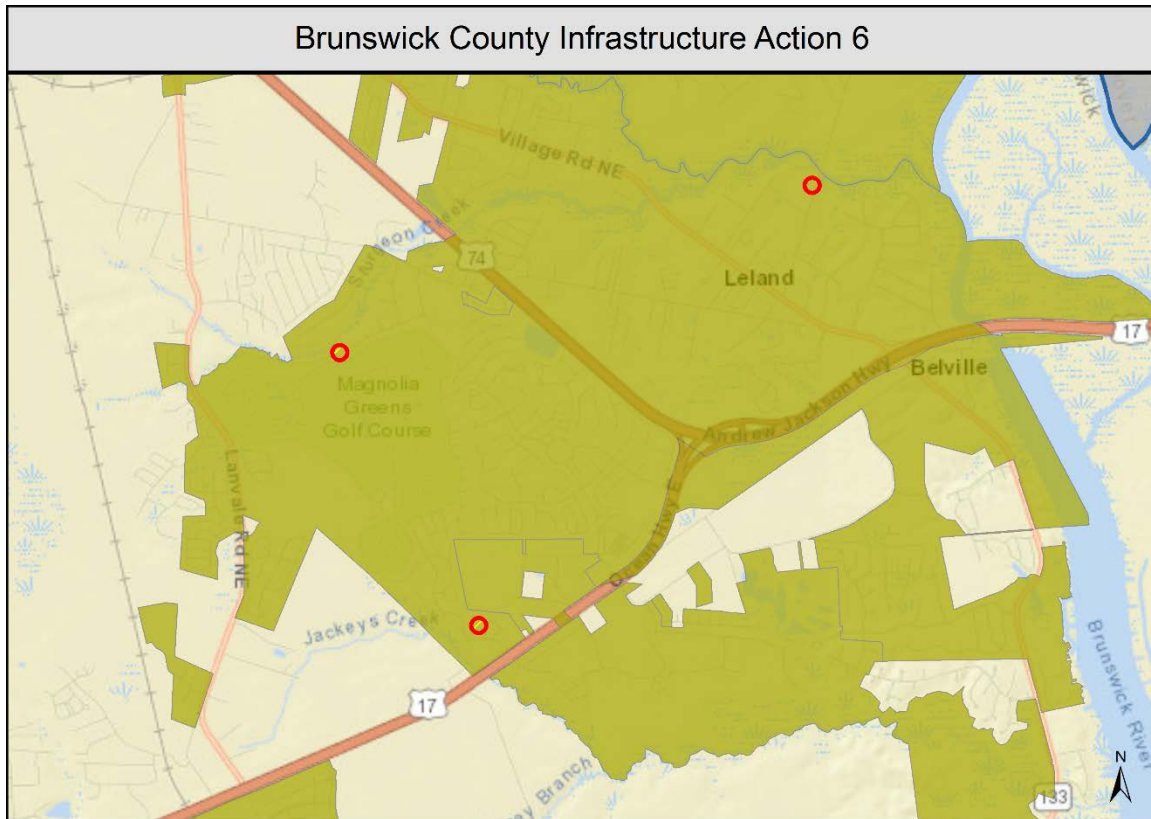


Figure 19. Town of Leland Lift Station Improvements

Town of Leland Lift Station Improvements

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 4

Project Timeframe: 1 to 2 years

Location: Town of Leland, NC

Project Summary: Excessive stormwater infiltration damaged electrical equipment during Hurricane Matthew at 3 sewer lift stations. Modifications to protect equipment from future flooding will increase resiliency of the Town's sewer system. Lift station electrical failure occurred during Hurricane Matthew at the following locations:

- Near Grandiflora Drive and Magnolia Village Way
- Near Timber Lane
- Near Loop Road and South Navassa Road

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	During Hurricane Matthew flooding caused electrical failure at 3 lift stations and this could have been a public health and safety disaster.	N/A
Consistent with existing plans (describe points of intersection/departure)	Project a result of Hurricane Matthew.	Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	Agree
Explain any benefits or impacts to the economy of the county from this project.	Any failed operation of lift stations could be disastrous for a community. Preventing sewer backups is the main benefit of this project.	Agree
For how long will this solution be effective?		Agree
How effective is the risk reduction?		Agree
How many public facilities are involved in this project (buildings and infrastructure)?	1-3	Agree
Is coordination with other communities/counties needed to complete this project?	No	Agree
Is this project consistent with Federal Laws		Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	Agree
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?		Agree
What impacts to the environment of the county will result from this project?	Reducing the likelihood of lift station overflows prevents the environment from becoming contaminated with untreated sewage.	N/A
What is the capability of the local government to administer this project?	High	Agree
What is the financial range of this project?	\$51K - \$100K	Agree
What is the level of public support for this project?		Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	Local	Agree

- **Town of Ocean Isle Beach Pump Station Enhancements:** The Town seeks funding assistance to upgrade 19 sewer lift stations with generator transfer switches/sockets to allow for more efficient generator connection during emergencies. Additionally, the Town seeks funding to upgrade its lift stations and SCADA system software to allow lift stations to be pumped down remotely ahead of impending storms.

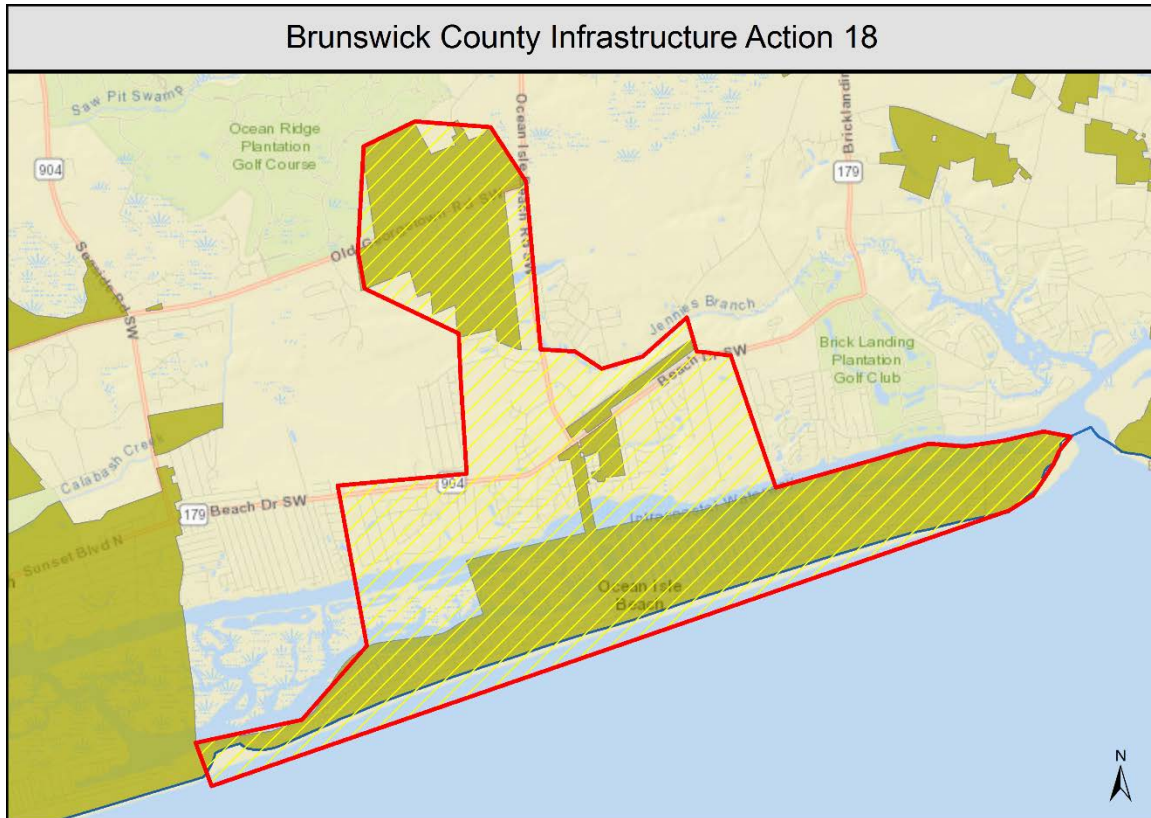


Figure 20. Town of Ocean Isle Beach Pump Station Enhancements

Town of Ocean Isle Beach Pump Station Enhancements

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 5

Project Timeframe: 1 to 2 years

Location: Town of Ocean Isle Beach, NC

Project Summary: The Town seeks funding assistance to upgrade 19 sewer lift stations with generator transfer switches/sockets to allow for more efficient generator connection during emergencies and to upgrade its lift stations and SCADA system software to allow lift stations to be pumped down remotely ahead of impending storms.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	This project addresses an unmet need of delivering more rapid response to the Town of Ocean Isle Beach during extreme storm events. This is not directly related to Hurricane Matthew.	N/A
Consistent with existing plans (describe points of intersection/departure)	The Town of Ocean Isle Beach has applied for a HMGP grant in order to fund this project but I am not aware of whether this has been identified in previous plans.	Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	Agree
Explain any benefits or impacts to the economy of the county from this project.	Many benefits will come from this project namely keeping wastewater flowing and preventing backups and hazardous overflows.	Agree
For how long will this solution be effective?		Agree
How effective is the risk reduction?		Agree
How many public facilities are involved in this project (buildings and infrastructure)?	>6	Agree
Is coordination with other communities/counties needed to complete this project?	No	Agree
Is this project consistent with Federal Laws		Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	Agree
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?		N/A
What impact will this action have on the local economy/tax base?		Agree
What impacts to the environment of the county will result from this project?	It can only benefit from this project.	N/A
What is the capability of the local government to administer this project?	High	Agree
What is the financial range of this project?	\$251K - \$500K	Agree
What is the level of public support for this project?		Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	Local	Agree

- **Redundant Raw Water Supply Line:** This project will install a redundant 48-inch raw water supply line to add resiliency for a critical utility that was damaged during Hurricane Matthew and cut off all water supply to Brunswick County.

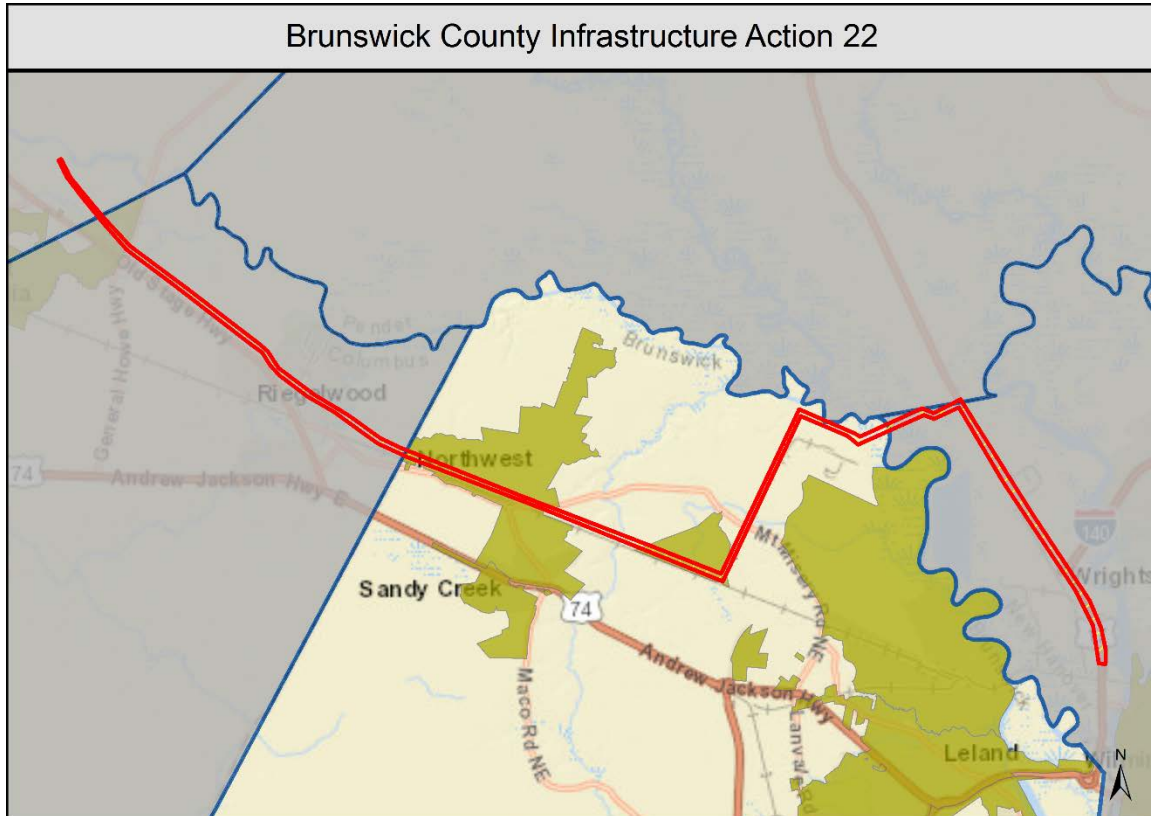


Figure 21. Redundant Raw Water Supply Line

Redundant Raw Water Supply Line

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 6

Project Timeframe: 2 to 3 years

Location: Town of Riegelwood, NC

Project Summary: This project will install a redundant 48-inch raw water supply line to add resiliency for a critical utility that was damaged during Hurricane Matthew and cut off all water supply to Brunswick County.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The 48-inch raw water supply was damaged during Hurricane Matthew and the county had to react quickly to repair. This helped them realize the need for a redundant line. The need for resiliency is evident due to the impacts during Hurricane Matthew and this project will bring security and peace of mind to the residents of Brunswick County during future storm events.	N/A
Consistent with existing plans (describe points of intersection/departure)	This has been planned through a CIP and now is being expedited because of damage during Hurricane Matthew.	Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	Agree
Explain any benefits or impacts to the economy of the county from this project.	Benefit is providing reliable water supply to the county and the impacts could be any financial impacts from the funding of this project. It is estimated around \$66 million.	Agree
For how long will this solution be effective?	More than 50 years	Agree
How effective is the risk reduction?	>200 year event	Agree
How many public facilities are involved in this project (buildings and infrastructure)?	1-3	Agree
Is coordination with other communities/counties needed to complete this project?	Yes	Agree
Is this project consistent with Federal Laws		Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	Less than 25%	Agree
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?	Unknown	Agree
What impacts to the environment of the county will result from this project?	None known	N/A
What is the capability of the local government to administer this project?	Medium	Agree
What is the financial range of this project?	\$1M+	Agree
What is the level of public support for this project?	High	Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	Regional	Agree

- **Bald Head Island Stormwater Outfall Repair:** Significant erosion occurred at the stormwater outfall of Bald Head Creek during Hurricane Matthew. Repair will stabilize the area and protect water quality in Bald Head Creek Estuary.

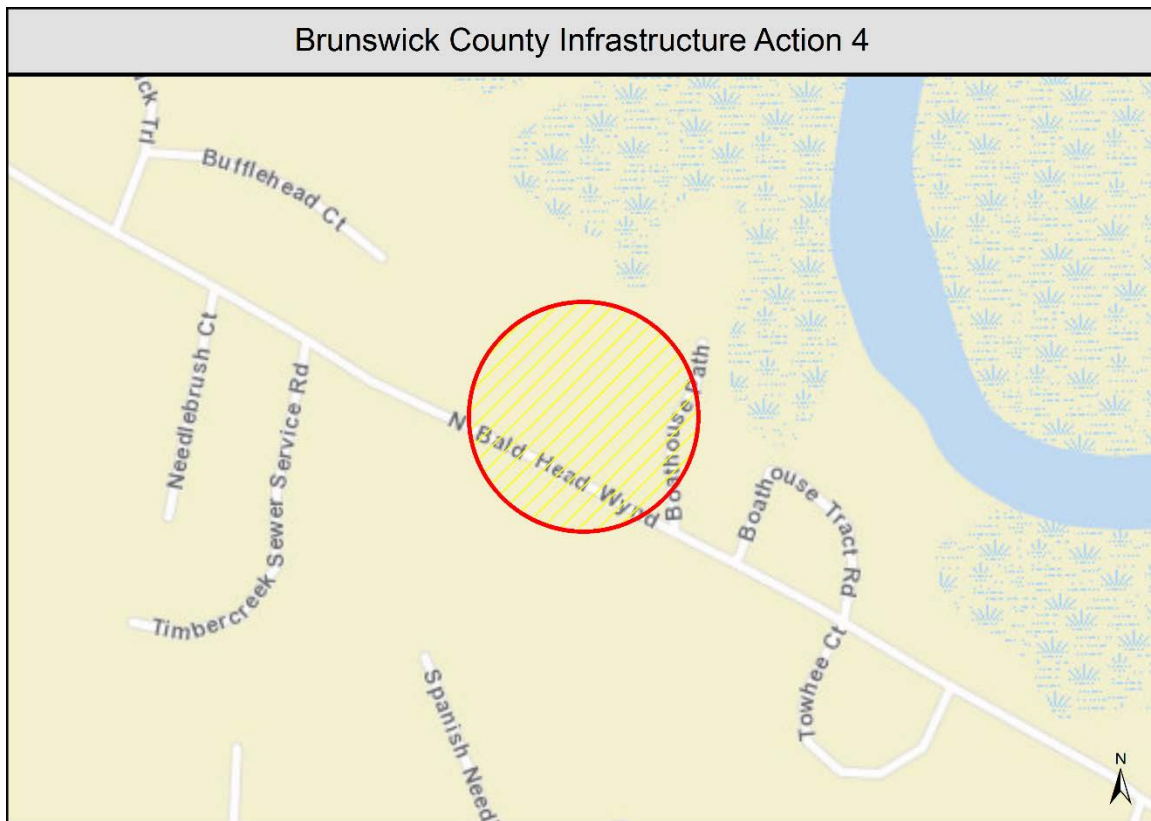


Figure 22. Bald Head Island Stormwater Outfall Repair

Bald Head Island Stormwater Outfall Repair

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 7

Project Timeframe: 1 to 2 years

Location: Bald Head Creek Outfall at Village of Bald Head Island

Project Summary: Significant erosion occurred at the stormwater outfall of Bald Head Creek outfall during Hurricane Matthew. Repair will stabilize the area and protect water quality in Bald Head Creek Estuary.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	Significant erosion occurred at the outfall of Bald Head Creek during Hurricane Matthew. Erosion at the outfall of Bald Head Creek could lead to more serious conditions if not mitigated.	N/A
Consistent with existing plans (describe points of intersection/departure)	This is a new project based on effects from Hurricane Matthew so it is not mentioned in any 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.	If this project is not completed a stormwater outfall and road that it passes under could be in danger of washing out. Many negative impacts to Brunswick County's economy could result from such an event.	N/A
For how long will this solution be effective?		N/A
How effective is the risk reduction?		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		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?		N/A
What impact will this action have on the local economy/tax base?		N/A
What impacts to the environment of the county will result from this project?	Minimal impacts to the County's environment will result from this project.	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

- **Town of Navassa Storm Drainage Repair:** A damaged culvert caused flooding during Hurricane Matthew near Magnolia Drive and Dorsey Lane.

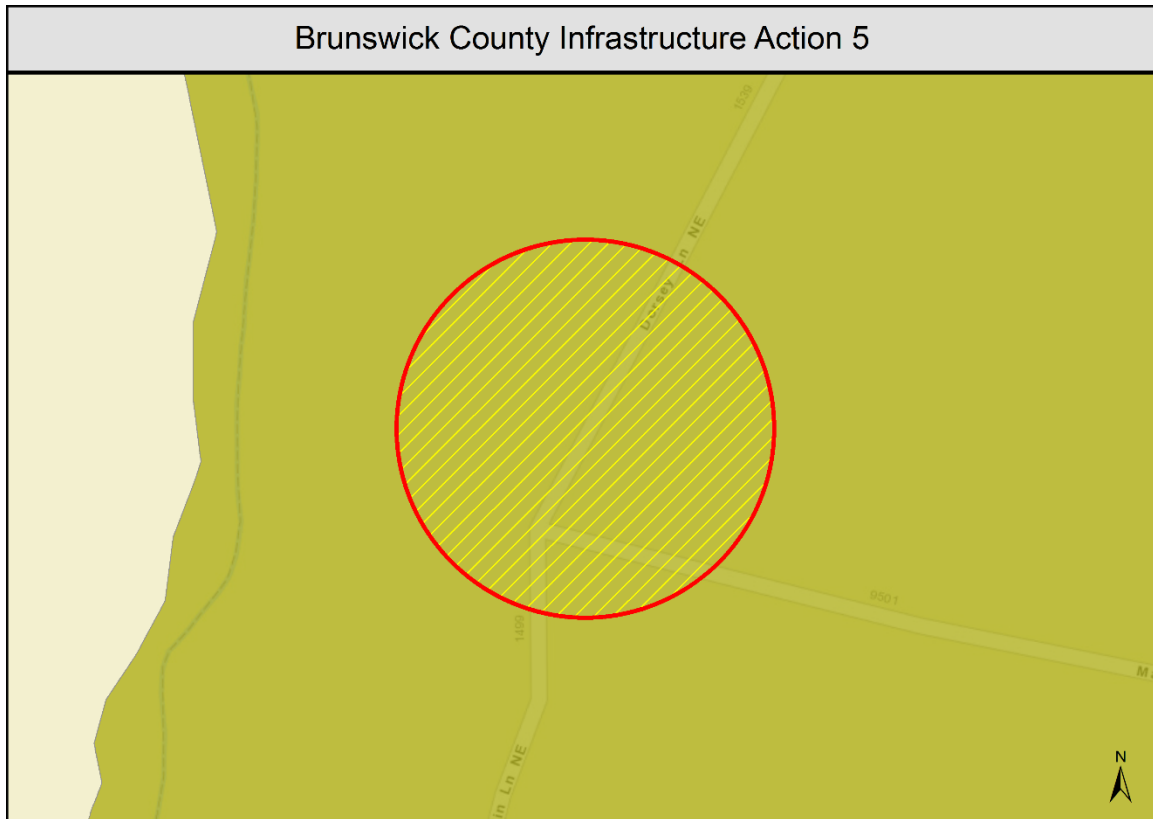


Figure 23. Town of Navassa Storm Drainage Repair

Town of Navassa Storm Drainage Repair

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 8

Project Timeframe: 1 to 2 years

Location: Town of Navassa, NC

Project Summary: Damaged culvert caused flooding during Hurricane Matthew near Magnolia Drive and Dorsey Lane.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	Unsure whether this culvert was damaged during Hurricane Matthew but it is a damaged culvert that caused flooding during Hurricane Matthew and replacing the culvert will help alleviate future flooding issues.	N/A
Consistent with existing plans (describe points of intersection/departure)	Community stated that they have submitted this as a PA claim to FEMA so it is consistent with the community's plans for recovery.	Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	Agree
Explain any benefits or impacts to the economy of the county from this project.	Reducing flooding will be the big economic benefit of replacing this damaged culvert.	Agree
For how long will this solution be effective?		Agree
How effective is the risk reduction?	Unknown	Agree
How many public facilities are involved in this project (buildings and infrastructure)?	1-3	Agree
Is coordination with other communities/counties needed to complete this project?	No	Agree
Is this project consistent with Federal Laws		Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	Agree
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?		Agree
What impacts to the environment of the county will result from this project?	Minimal impacts to the environment from this project.	N/A
What is the capability of the local government to administer this project?		Agree
What is the financial range of this project?	\$101K - \$250K	Agree
What is the level of public support for this project?		Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?		Agree

- **Sandy Creek Drive Roadway Enhancements:** During Hurricane Matthew, the Town of Sandy Creek was stranded by flooding along Sandy Creek Drive. Enhance storm drainage along Sandy Creek Drive to prevent future flooding. Emergency responders cannot access residents during periods of flooding and residents cannot reach evacuation routes. May require elevating 500 feet of roadway along Sandy Creek Drive.

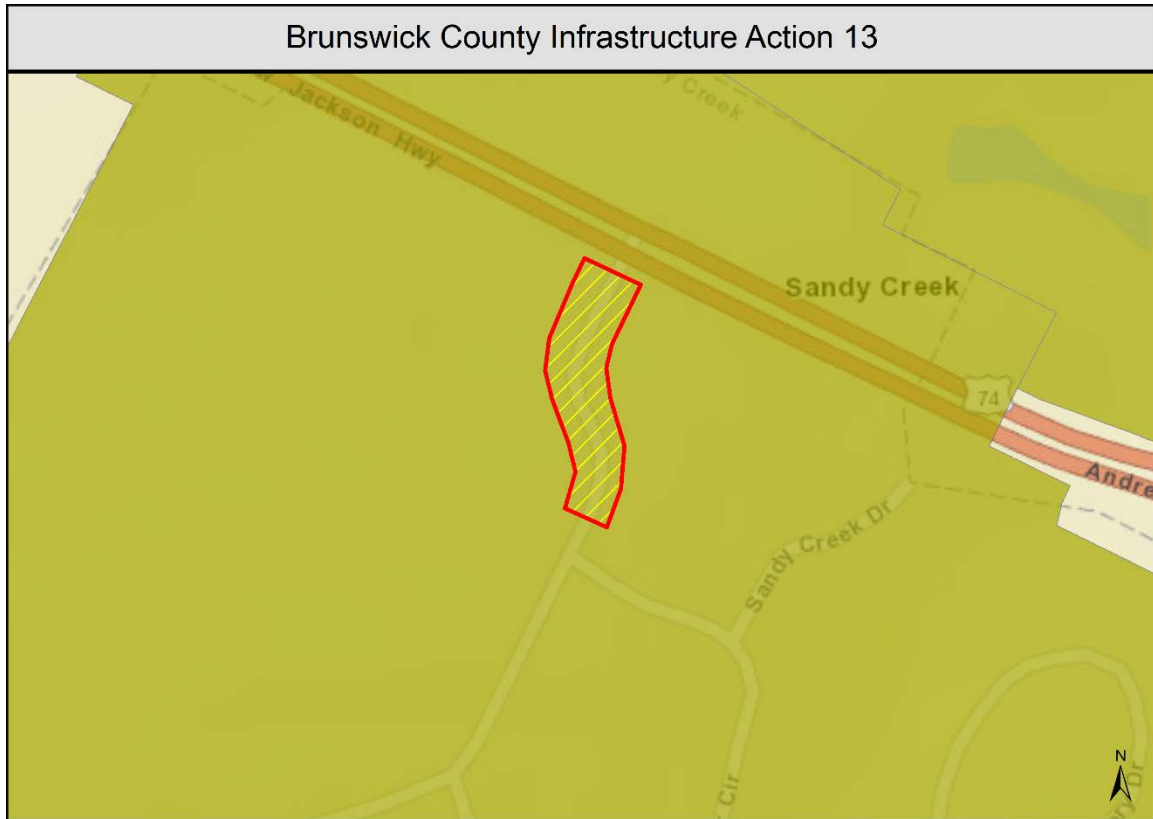


Figure 24. Sandy Creek Drive Roadway Enhancements

Sandy Creek Drive Roadway Enhancements

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 9

Project Timeframe: 1 to 2 years

Location: Town of Sandy Creek, NC

Project Summary: During Hurricane Matthew, the Town of Sandy Creek was stranded by flooding along Sandy Creek Drive. Enhance storm drainage along Sandy Creek Drive to prevent future flooding. Emergency responders cannot access residents during periods of flooding and residents cannot reach evacuation routes. May require elevating 500 feet of roadway along Sandy Creek Drive.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	During Hurricane Matthew Sandy Creek Drive flooded. This project will help to reduce the likelihood of residents of Sandy Creek being stranded due to flooding along Sandy Creek Drive.	N/A
Consistent with existing plans (describe points of intersection/departure)	No existing plans known	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		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.		N/A
For how long will this solution be effective?		N/A
How effective is the risk reduction?		N/A
How many public facilities are involved in this project (buildings and infrastructure)?		N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws		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?	Low to moderate confidence	N/A
What impact will this action have on the local economy/tax base?		N/A
What impacts to the environment of the county will result from this project?	No known impacts.	N/A
What is the capability of the local government to administer this project?	Low	N/A
What is the financial range of this project?	\$101K - \$250K	N/A
What is the level of public support for this project?		N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	County	N/A

- **Install 4 Flood Gages to Enhance FIMAN Coverage:** Gage locations were requested by local authorities for areas that experience frequent flooding and impact a greater population density. The following stream locations were identified in the Caw Caw basin: Waccamaw River, Ash-Little River Road at Caw Caw Main, Hickman Road at Shingletree, US 17 at Shingletree.

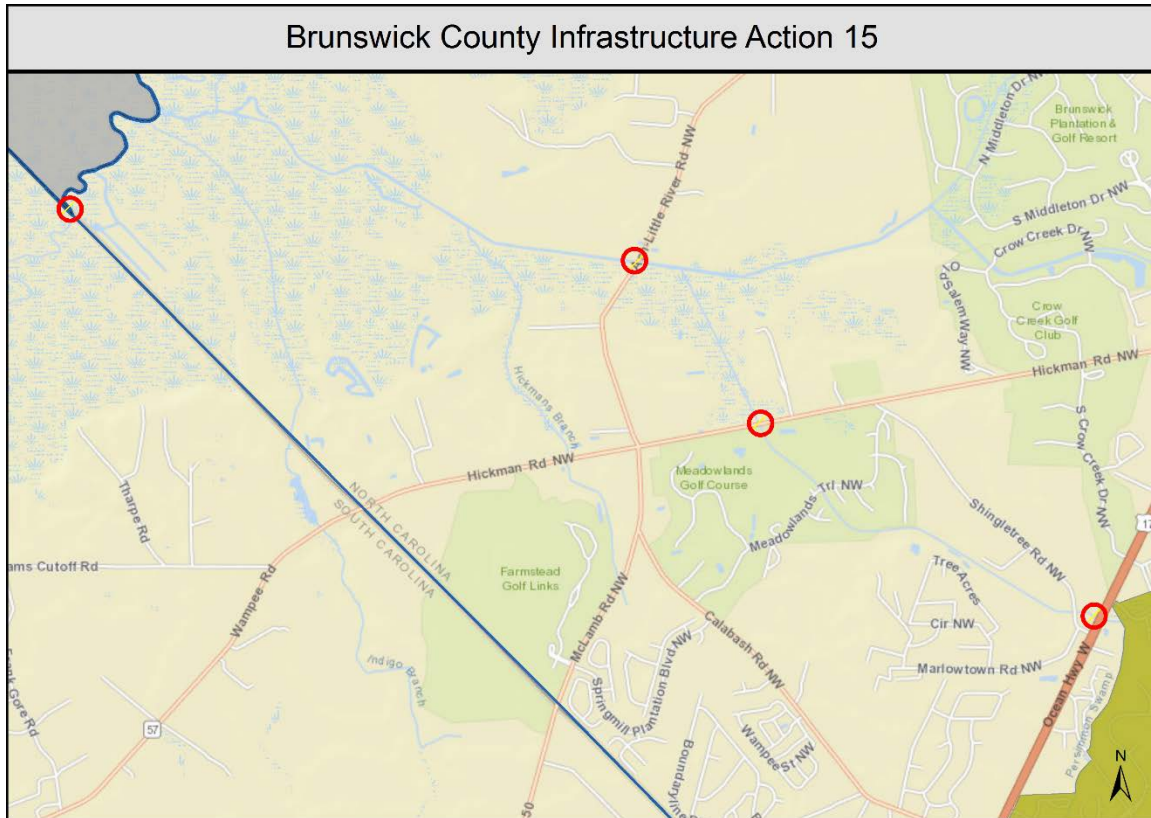


Figure 25. Install 4 Flood Gages to Enhance FIMAN Coverage

Install 4 Flood Gages to Enhance FIMAN Coverage

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 10

Project Timeframe: 1 to 2 years

Location: Near the Town of Carolina Shores, NC

Project Summary: Gage locations were requested by local authorities for areas that experience frequent flooding and impact a greater population density. The following streams were identified in the Caw Caw basin: Waccamaw River, Ash-Little River Road at Caw Caw Main, Hickman Road at Shingletree, US 17 at Shingletree.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	This project builds upon the State's current monitoring station resources.	N/A
Consistent with existing plans (describe points of intersection/departure)	No known existing plans.	Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	Agree
Explain any benefits or impacts to the economy of the county from this project.	Flood warning helps preserve the economy of the county as more residents are able to prepare accordingly for storm events.	Agree
For how long will this solution be effective?		Agree
How effective is the risk reduction?		Agree
How many public facilities are involved in this project (buildings and infrastructure)?	0	Agree
Is coordination with other communities/counties needed to complete this project?	No	Agree
Is this project consistent with Federal Laws		Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	Agree
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	Low to moderate confidence	N/A
What impact will this action have on the local economy/tax base?		Agree
What impacts to the environment of the county will result from this project?	None known	N/A
What is the capability of the local government to administer this project?	Medium	Agree
What is the financial range of this project?	\$51K - \$100K	Agree
What is the level of public support for this project?		Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	State	Agree

- **Town of Ocean Isle Beach Fire Department Restoration:** The Town fire department experienced roof damage and subsequent contents and equipment damage during Hurricane Matthew.

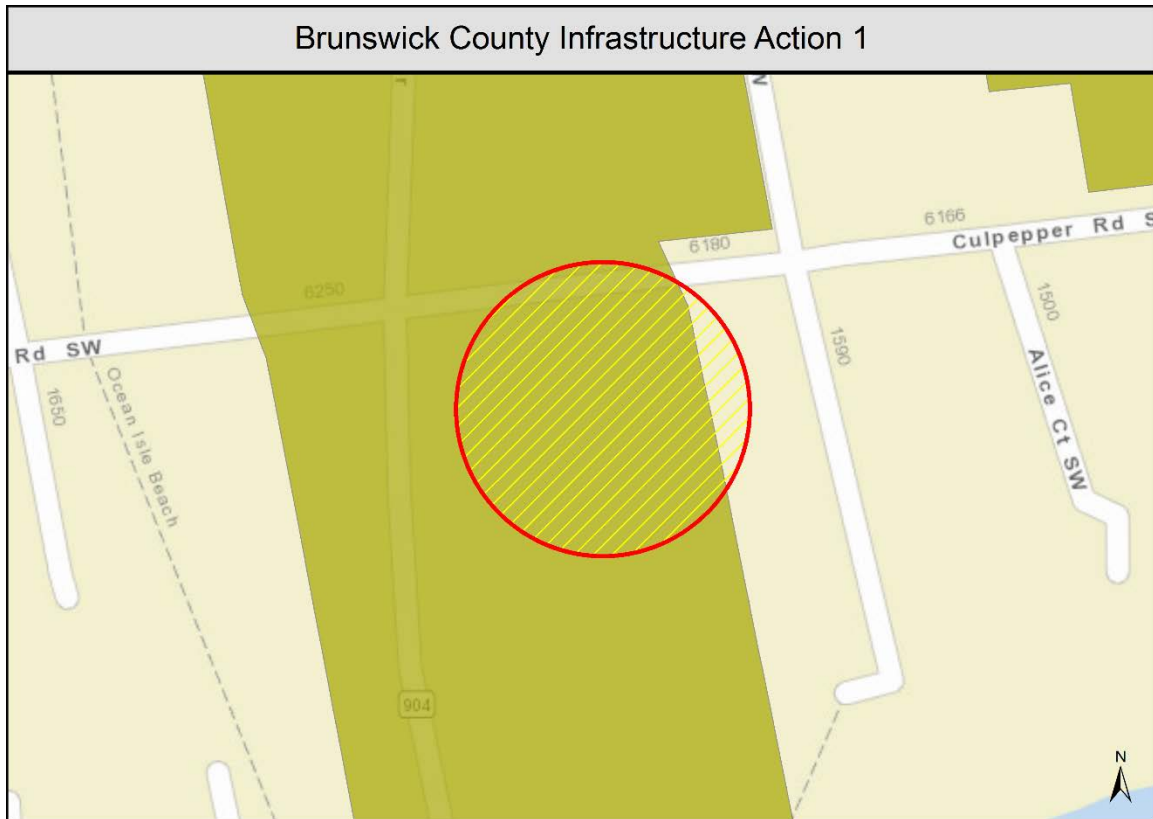


Figure 26. Town of Ocean Isle Beach Fire Department Restoration

Town of Ocean Isle Beach Fire Department Restoration

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 11

Project Timeframe: 1 year

Location: Town of Ocean Isle Beach, NC

Project Summary: The Town fire department experienced roof damage and subsequent contents and equipment damage during Hurricane Matthew.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	This damage was a result of Hurricane Matthew but the damage was not extensive enough to meet the FEMA B threshold of \$3100.	N/A
Consistent with existing plans (describe points of intersection/departure)	New impact from Hurricane Matthew so this is unplanned but emergency services should be maintained.	Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	Agree
Explain any benefits or impacts to the economy of the county from this project.	Maintaining reliable and adequate fire services is crucial to the economy of a county. This project will repair roof damage to the fire department as well as damage to vehicles.	Agree
For how long will this solution be effective?		Agree
How effective is the risk reduction?		Agree
How many public facilities are involved in this project (buildings and infrastructure)?	1-3	Agree
Is coordination with other communities/counties needed to complete this project?	No	Agree
Is this project consistent with Federal Laws		Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	Agree
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%	Agree
What impacts to the environment of the county will result from this project?	None	N/A
What is the capability of the local government to administer this project?	High	Agree
What is the financial range of this project?	\$0- \$50K	Agree
What is the level of public support for this project?		Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	Local	Agree

- **Carolina Shores Stormwater Infrastructure Retrofit:** Older neighborhoods in Carolina Shores were built without stormwater controls, resulting in flooding and drainage problems. Retrofitting stormwater facilities based on the State's BMP manual for stormwater infrastructure may alleviate flooding of homes and roads within the communities.

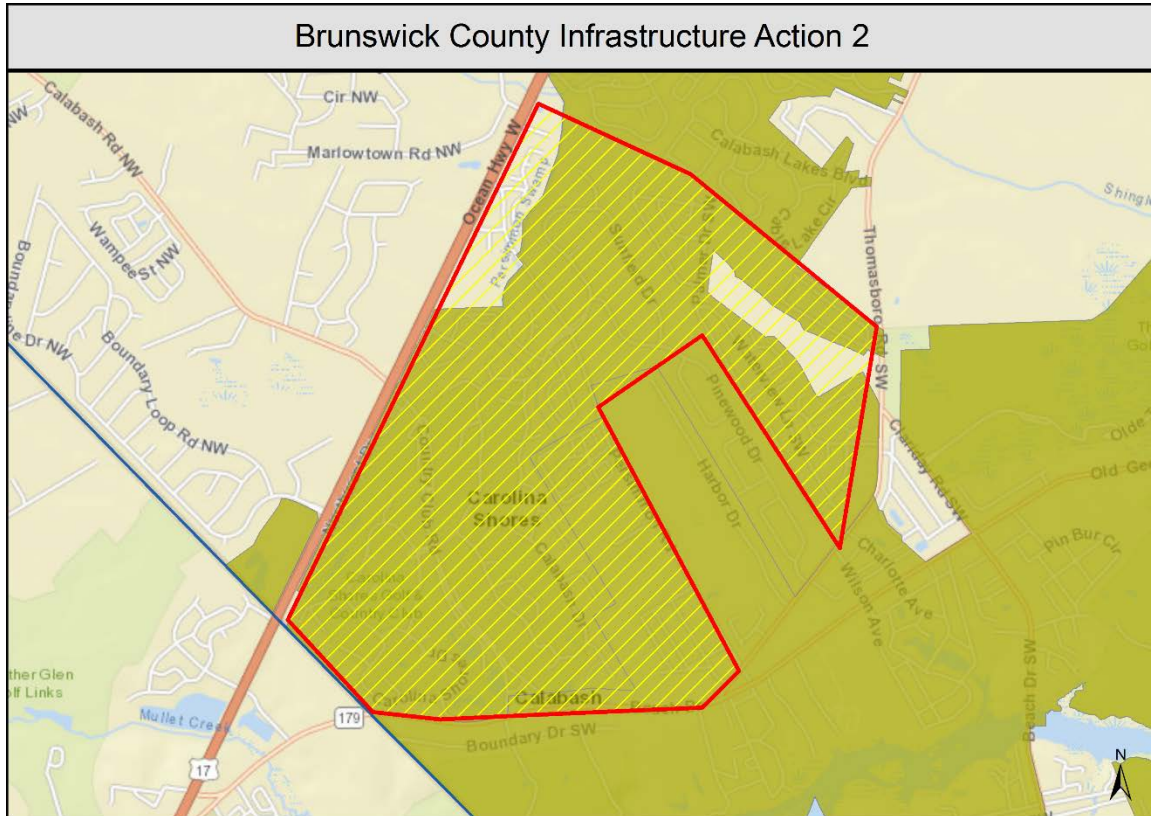


Figure 27. Carolina Shores Stormwater Infrastructure Retrofit

Town of Carolina Shores Stormwater Infrastructure Retrofit

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 13

Project Timeframe: 2 to 5 years

Location: Town of Carolina Shores, NC

Project Summary: Older neighborhoods in Carolina Shores were built without stormwater controls, resulting in flooding and drainage problems. Retrofitting stormwater facilities based on the State's BMP manual for stormwater infrastructure may alleviate flooding of homes and roads in this area. The following locations have been identified for stormwater retrofit:

- Persimmon Swamp at Northwest Drive • Persimmon Swamp at Carolina Shores Parkway
- Persimmon Swamp at Sunfield and Pinewood Neighborhoods

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	This project does not directly address a need relative to Hurricane Matthew. However enhancing the infrastructure in older neighborhoods would have lessened the impact of Hurricane Matthew and would help the community become more resilient for future events.	N/A
Consistent with existing plans (describe points of intersection/departure)	Yes this has been a previously noted issue.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		N/A
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?		N/A
Explain any benefits or impacts to the economy of the county from this project.	If effective improving the stormwater infrastructure could have a significant effect towards reducing flooding risk within the county.	N/A
For how long will this solution be effective?		N/A
How effective is the risk reduction?		N/A
How many public facilities are involved in this project (buildings and infrastructure)?		N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws		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?		N/A
What impacts to the environment of the county will result from this project?	Through adopting the State's BMP procedures throughout these older communities water quality could be enhanced.	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 Leland Stormwater Improvements:** Main entrances and access roads to LanVale Trace, Magnolia Greens, Windsor Park, and Heathstone flooded during Hurricane Matthew. Storm drainage improvements are needed to mitigate flooding and reduce the risk of residents being stranded by storm events.

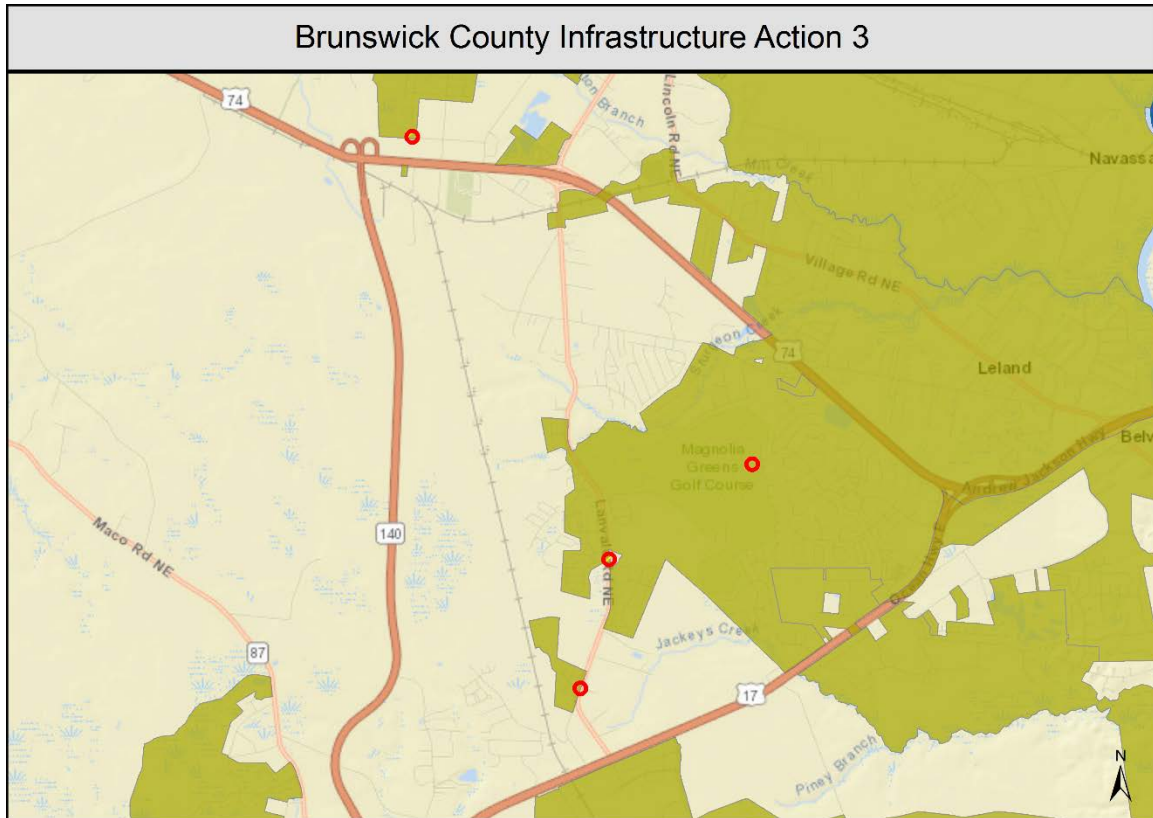


Figure 28. Town of Leland Stormwater Improvements

Town of Leland Stormwater Improvements

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 14

Project Timeframe: 1 to 3 years

Location: Town of Leland, NC

Project Summary: The main entrances and access roads to LanVale Trace, Magonlia Greens, Windsor Park, and Heathstone flooded during Hurricane Matthew. Storm Drainage Improvements are needed to mitigate flooding and reduce the risk of residents being stranded by storm events.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	During Hurricane Matthew several communities were stranded temporarily. Enhancing the stormwater infrastructure at the entrances to these neighborhoods would reduce the likelihood of this event occurring in the future.	N/A
Consistent with existing plans (describe points of intersection/departure)	This project is not listed in any previous plans.	N/A
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		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 county would benefit from enhanced stormwater infrastructure at neighborhood entrances which would improve the ability for evacuation during storm events.	N/A
For how long will this solution be effective?		N/A
How effective is the risk reduction?	Unknown	N/A
How many public facilities are involved in this project (buildings and infrastructure)?	4-6	N/A
Is coordination with other communities/counties needed to complete this project?	No	N/A
Is this project consistent with Federal Laws		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?		N/A
What impacts to the environment of the county will result from this project?	Water quality could be enhanced as a result of this project.	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?		N/A
What is the technical feasibility of this project?	Higher than 75%	N/A
Who will administer this project?	Local	N/A

- **Sunset Lake Blvd SW Spillway Upgrades:** This private roadway has been overtopped and damaged numerous times including during Hurricane Matthew. Residents north of the lake become stranded and cut-off from emergency services and evacuation routes. The spillway should be upgraded to ensure safe passage of large storm events to prevent future damage.

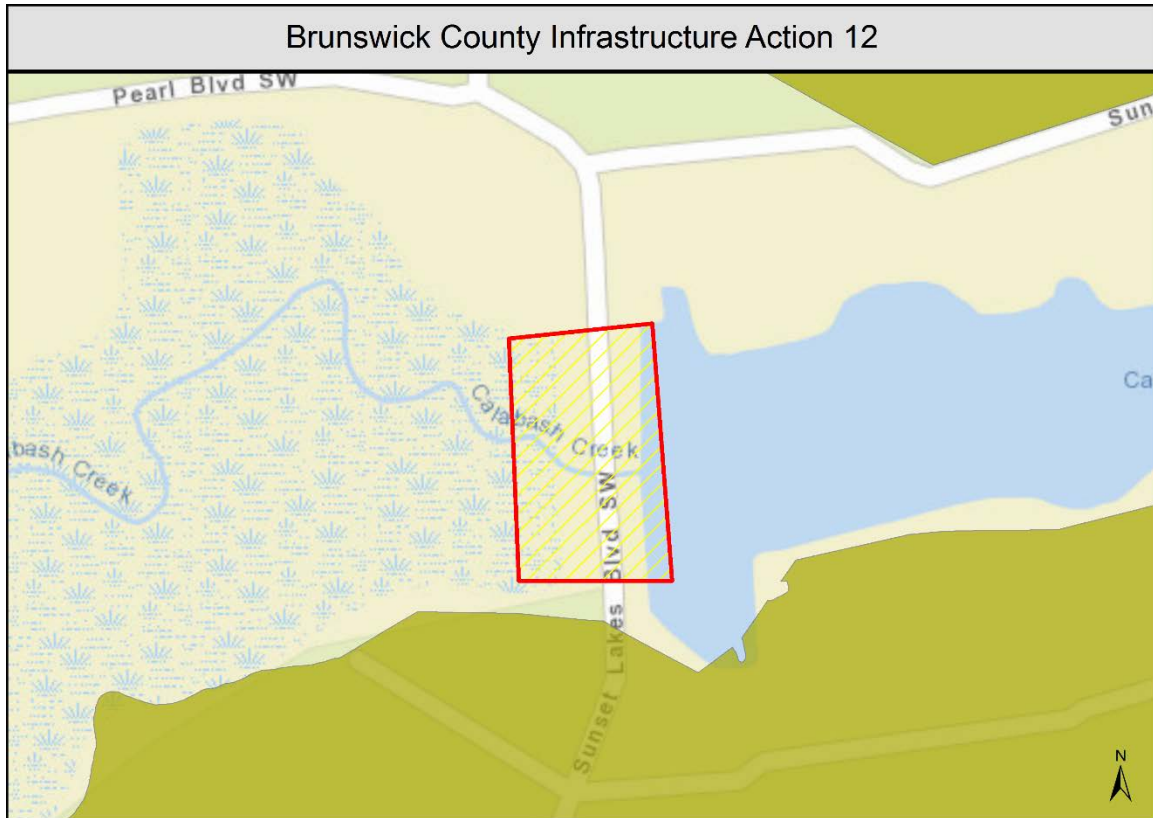


Figure 29. Sunset Lake Blvd SW Spillway Upgrades

Sunset Lake Blvd SW Spillway Upgrades

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 15

Project Timeframe: 1 to 2 years

Location: Near The Pearl Golf Course in Calabash, NC

Project Summary: This private roadway has been overtopped and damaged numerous times including during Hurricane Matthew. Residents north of the lake become stranded and cut-off from emergency services and evacuation routes. The spillway should be upgraded to ensure safe passage of large storm events to prevent future damage.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	During Hurricane Matthew this spillway was washed out. For months residents were stranded and had to use a golf cart path to access their neighborhood. Improving this spillway would help to reduce the likelihood of stranding these residents during future storm events. This road has washed out during Floyd October 2015 storm and during Hurricane Matthew.	N/A
Consistent with existing plans (describe points of intersection/departure)	No	Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	Agree
Explain any benefits or impacts to the economy of the county from this project.	This is a recurring issue. It would benefit the county and community to eliminate the need to f after every storm.	Agree
For how long will this solution be effective?		Agree
How effective is the risk reduction?	Unknown	Agree
How many public facilities are involved in this project (buildings and infrastructure)?	0	Agree
Is coordination with other communities/counties needed to complete this project?	No	Agree
Is this project consistent with Federal Laws	Yes	Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	Agree
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?	Unknown	Agree
What impacts to the environment of the county will result from this project?	Minimal impacts to the environment. Could be considered an improvement to the environment since the dam won't wash out anymore.	N/A
What is the capability of the local government to administer this project?	High	Agree
What is the financial range of this project?		Agree
What is the level of public support for this project?	Unknown	Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	Local	Agree

- **NC Hwy 179 Bridge Elevation in Calabash, NC:** When this bridge floods it is often accompanied by nearby flooding of Shoreline Drive West. If both are flooded, residents south of the bridge are stranded and cut-off from emergency responders and primary evacuation routes. The bridge spans approximately 285-ft and is approximately 30-ft wide. Project may need to be accompanied by the elevation of 330-ft of roadway north of this bridge along Hwy 179.

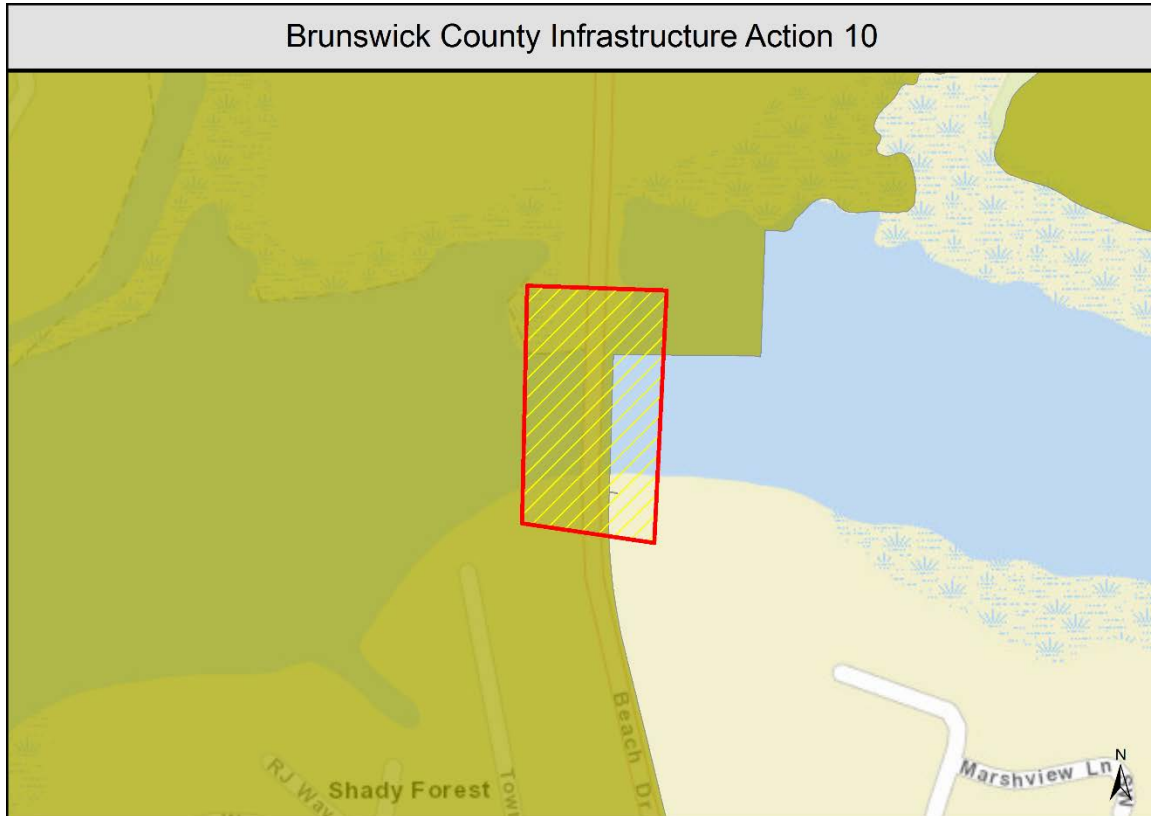


Figure 30. NC Hwy 179 Bridge Elevation in Calabash, NC

NC Hwy 179 Bridge Elevation in Calabash, NC

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 16

Project Timeframe: 1 to 3 years

Location: Town of Calabash, NC

Project Summary: This bridge can flood which is often accompanied by nearby flooding of Shoreline Drive West. If both are flooded, residents south of the bridge are stranded and cut-off from emergency responders and primary evacuation routes. The bridge spans approximately 285-ft and is approximately 30-ft wide. Project may need to be accompanied by the elevation of 330-ft of roadway north of this bridge along Hwy 179.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	Not an unmet need from Hurricane Matthew.	N/A
Consistent with existing plans (describe points of intersection/departure)	No existing plans for these structures. These are NCDOT roads.	Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	Agree
Explain any benefits or impacts to the economy of the county from this project.	There will be adverse impacts to the economy if the county has to rescue stranded residents.	Agree
For how long will this solution be effective?		Agree
How effective is the risk reduction?	Unknown	Agree
How many public facilities are involved in this project (buildings and infrastructure)?	1-3	Agree
Is coordination with other communities/counties needed to complete this project?	No	Agree
Is this project consistent with Federal Laws	Yes	Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	Agree
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?	Unknown	Agree
What impacts to the environment of the county will result from this project?	Minimal environmental impacts.	N/A
What is the capability of the local government to administer this project?	High	Agree
What is the financial range of this project?		Agree
What is the level of public support for this project?	Unknown	Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	State	Agree

- **Shoreline Drive West Elevation:** This road in Calabash, NC is often over-washed by storm surge. If the NC Hwy 179 bridge is also flooded, residents west of this area are stranded and cut-off from emergency responders and primary evacuation routes. Approximately ½ mile of roadway should be elevated (Beach Drive Southwest to Lakeshore Drive) to ensure a secondary evacuation route is available to those living west of the intersection of Lakeshore Drive and Shoreline Drive West.

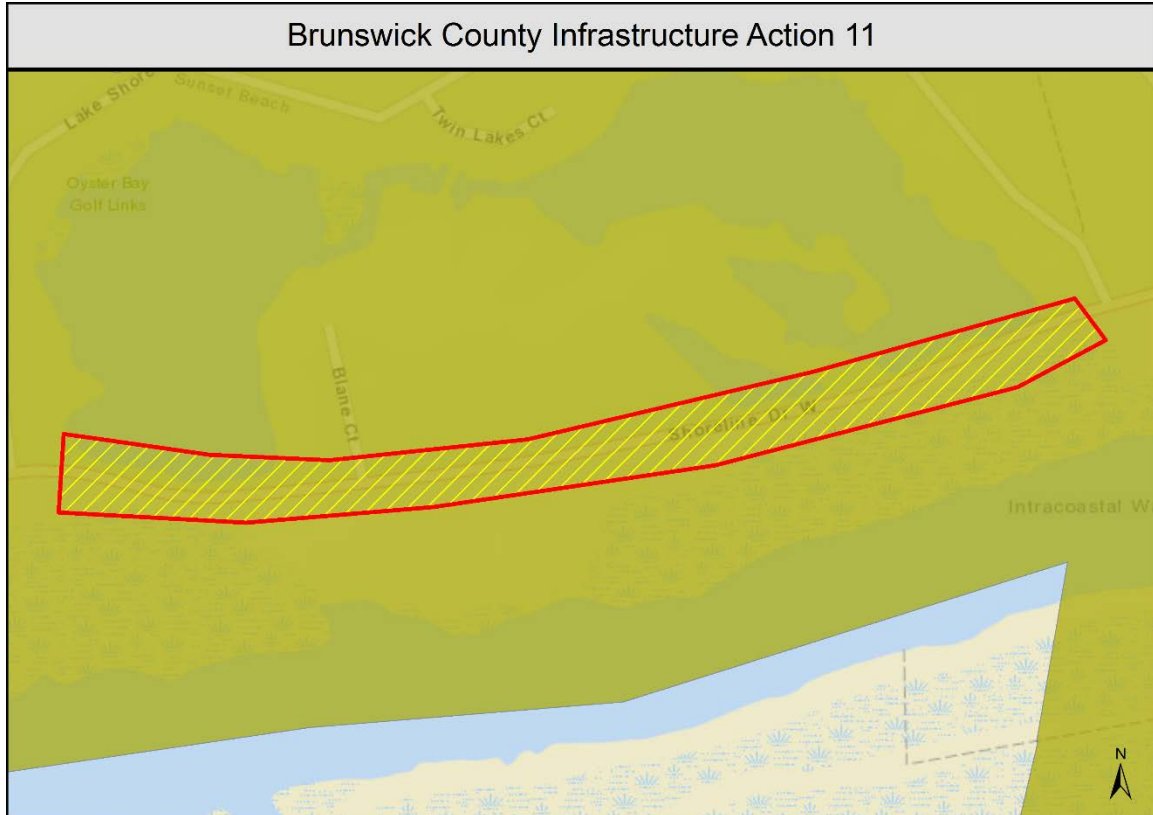


Figure 31. Shoreline Drive West Elevation

Shoreline Drive West Elevation

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 17

Project Timeframe: 1 to 3 years

Location: Town of Calabash, NC

Project Summary: This road in Calabash, NC is often overwashed by storm surge. If the HWY 179 Bridge is also flooded, residents east of this area are stranded and cut-off from emergency responders and primary evacuation routes. Approximately ½ mile of roadway should be elevated (Beach Drive Southwest to Lakeshore Drive) to ensure a secondary evacuation route is available to those living West of the intersection of Lakeshore Drive and Shoreline Drive West.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	Not an unmet need from Hurricane Matthew.	N/A
Consistent with existing plans (describe points of intersection/departure)	No current plans known. This is a NCDOT road and discussions between Town of Calabash and NCDOT are in the initial steps toward finding a solution to future flooding concerns.	Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?		Agree
Explain any benefits or impacts to the economy of the county from this project.	It will adversely impact the economy of the county if people are stranded and need to be rescued during a storm event.	Agree
For how long will this solution be effective?	More than 50 years	Agree
How effective is the risk reduction?	Unknown	Agree
How many public facilities are involved in this project (buildings and infrastructure)?	1-3	Agree
Is coordination with other communities/counties needed to complete this project?	No	Agree
Is this project consistent with Federal Laws		Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	Agree
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?		Agree
What impacts to the environment of the county will result from this project?	Minimal	N/A
What is the capability of the local government to administer this project?	High	Agree
What is the financial range of this project?	\$1M+	Agree
What is the level of public support for this project?		Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	State	Agree

- **St. James Drive Bridge Elevation:** This bridge serves as the only access to over 600 homes and the St. James Marina. The bridge has flooded in past storm events cutting off emergency response capabilities and serves as the only evacuation route for over 600 homes. This bridge was temporarily closed during Hurricane Matthew and spans almost 500-ft and is approximately 30-ft wide.

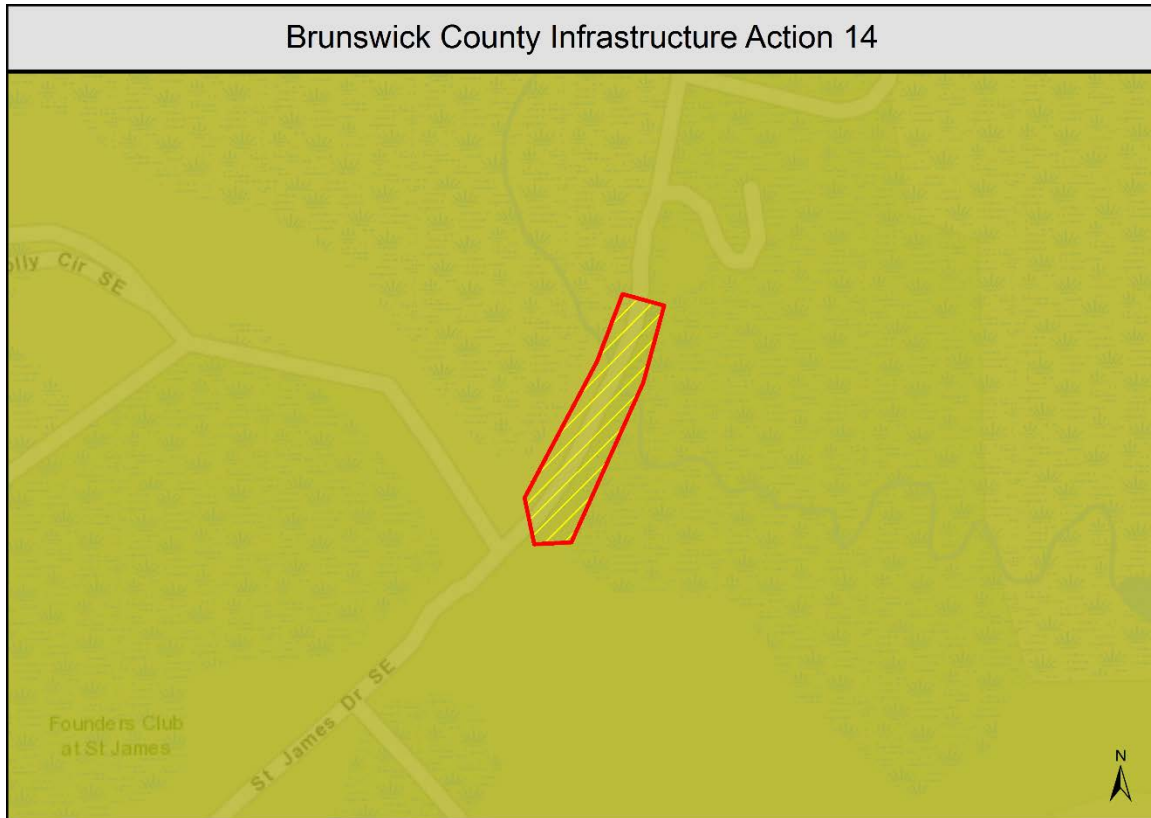


Figure 32. St. James Drive Bridge Elevation

St. James Drive Bridge Elevation

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 18

Project Timeframe: 1 to 3 years

Location: Town of St. James, NC

Project Summary: This bridge serves as the only access to over 600 homes and the St. James Marina. The bridge has flooded in past storm events cutting off emergency response capabilities and serves as the only evacuation route for over 600 homes. This bridge was temporarily closed during Hurricane Matthew and spans almost 500-ft and is approximately 30-ft wide.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	This bridge was temporarily closed during Hurricane Matthew. It is truly the only evacuation route for 600 homes and should be made more resilient to ensure access during future storms. Recently an alternative entrance to the community was reported to have been added near Middleton and the Marina.	N/A
Consistent with existing plans (describe points of intersection/departure)	An additional entrance for the community has been added by Middleton near the Marina to assist with a bridge improvement project and provide alternative access for the community.	Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?	Yes	Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	Agree
Explain any benefits or impacts to the economy of the county from this project.	The economy will be adversely impacted if the county needs to rescue stranded residents during a storm event.	Agree
For how long will this solution be effective?		Agree
How effective is the risk reduction?	Unknown	Agree
How many public facilities are involved in this project (buildings and infrastructure)?	1-3	Agree
Is coordination with other communities/counties needed to complete this project?	No	Agree
Is this project consistent with Federal Laws	Yes	Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	Agree
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?	Unknown	Agree
What impacts to the environment of the county will result from this project?	No known impacts.	N/A
What is the capability of the local government to administer this project?	High	Agree
What is the financial range of this project?		Agree
What is the level of public support for this project?	Unknown	Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	Local	Agree

- **Town of Holden Beach Public Access Ramp Reconstruction:** The public access ramp no longer meets the toe of the dune as a result of dune erosion due to Hurricane Matthew. CAMA regulations and Town Ordinance require ramps to meet the toe of the dune.

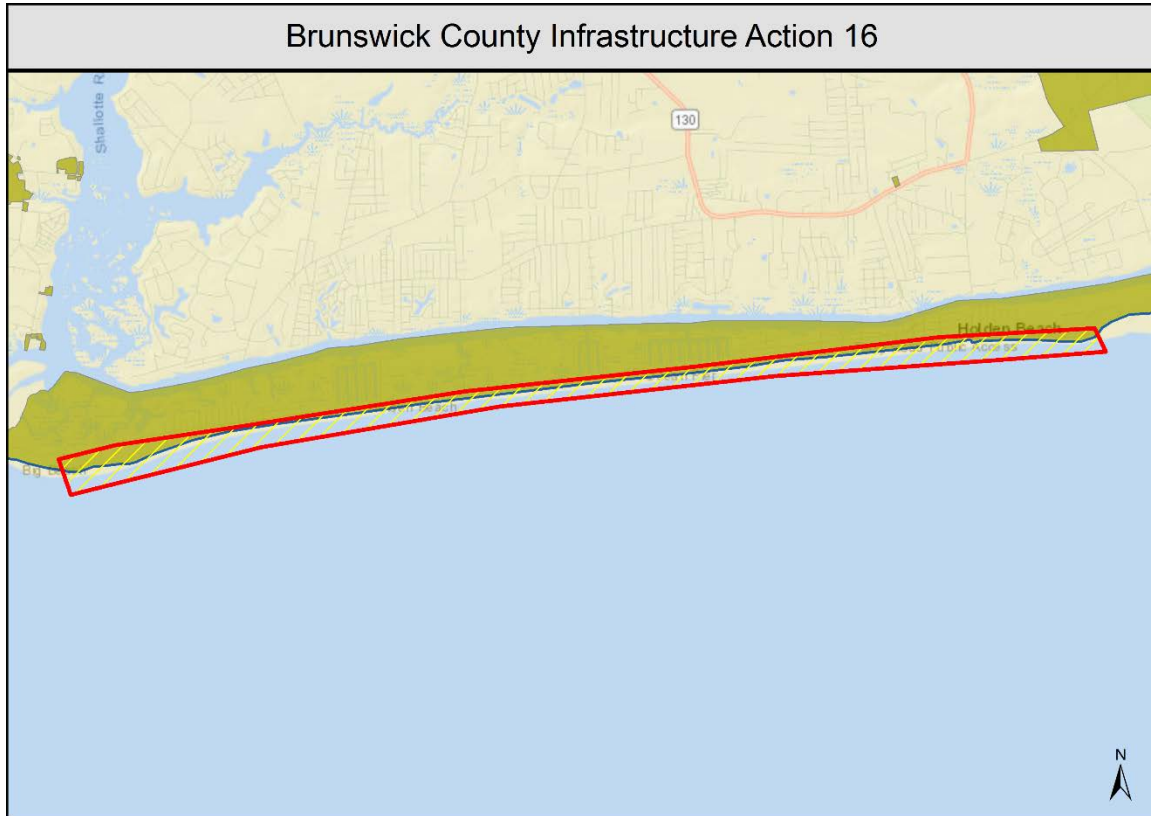


Figure 33. Town of Holden Beach Public Access Ramp Reconstruction

Town of Holden Beach Public Access Ramp Reconstruction

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 19

Project Timeframe: 1 to 2 years

Location: Town of Holden Beach, NC

Project Summary: The public access ramp no longer meets the toe of the dune as a result of dune erosion due to Hurricane Matthew. CAMA regulations and Town Ordinance require ramps to meet the toe of the dune.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	An ordinance requires that access ramps meet the toe of dune; however because the dunes shifted during Hurricane Matthew the ramp no longer meets the toe of the dune. The Town needs support to help design and reconstruct the public access ramp.	N/A
Consistent with existing plans (describe points of intersection/departure)	No known existing plans.	Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	Agree
Explain any benefits or impacts to the economy of the county from this project.	The Town needs the public access ramp to boost tourism.	Agree
For how long will this solution be effective?		Agree
How effective is the risk reduction?		Agree
How many public facilities are involved in this project (buildings and infrastructure)?	1-3	Agree
Is coordination with other communities/counties needed to complete this project?	No	Agree
Is this project consistent with Federal Laws		Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	Agree
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	Low to moderate confidence	N/A
What impact will this action have on the local economy/tax base?		Agree
What impacts to the environment of the county will result from this project?	None known.	N/A
What is the capability of the local government to administer this project?	High	Agree
What is the financial range of this project?	\$101K - \$250K	Agree
What is the level of public support for this project?		Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	Local	Agree

- **Town of Sunset Beach Public Access Ramp Reconstruction:** A portion of the public access ramp was covered by dune sand as a result of Hurricane Matthew. CAMA regulations do not allow the dune to be altered. Therefore, reconstruction of the public access ramp is required.

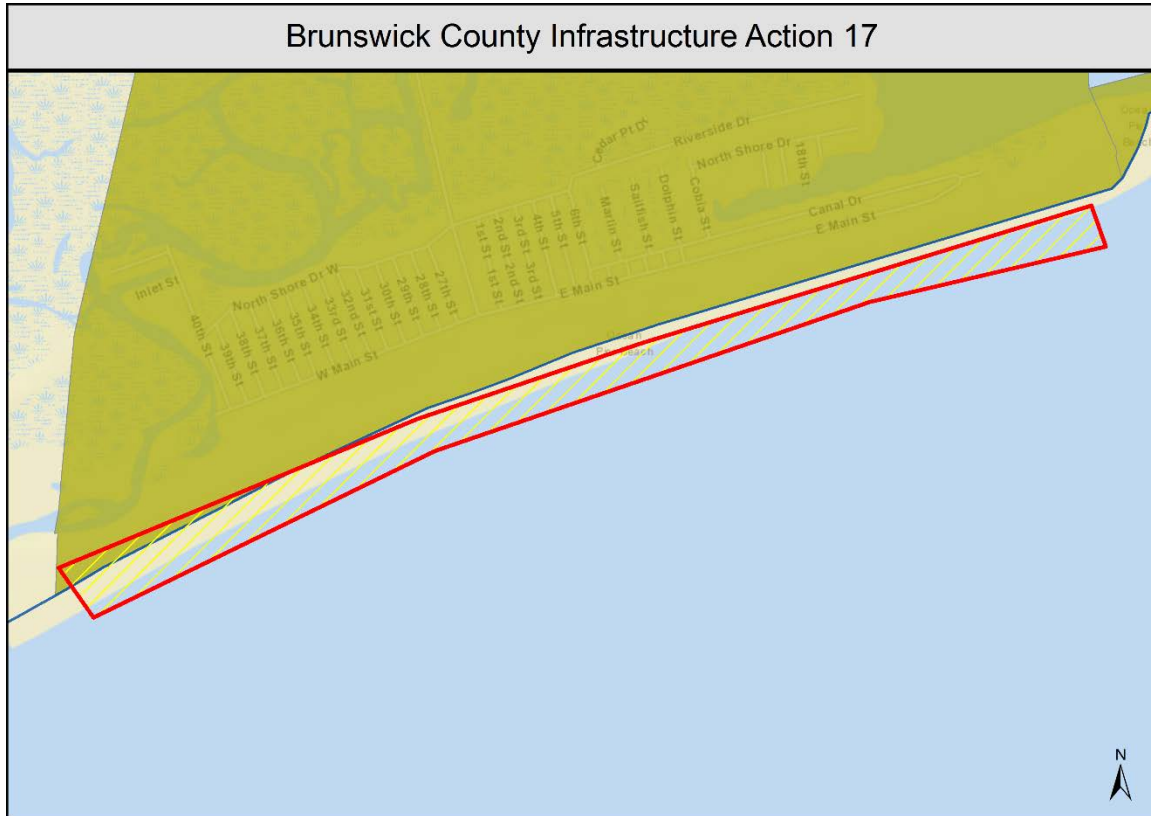


Figure 34. Town of Sunset Beach Public Access Ramp Reconstruction

Town of Sunset Beach Public Access Ramp Reconstruction

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 20

Project Timeframe: 1 to 2 years

Location: Town of Sunset Beach, NC

Project Summary: A portion of the public access ramp was covered by dune sand as a result of Hurricane Matthew. CAMA regulations do not allow the dune to be altered. Therefore, reconstruction of the public access ramp is required.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The dune shifted during Hurricane Matthew covering a portion of the public beach access. Since CAMA does not allow you to move the dunes the Town must build an access ramp elsewhere.	N/A
Consistent with existing plans (describe points of intersection/departure)	No known existing plan.	Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	Agree
Explain any benefits or impacts to the economy of the county from this project.	Reconstructing the Public Access ramp will help maintain tourism at Sunset Beach.	Agree
For how long will this solution be effective?		Agree
How effective is the risk reduction?		Agree
How many public facilities are involved in this project (buildings and infrastructure)?		Agree
Is coordination with other communities/counties needed to complete this project?	No	Agree
Is this project consistent with Federal Laws		Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	No Impact	Agree
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?		Agree
What impacts to the environment of the county will result from this project?	None known	N/A
What is the capability of the local government to administer this project?	High	Agree
What is the financial range of this project?	\$0- \$50K	Agree
What is the level of public support for this project?		Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	Local	Agree

Environmental, Ecosystem and Agricultural Strategies

High Priority Environmental Strategies

Pillar	Action Name	Priority	Overall Ranking
Environment	Brunswick Environment Action 20: Town of Caswell Beach Dune and Sea Oats Replacement	High	21
Environment	Brunswick Environment Action 21: Caw Caw Drainage District Maintenance	High	22

Table 9. Brunswick High Priority Environmental Summary

These projects represent the environmental strategies that Brunswick County indicated are the highest priority to address. Additional details can be found below:

- **Town of Caswell Beach Dune and Sea Oats Replacement:** The dunes at Caswell Beach were damaged during Hurricane Matthew and need to be restored to reduce their vulnerability to future storm events.

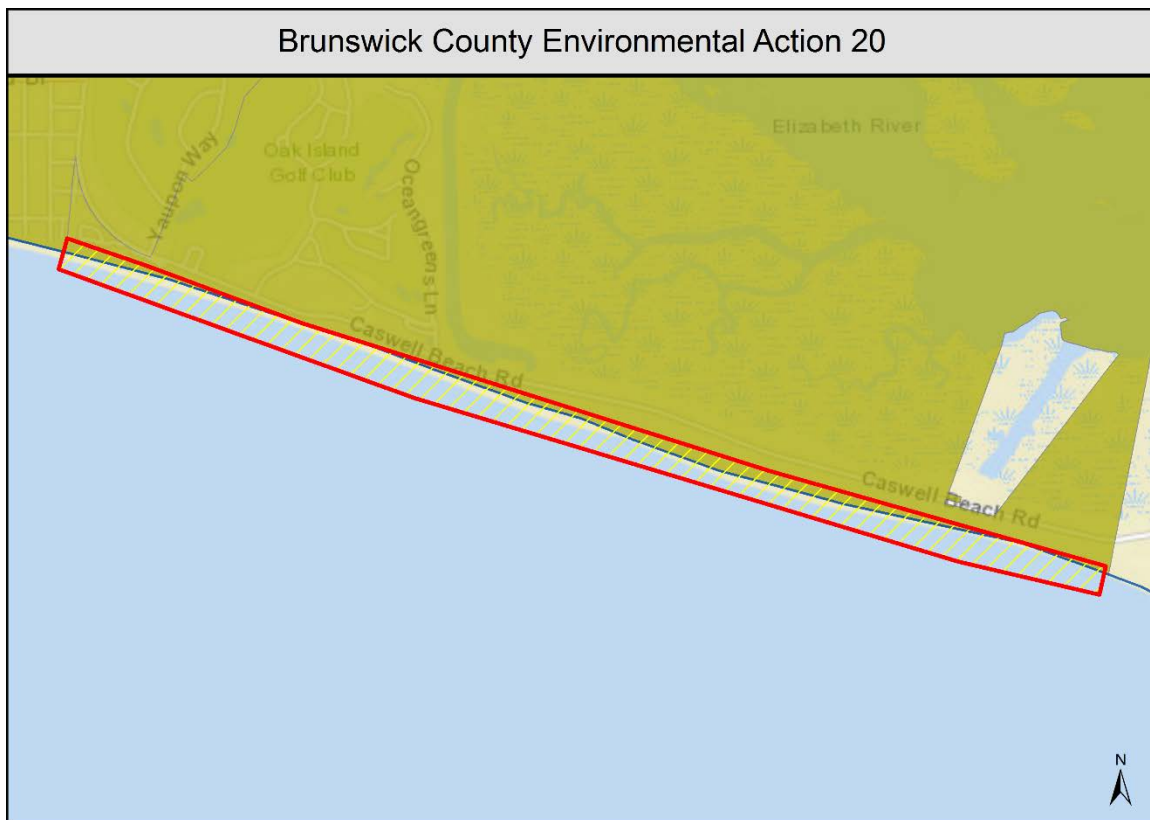


Figure 35. Town of Caswell Beach Dune and Sea Oats Replacement

Town of Caswell Beach Dune and Sea Oats Replacement

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 21

Project Timeframe: 2 to 3 years

Location: Town of Caswell Beach, NC

Project Summary: The dunes at Caswell Beach were damaged during Hurricane Matthew and need to be restored to reduce their vulnerability to future storm events.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	Hurricane Matthew damaged the dunes at Caswell Beach and stripped the sea oats which provided vital protection for the dunes. Not addressing this need leaves the community vulnerable to future storm events.	N/A
Consistent with existing plans (describe points of intersection/departure)	This is a result of Hurricane Matthew so no plans existed for this and I am unaware of any town plans that state dunes and sea oats will be restored after a storm event.	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.	Could protect homes in future storm events and restored dunes and sea oats should prevent adverse impacts to tourism in the area.	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?	Low to moderate confidence	N/A
What impact will this action have on the local economy/tax base?	Unknown	N/A
What impacts to the environment of the county will result from this project?	Minimal impacts to the environment of Brunswick County.	N/A
What is the capability of the local government to administer this project?	Unknown	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?	Local	N/A

- Caw Caw Drainage District Maintenance:** Remove debris and sandbars along the Caw Caw Canal and Shingletree Swamp to alleviate flooding in the Town of Carolina Shores. Topographic challenges, debris build-up, and ditch siltation have all compounded flooding in this area over the years and during Hurricane Matthew.

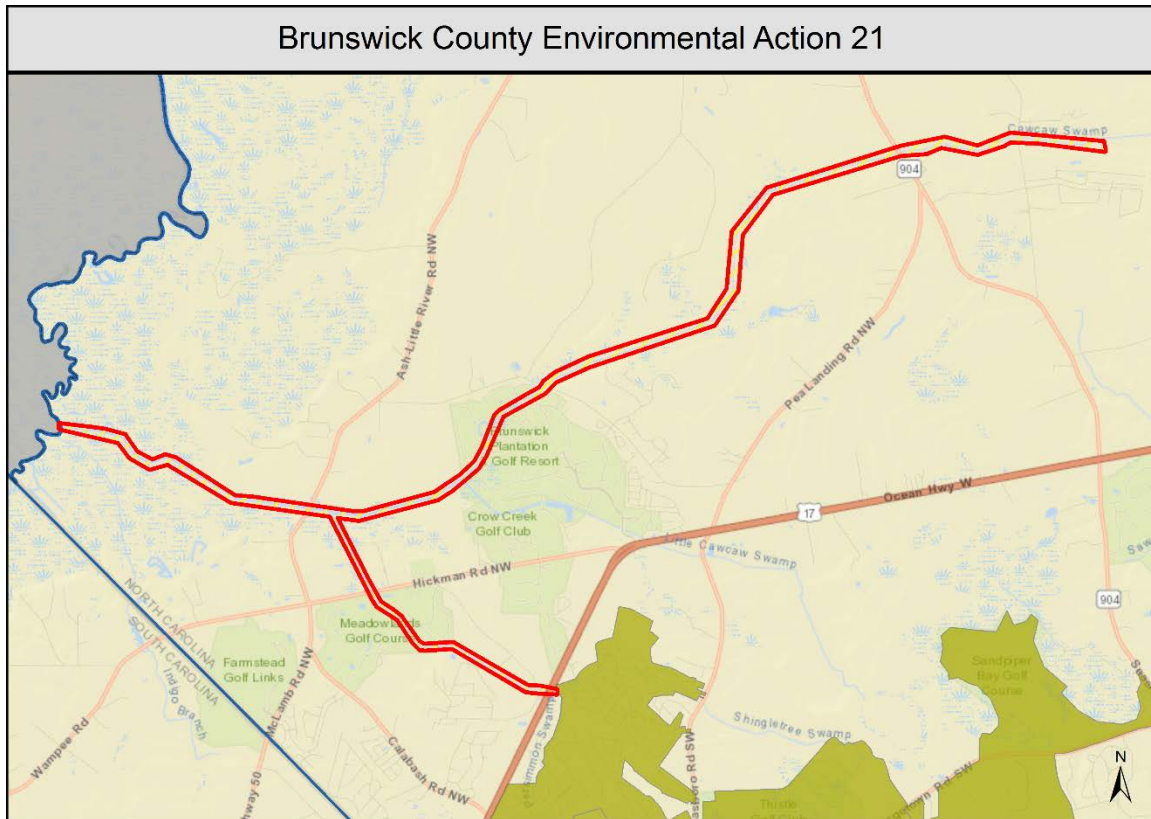


Figure 36. Caw Caw Drainage District Maintenance

Caw Caw Drainage District Maintenance

County: Brunswick

Priority Grouping: High Priority

Priority Ranking: 22

Project Timeframe: 1 to 2 years and ongoing

Location: Town of Carolina Shores, NC

Project Summary: Remove debris and sandbars along the Caw Caw Canal and Shingletree Swamp to alleviate flooding in the Town of Carolina Shores. Topographic challenges, debris build-up, and ditch siltation have all compounded flooding in this area over the years and during Hurricane Matthew.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The Caw Caw Drainage District has had problems backing up for years and this occurred during Hurricane Matthew as well.	N/A
Consistent with existing plans (describe points of intersection/departure)	This project has been listed in other plans and has been a documented problem over the years.	Agree
Does this project comply with existing Local and State authority (codes, plan and ordinance)?		Agree
Does this project meet the intents and goals for the Hurricane Matthew Recovery Act?	Yes	Agree
Explain any benefits or impacts to the economy of the county from this project.	Could help home flooding in the area which is a positive. May also be a costly undertaking that could be nullified by a major flooding event depositing sediment into the Caw Caw drainage district.	Agree
For how long will this solution be effective?		Agree
How effective is the risk reduction?		Agree
How many public facilities are involved in this project (buildings and infrastructure)?	0	Agree
Is coordination with other communities/counties needed to complete this project?		Agree
Is this project consistent with Federal Laws		Agree
To what degree does this project adversely impact local floodplain/coastal zone management?		Agree
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?		N/A
What impact will this action have on the local economy/tax base?		Agree
What impacts to the environment of the county will result from this project?		N/A
What is the capability of the local government to administer this project?	High	Agree
What is the financial range of this project?	\$1M+	Agree
What is the level of public support for this project?		Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	County	Agree

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.