

Hurricane Matthew Resilient Redevelopment Plan

Halifax 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 25 people lost their lives, and 100,000 homes, businesses, and government buildings sustained damage estimated at \$4.8 billion.¹ 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) initiative 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.

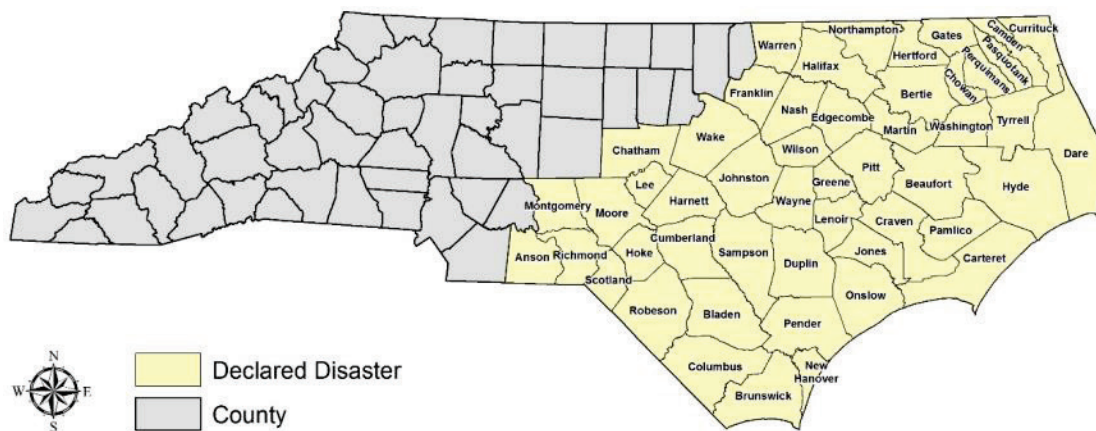


Figure 1. NCRRP Counties

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, Halifax County has identified 9 projects in four pillars: Housing, Economic Development, Infrastructure, and Environment. Details of these projects can be found in Section 4 of this plan.

Pillar	Project/Action Count
Housing	1
Economic Development	3
Infrastructure	4
Environment	1
Grand Total	9

Table 1. Halifax County Summary of Projects by Pillar



1. Background

1. Background

Summary of Hurricane Matthew Storm Damage

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

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

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

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

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

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

Initial economic analysis of the impacts of crop and livestock losses caused by Hurricane Matthew estimated the loss of more than 1,200 jobs and roughly \$10 million in state and local income and sales tax revenue.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 Governor 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) recommendation 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 initiative 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 initiative 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 initiative 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. Four 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.

Meeting 4 – NCEM presented actions developed during the course of the planning process and allowed the county to rank actions; apply High, Medium, or Low Prioritization; and approve inclusion of the actions in the final 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 resilient 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.

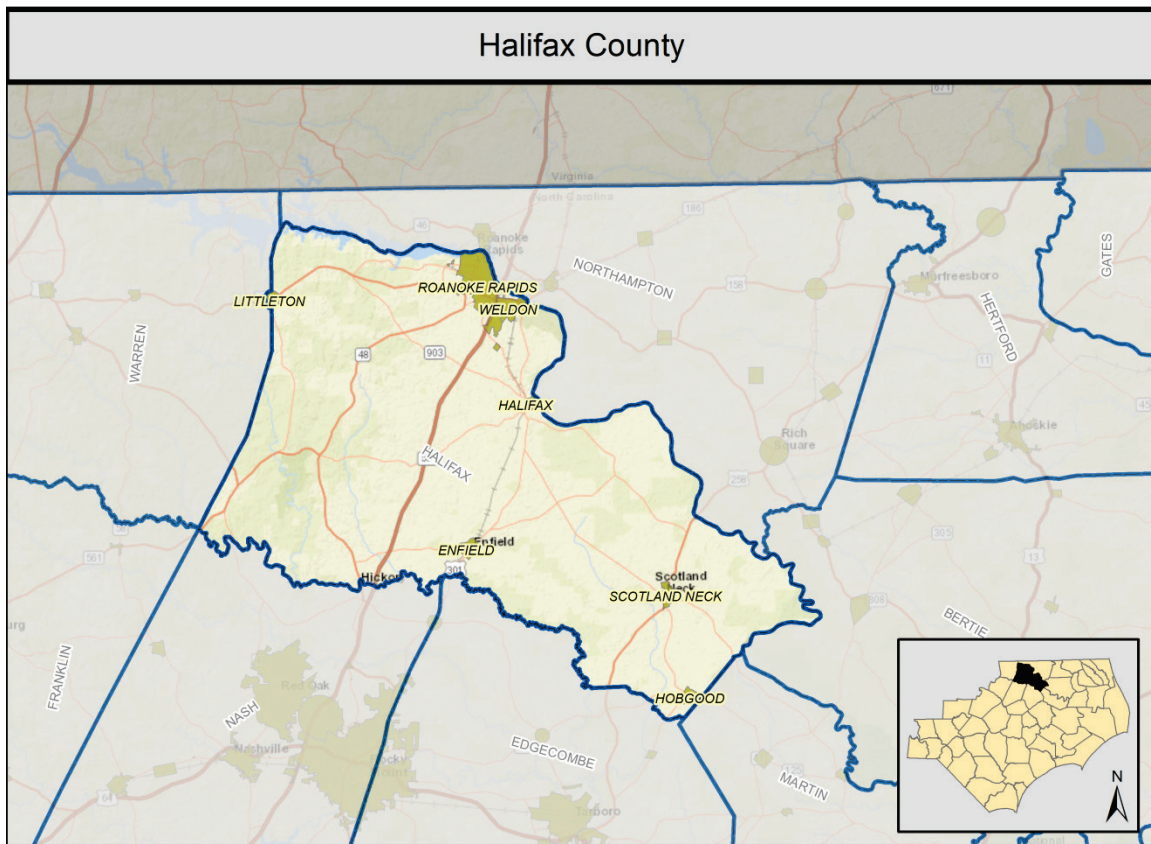


Figure 2. Halifax County and Neighboring Counties

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. Several houses with grey roofs are visible, some partially submerged. The surrounding area is filled with green trees, many of which are also in the water. The text "2. County Profile" is overlaid in the center of the image.

2. County Profile

2. County Profile

Halifax County is located in eastern North Carolina north of Rocky Mount. It is comprised of ten census-designated places: Enfield, Halifax, Hobgood, Hollister, Littleton, Roanoke Rapids, Scotland Neck, South Rosemary, South Weldon, and Weldon. Its current population is 53,407. This section provides a profile of housing, economics, infrastructure, environment, and administration within Halifax County.

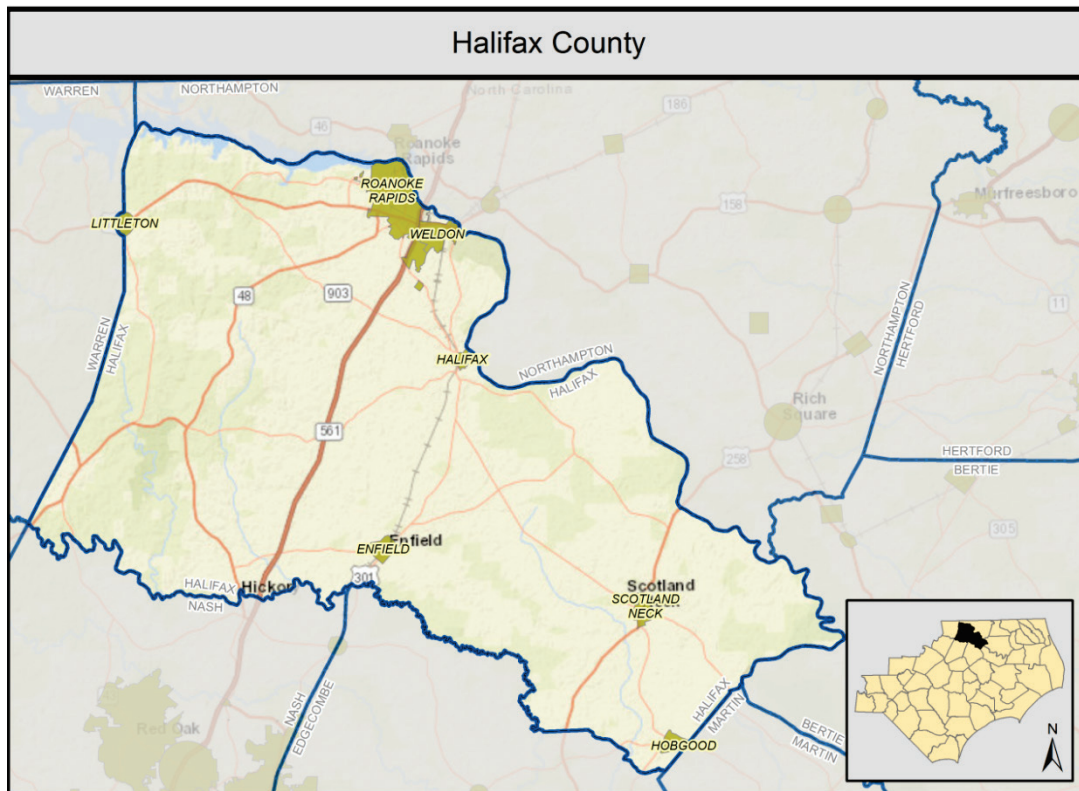


Figure 3. Halifax Base Map

Demographic Profile

Demographics for Halifax 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

Halifax County has a population of 53,407. Roanoke Rapids is the most populous place within Halifax County with a population of 15,557 and Halifax is the least populous place with a population of 271.³

Population Change (2000 to 2010)⁴

The Halifax County population declined between the 2000 and 2010 Census. In 2000 the population was 57,370 and in 2010 it was 54,691. The population declined by 2,679 people, 4.7 percent. In comparison, North Carolina grew by 18.5 percent from 8,049,313 people in 2000 to 9,535,483 in 2010.

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

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

Age

The median age in Halifax County is 42, which is the same for North Carolina. Within Halifax County, the Littleton population has the oldest median age, 52, and the Hollister population has the youngest median age, 28.³

Race and Ethnicity

Halifax County is mostly African American (52 percent) and White (40 percent) with other races constituting the remaining 8 percent. In comparison, North Carolina is 70 percent White, 22 percent African American, 1 percent American Indian and Alaska Native, 3 percent Asian, less than 1 percent Native Hawaiian/Pacific Islander, 3 percent Some Other Race, and 2 percent Two or More Races.

Within Halifax County, Halifax and Roanoke Rapids are predominantly White while Scotland Neck, South Weldon, and Weldon are majority African American. In Scotland Neck, 13 percent of the population identifies as Some Other Race.⁵

The Latino population in Halifax County is 3 percent compared to 9 percent for North Carolina. Scotland Neck has the largest Latino population (13 percent) while Enfield, Littleton, South Rosemary, and South Weldon do not have Latino populations 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
Enfield	6.4%	92.2%	0.1%	0.0%	0.0%	0.0%	1.3%	93.6%
Halifax	81.2%	8.9%	0.0%	0.0%	0.0%	0.0%	10.0%	18.8%
Hobgood	50.8%	46.4%	1.0%	0.3%	0.0%	0.0%	1.6%	49.2%
Hollister	9.0%	18.6%	67.1%	0.8%	0.0%	0.0%	4.4%	91.0%
Littleton	46.3%	34.0%	3.8%	0.0%	0.0%	0.0%	15.9%	53.7%
Roanoke Rapids	62.7%	33.5%	0.1%	1.4%	0.0%	0.9%	1.4%	37.3%
Scotland Neck	23.3%	63.2%	0.0%	0.0%	0.0%	13.1%	0.4%	76.7%
South Rosemary	39.2%	47.0%	0.0%	0.0%	0.0%	0.0%	13.7%	60.8%
South Weldon	13.1%	86.9%	0.0%	0.0%	0.0%	0.0%	0.0%	86.9%
Weldon	30.9%	68.6%	0.2%	0.0%	0.0%	0.0%	0.4%	69.1%
North Carolina	69.5%	21.5%	1.2%	2.5%	0.1%	3.0%	2.4%	30.5%

Table 2. Halifax 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 Halifax County, most of individuals identified as LEP speak Spanish while others speak Asian/Pacific. Similarly, the primary language group for LEP individuals in North Carolina is Spanish. Within Halifax County, Scotland Neck has the largest LEP population. The primary language group for LEP populations in Scotland Neck, Hollister, Enfield, Hobgood, and Roanoke Rapids is Spanish. In Littleton, the primary language group is

⁵ Source: US Census Bureau, American Community Survey 5-year Estimates (2011-2015), Table B02001, Race and Table B03002, Hispanic or Latino Origin by Race.

Asian/Pacific while Halifax, South Rosemary, South Weldon, and Weldon do not have a LEP population according to census data.

Poverty

In Halifax County, 26 percent of the population is below the poverty level compared to 17 percent of the North Carolina population. In South Weldon, 77 percent of the population is below the poverty level, 44 percent in Enfield, 48 percent in Scotland Neck, 38 percent in Hollister, 34 percent in Littleton and South Rosemary, 27 percent in Weldon, 22 percent in Roanoke Rapids, 20 percent in Hobgood, and 9 percent in Halifax.⁶

Low and Moderate Income Individuals

In Halifax County, 47 percent of the population is 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.⁷

Median Household Income

The median household income of the population 25 to 64 years old is \$36,418 in Halifax County and \$53,000 in North Carolina. Halifax has the highest median household income for this age group, \$58,959, and Hollister has the lowest: \$24,193. Median household income for Roanoke Rapids is \$40,359, South Rosemary: \$36,318, and Weldon: \$37,604. Median household income was not available for Enfield, Hobgood, Littleton, Scotland Neck, and South Weldon.

Zero Car Households⁸

In Halifax County, 13 percent of households do not have a vehicle available compared to 7 percent of North Carolina households. Within Halifax County, South Weldon has the highest percentage of households without access to a vehicle, 35 percent, while Halifax has the lowest percentage: 3 percent.

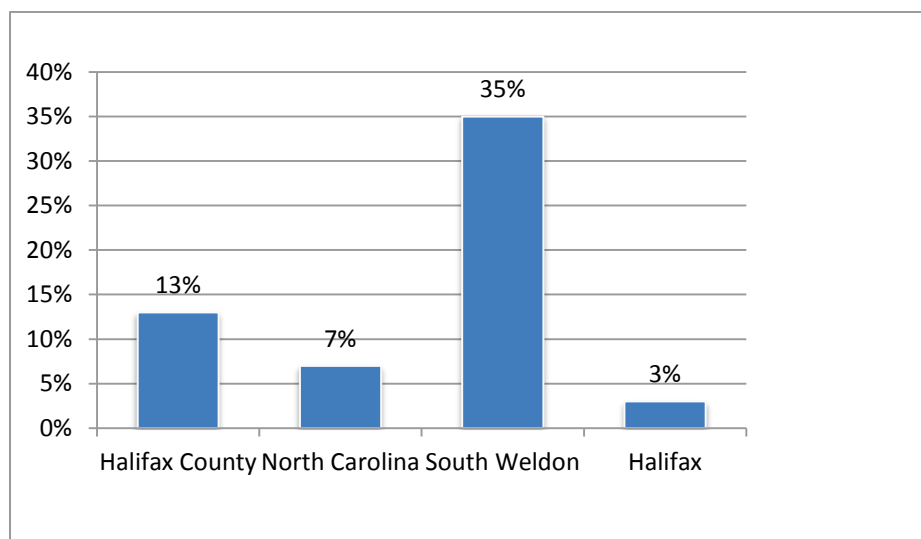


Figure 4. Zero Car Households by Percentage

6 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.

7 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/>

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

Commuting: Travel Time to Work, Means of Transportation⁹

The majority of Halifax County residents commute alone to work by vehicle, 83 percent, which is similar to North Carolina average of 81 percent. Within Halifax County, Hobgood has the largest percentage of commuters commuting alone, 94 percent, and Scotland Neck has the least: 57 percent.

Littleton has the largest percentage of residents commuting by public transportation: 1 percent. In comparison, 1 percent of North Carolina commuters use public transportation. A greater percentage of Scotland Neck, Littleton, and Enfield residents commute by foot, bike, or motorcycle than the North Carolina average of 2 percent.

The mean commute time to work for Halifax County residents is 23.9 minutes. In comparison, the North Carolina mean commute time is 24.7 minutes. Within Halifax County, Roanoke Rapids has the shortest mean commute time at 17.0 minutes while Hobgood has the longest at 31.6 minutes.

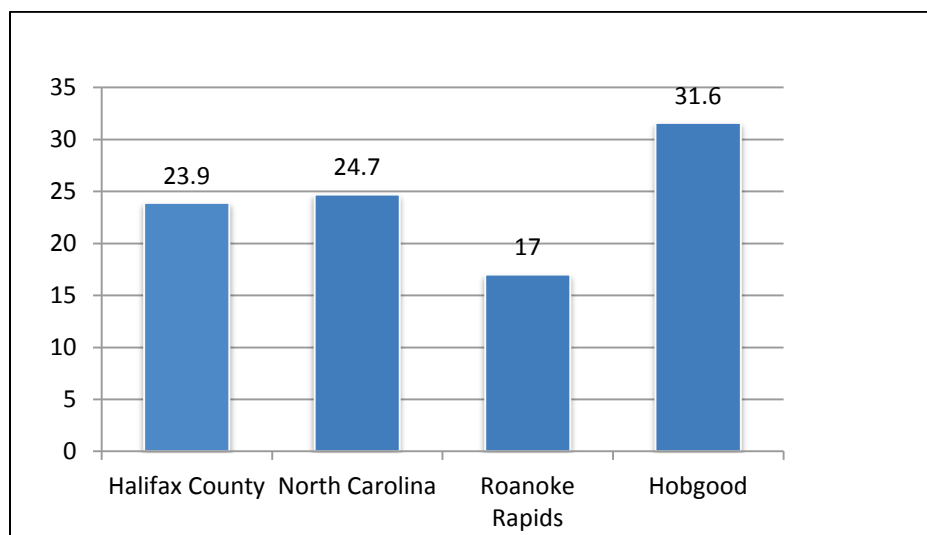


Figure 5. Mean Commute Time to Work in Minutes

Housing Profile¹⁰

Halifax County has over 25,000 housing units, 69 percent of which are single-family homes, 10 percent multi-family units, and 21 percent manufactured housing.

⁹ 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).

¹⁰ 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

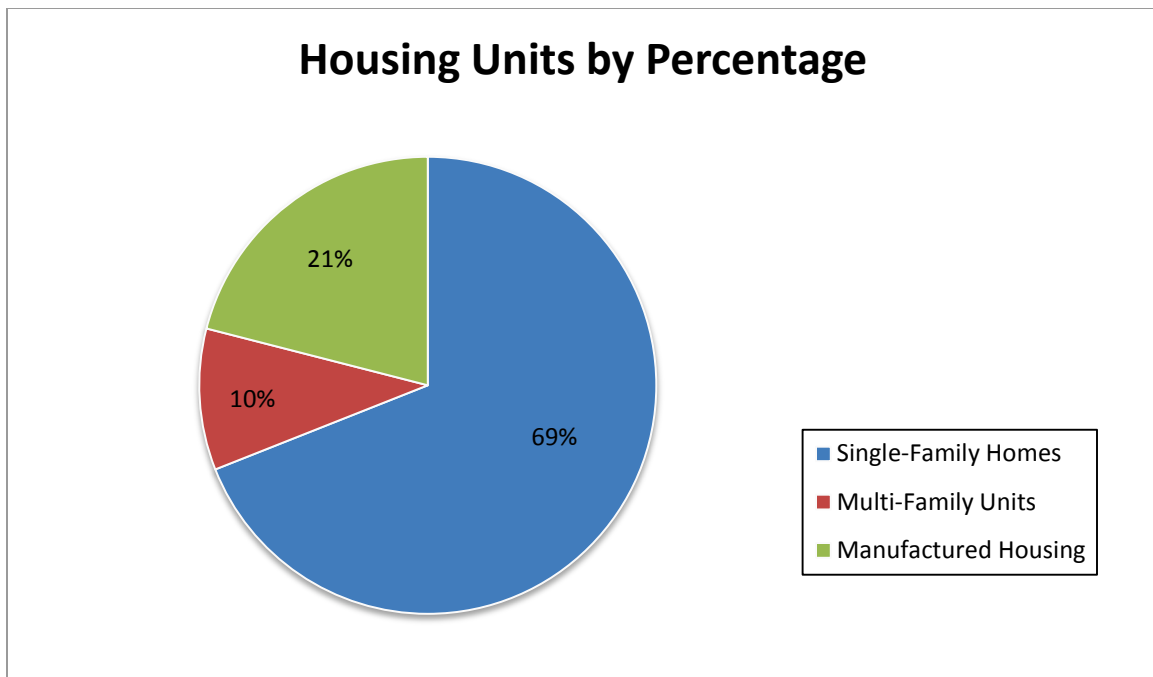


Figure 6. Housing Units by Percentage

In Halifax County 17 percent of housing units are vacant, compared with 15 percent for North Carolina. Within Halifax County, Scotland Neck has the largest percentage of vacant housing units, 33 percent, while Roanoke Rapids has the least: 10 percent.

Of the occupied housing units, 63 percent are owner-occupied compared to 65 percent in North Carolina; 37 percent are renter-occupied compared to 35 percent in North Carolina.

The median housing value in Halifax County is \$86,600. In comparison, the median housing value in North Carolina is \$140,000. Within Halifax County, Roanoke Rapids has the highest median housing value: \$115,300. South Weldon has the lowest median housing value: \$59,000.

According to the National Housing Preservation Database, Halifax County has 1,850 affordable housing units. Most of the affordable housing is located within Roanoke Rapids. Other units are located in Enfield, Halifax, Littleton, Scotland Neck, and Weldon.

Economic/Business Profile

Halifax County is home to a diverse array of businesses including agriculture, manufacturing, and health care companies. According to the US Census Bureau’s Longitudinal-Employer Household Dynamics Program, the largest concentrations of jobs within Halifax County are in downtown Roanoke Rapids.¹¹

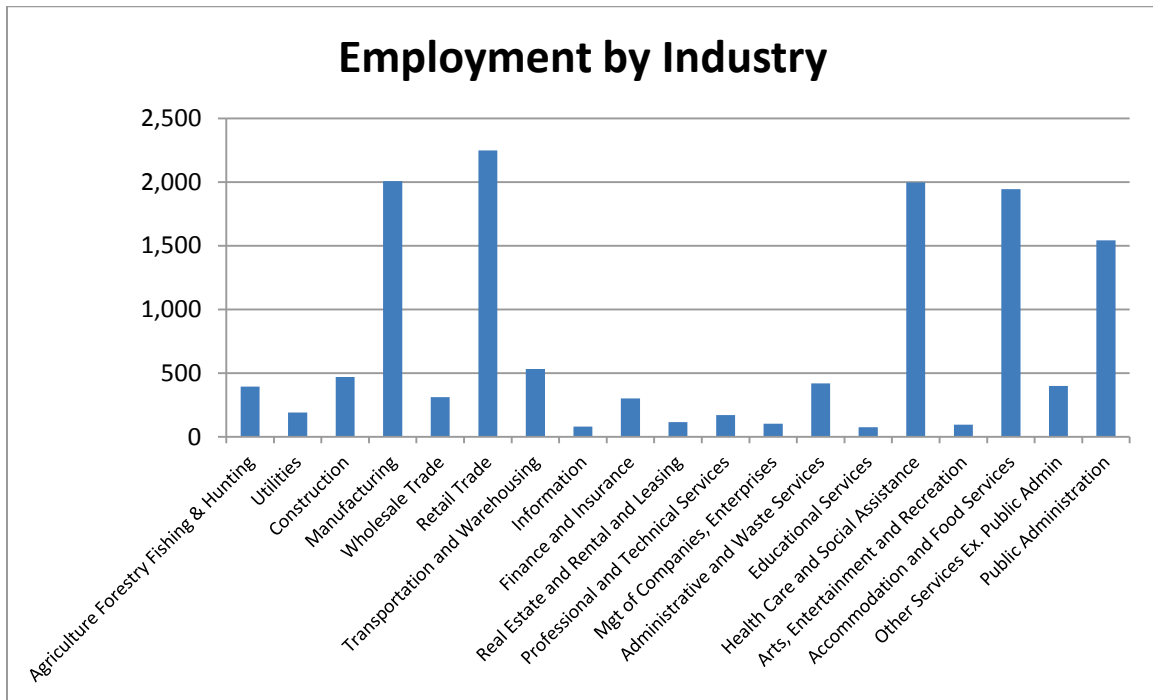


Figure 7. Employment by Industry

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 Halifax County is 20,806.¹² Within Halifax County, Halifax has the largest percentage of residents 16 years or over in the labor force, 60 percent, while Hobgood has the smallest: 38 percent.¹³

The civilian unemployment rate in Halifax County is 8 percent. In comparison, the North Carolina civilian unemployment rate is 5.1 percent.¹² Within Halifax County, Halifax has the smallest civilian unemployment rate at 6 percent while South Weldon has the largest: 32 percent.¹³

11 Source: AccessNC – North Carolina Department of Commerce, April 2017:
<http://accessnc.nccommerce.com/DemoGraphicsReports/pdfs/countyProfile/NC/37083.pdf>

12 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>

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

Major Employers

The top ten employers in Halifax County represent the manufacturing, public administration, education and health service industries, and are listed in order of total employees.¹⁴

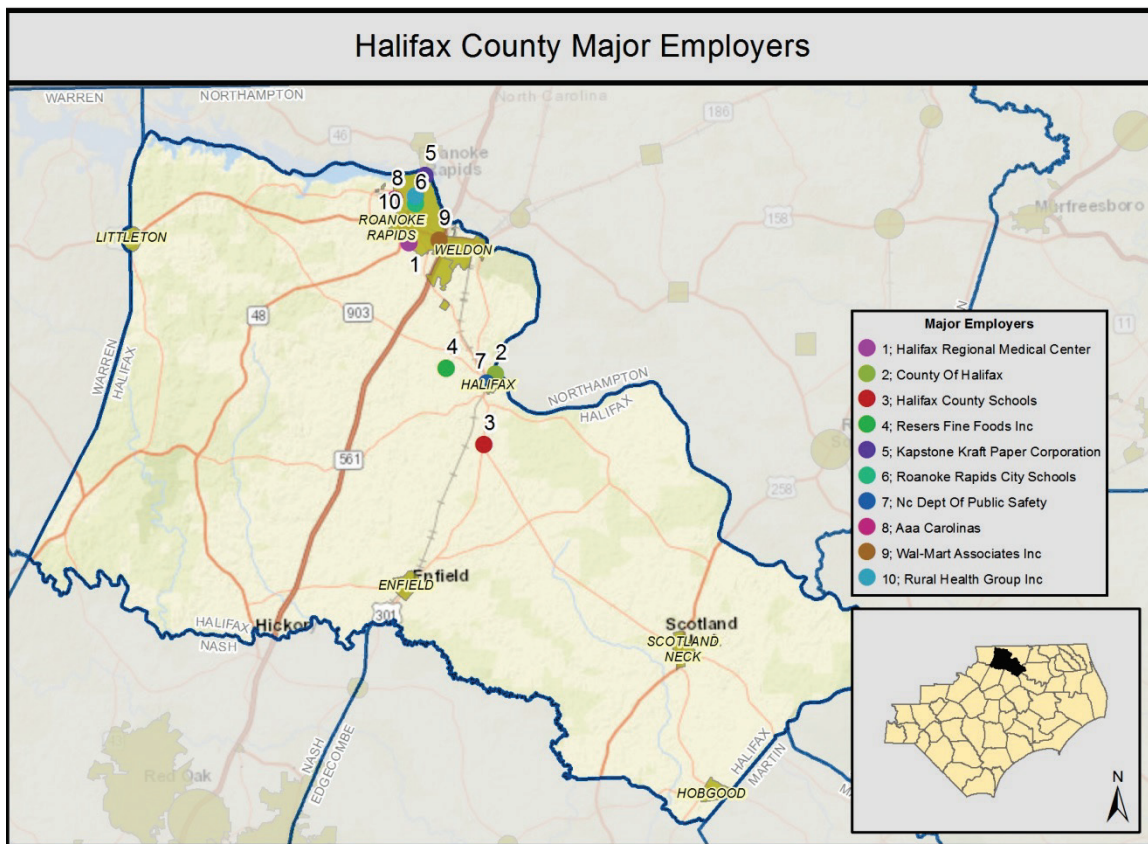


Figure 8. Major Employers by Number of Employees

14 Sources: NC Department of Commerce

Economic Development¹⁵

Halifax County Economic Development Commission is a twelve member advisory board aimed at “supporting the creation of new jobs and investment in Halifax County and the retention and expansion of Halifax County's existing business and industry.”

The Halifax County Government Department of Social Services offers employments training and other services to aide individuals needing assistance functioning at maximum capacity.

Infrastructure Profile¹⁶

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

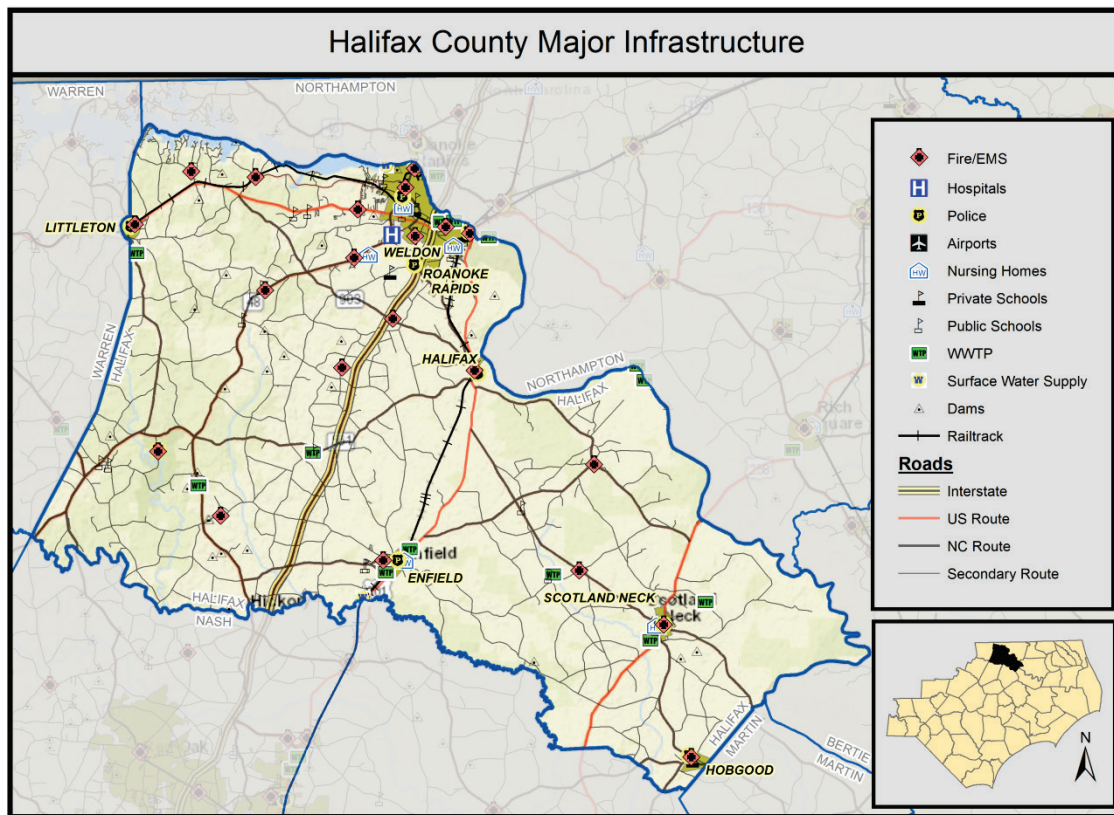


Figure 9. Halifax County Major Infrastructure

Transportation

Halifax County is connected to the region by I-95 which is a major highway running north-south along the east coast and connects Halifax with Rocky Mount and Fayetteville. Halifax County does not have any Amtrak rail terminals, however, is nearby to terminals in Rocky Mount and Raleigh. The Halifax-Northampton Regional Airport provides general aviation services while the nearest international airports are approximately 90 miles away.

¹⁵ Sources: Halifax County Economic Development Commission and Halifax County Government

¹⁶ Sources: Halifax County Development Commission

Health

Halifax Regional Medical Center is the largest hospital located in Halifax County. It is located in Roanoke Rapids on Smith Church Road. There are several smaller specialty health centers in the county for rehabilitation, cancer care, and other services.

Education¹⁷

Halifax County Public Schools administers six elementary, two middle, and two high schools. Halifax Community College is located in Weldon and is a member of the North Carolina Community College System.

Water

Halifax County Public Utilities operates a county-wide water system with over 500 miles of water lines that serve 7,522 residential water accounts and 373 commercial water accounts. Roanoke Rapids, The Towns of Weldon, Scotland Neck, Littleton, Halifax, Hobgood, and Enfield each operate their own water and wastewater treatment systems that serve their municipalities.¹⁸

Power

There are two several solar farms located within Halifax County. There is also a coal plat, hydroelectric plant, and natural gas power plant located in the county.¹⁹

Environmental Profile

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

Water Resources

The Roanoke River follows the northern boundary of Halifax County. Lake Gaston and Roanoke Rapids Lake are located along the northwestern edge of the county. Wetlands are present along the Roanoke River and its tributaries. The most common wetland type in Halifax County is freshwater riverine wetland.²⁰

Natural and Managed Areas

According to the NC Natural Heritage Program, the area along the Roanoke River consists of many high and very high natural areas. There are several managed areas including dedicated nature preserves under state ownership within Halifax County. Managed areas are properties and easements where natural resource conservation is one of the current primary management goals, or are of conservation interest. These areas in Halifax County include: the Roanoke River Wetlands Game Land, Tillery Game Land, and Caledonia Correctional Institution.²⁰

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

¹⁷ Sources: Halifax County Public Schools and Halifax Community College

¹⁸ Sources: Halifax County Development Commission

¹⁹ Source: US Department of Energy, US Energy Mapping System

²⁰ Source: NC Natural Heritage Program

Roanoke River and its tributaries. These areas rank between a 7 and 10, with 10 being the highest possible score. Other areas of the county rank 5 to 6. Most of the county is unrated.²⁰

Parks and Recreation

The Halifax County Government and municipalities within Halifax County maintain several parks and facilities in Halifax County. The largest park is a state managed facility called Medoc State Park in the southern part of Halifax County. This park is 2,300 acres with a greenway and campsites.²¹

Administrative Profile

Halifax County has Emergency Services 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, Floodplain Management Ordinance, Stormwater Management Plan. These plans, policies and procedures help ensure that new development in the County will be done in a responsible manner and in non-hazardous areas.²²

²¹ Source: NC Natural Heritage Program, Halifax County Government

²² Halifax County



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 Halifax County is highlighted graphically in the figure below.

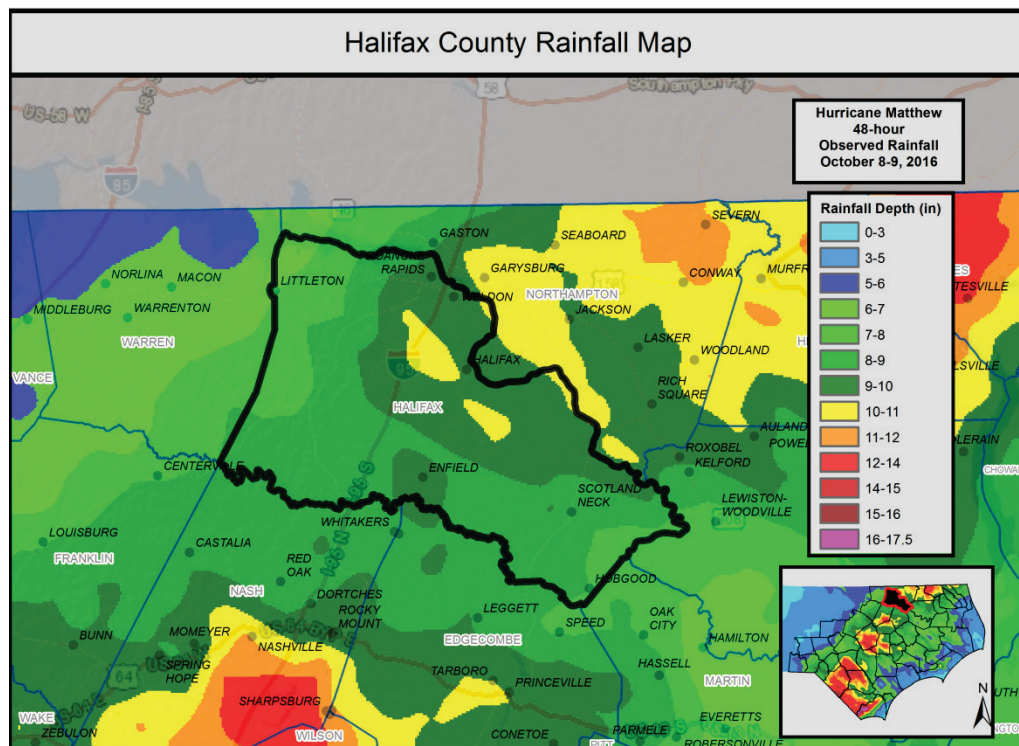


Figure 10. 48-hour Observed Rainfall Depth (October 8-9, 2016)

Riverine Flooding Summary

USGS documented stream gage data in the report “Preliminary Peak Stage and Streamflow Data at Selected Stream gaging Stations in North Carolina and South Carolina for Flooding Following Hurricane Matthew, October 2016”. Stream gage data from the USGS report for Halifax County and nearby gages is summarized in Table 3.

USGS Gage	County	River Name and Location	Drainage Area (sq mi)	Peak Matthew Elevation (ft)	Previous Record (ft)
02083000	Halifax	Fishing Creek near Enfield, NC	526.0	19.73	21.65
02082950	Halifax	Little Fishing Creek near White Oak, NC	177.0	24.72	30.80

Table 3. Halifax County USGS Stream Gage Data

The USGS data validates what was experienced in the county. Details of impacts categorized under housing, economic, infrastructure, and environment are included in the following sub-sections.

Housing

According to Individual Assistance claims as of March 21, 2017, there were 487 impacted houses in Halifax County as a result of Hurricane Matthew. It should be noted that additional claims from Hurricane Matthew might still be pending, so this number may not reflect the final claims data from the event. This also does not take into account other historic impacts to the county or other areas of concern for flooding that may not have occurred during this storm. With that in mind, the planning team attempted to take a comprehensive look at both Hurricane Matthew impacts and any historic impacts that local officials felt would validate areas that should be considered at high risk to future flooding.

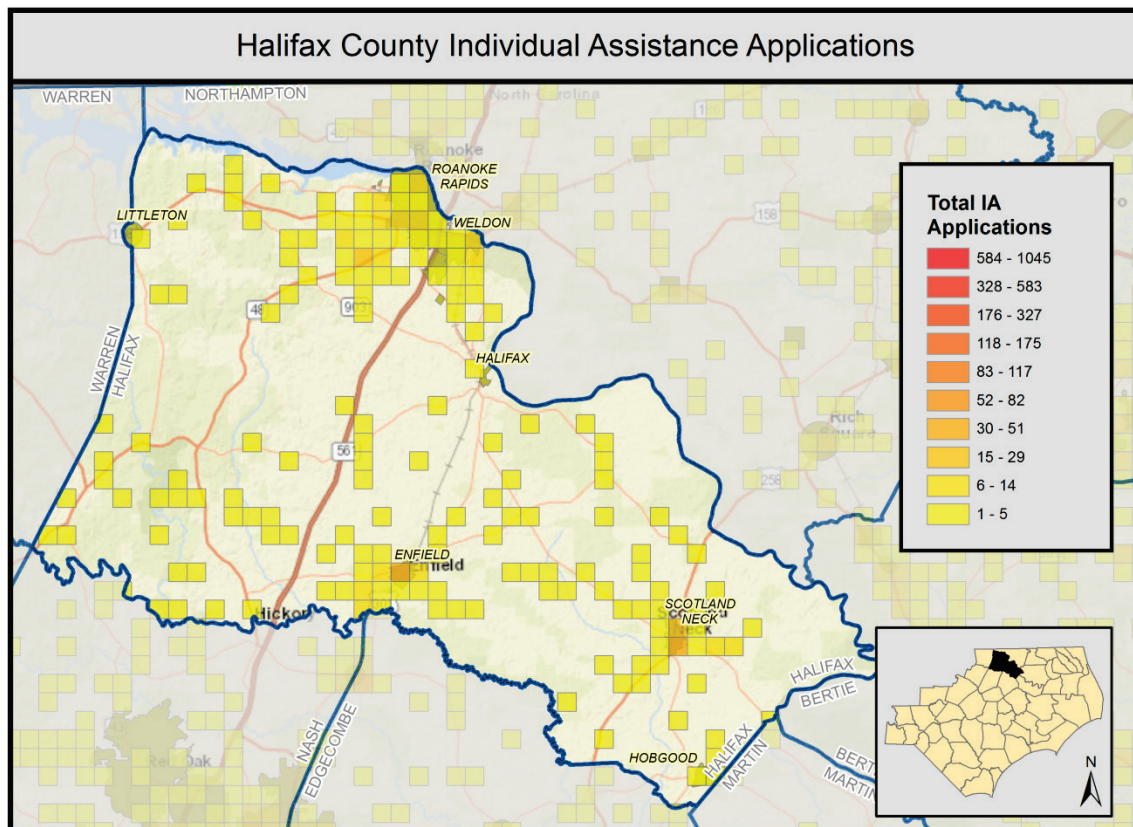


Figure 11. Halifax County IA Applications by Area

Housing was certainly impacted in Halifax County as a result of Hurricane Matthew as there were several homes damaged, especially around the Town of Weldon and Roanoke Rapids. The bullet below summarizes some of the major impacts to housing identified by local officials in multiple meetings.

- Homes Flooded from Hurricane Matthew:** Morgan's Trailer Park, Grant Park Subdivision, and Forest Hill Manor Apartment Complex are communities in flood-prone areas and they flooded during Hurricane Matthew. Based on historic flooding information, these communities could include some repetitive loss properties.

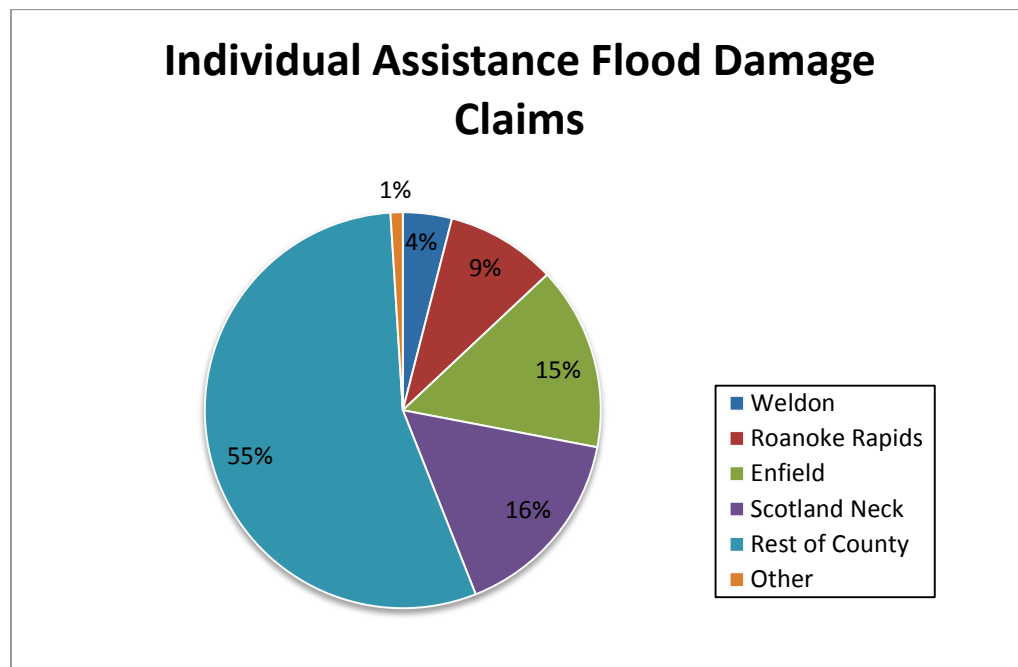


Figure 12. IA Flood Claims by Area

Economics / Business / Jobs

There were impacts to the economy in Halifax County from Hurricane Matthew. The bullets below summarize some of the impacts to the economy/businesses/jobs that were identified by local officials from the event.

- **Downtown Areas Impacted:** Mostly the commercial areas, and some homes, in downtown Enfield are located in low lying areas and frequently flood due to poor drainage. In addition, the historic building where the library is located is where the residents go to access broadband internet. The library also functions as a job training and educational facility.
- **Medical Facility:** The Halifax Medical Center in addition to being a main medical facility for the county, it is also one of the major employers in Halifax County. Smith Church Road, the main road leading to Halifax Medical Center was flooding during Hurricane Matthew. Additionally, although it was not flooded this time, the generators located in the basement were flooded in previous flood events.
- **Local Economy:** Several communities in the county that may not have had major impacts from Hurricane Matthew were impacted economically over the past several years as jobs and businesses have struggled. Particularly in Weldon and Roanoke Rapids there have been difficulties attracting businesses and there has been a desire to improve growth and make these communities attractive to new businesses and commercial development.

Infrastructure

According to Public Assistance claims, which are often closely tied to infrastructure, as of March 21, 2017 there were \$25,935 in claims in Halifax County as a result of Hurricane Matthew. It should be noted that additional claims from Hurricane Matthew may still be pending, so this number may not reflect the final claims data from the event.

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.

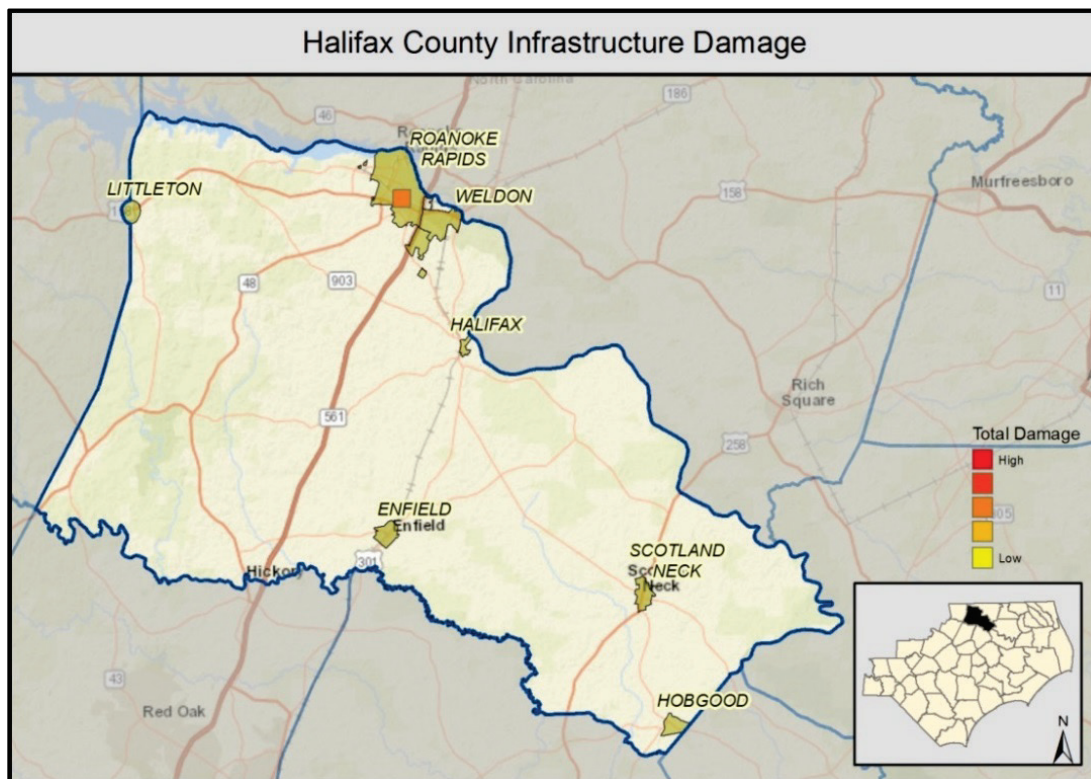


Figure 13. Halifax County Infrastructure Damage

- **Road/Bridge Flooding:** Road and bridge overtopping are common occurrences in Halifax County and impacted a number of different locations during Hurricane Matthew. Many of these locations have been historical hotspots in the county and are affected even during rainfall events that are not as extreme as hurricane/tropical storm events. For example:
 - Water in this area does not contract through or under structures quickly enough due to the wide flood plain in this area and potentially undersized culverts and bridges. Several locations in this area experienced overtopping including the Culvert on Dixie Street that is the main access road to the Chaloner Recreation Center in Roanoke Rapids. The crossing is also too small to support a fire truck. Additionally,
 - The culverts at Forest Hill Manor Apartment Complex are too small causing flooding,
 - The culverts on Smith Church Road caused flooding which prevented access to the Halifax Regional Medical Center, and
 - Hurricane Matthew presented access issues for the whole neighborhood around the Grant Park subdivision in the Town of Weldon.

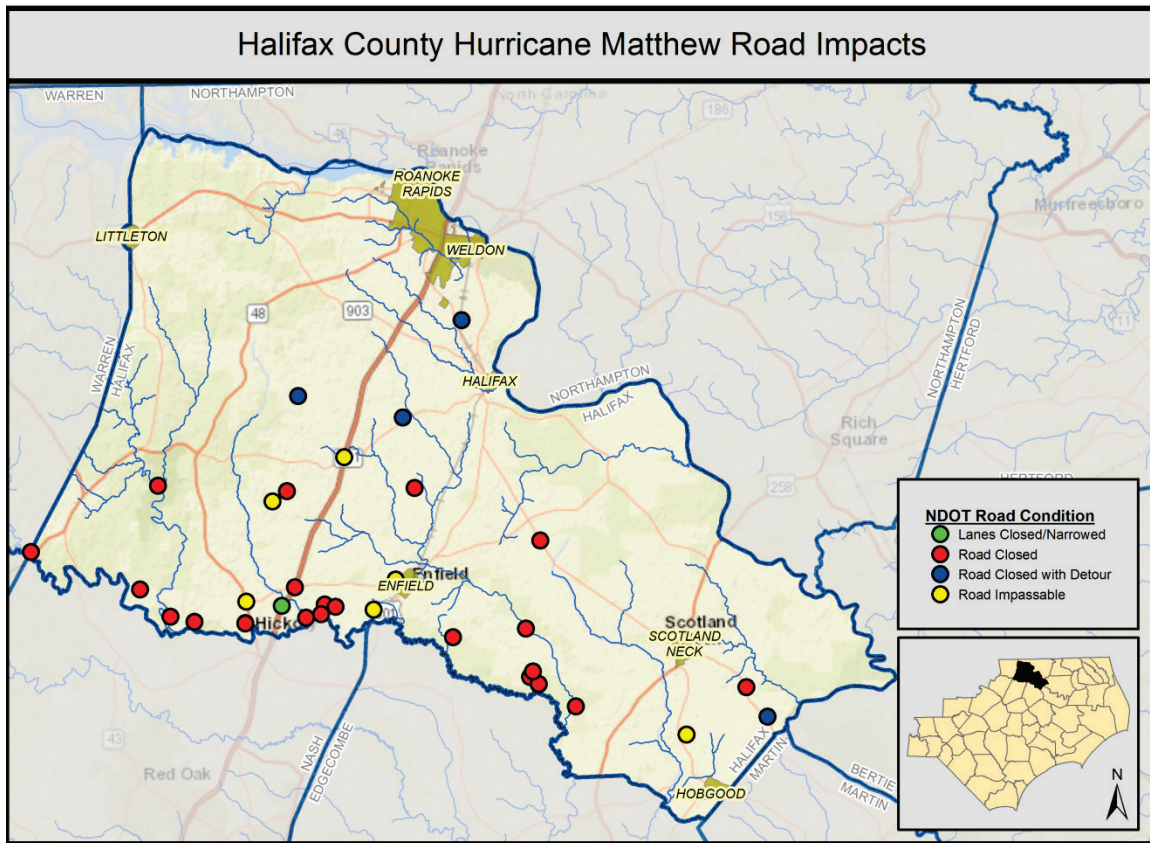


Figure 14. Halifax County Hurricane Matthew Road Impacts

Ecosystems / Environment

Overall, environmental impacts in Halifax County, as a result of Hurricane Matthew, were relatively minimal. However, while the County expressed cautious in restricting growth in the County, during meetings with County official, the idea of a feasibility study of environmentally sensitive areas within Halifax County especially along the Roanoke River seem to be a worthwhile undertaking.



4. Strategies for Resilient Redevelopment

4. Strategies for Resilient Redevelopment

This section provides details about the resilience and revitalization strategies and actions identified in Halifax 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	3
Infrastructure	4
Environment	1
Grand Total	9

Table 4. Halifax County Summary of Projects by Pillar

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

Pillar	Action Name	Priority	Overall Ranking
Economic Development	Economic Development Action 2 - Enfield Drainage Improvements	High	1
Infrastructure	Infrastructure Action 2 - Forest Hill Manor Ditch Rerouting	High	2
Infrastructure	Infrastructure Action 3 - Grant Park Drainage Ditches	High	3
Housing	Housing Action 1 - McGwigan Street Drainage Improvements	High	4
Economic Development	Economic Development Action 3 - Town of Halifax Maintenance	Medium	5
Economic Development	Economic Development Action 1 - Smith Church Road Culverts	Medium	6
Infrastructure	Infrastructure Action 1 - Dixie Street Culvert	Medium	7
Environment	Environmental Action 1 - Environmentally sensitive areas study	Low	8
Infrastructure	Infrastructure Action 4 - Low Water Crossing Improvements	Low	9

Table 5. Projects by Rank

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

Housing Strategies

High Priority Housing Strategies

Pillar	Action Name	Priority	Overall Ranking
Housing	Housing Action 1: McGwigan Street Drainage Improvements	High	4

Table 6. Halifax High Priority Housing Summary

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

Although Halifax County as a whole suffered only moderate impacts with respect to housing from Hurricane Matthew, as noted in Section III, several residential areas were moderately impacted by flooding. Likewise, roadway flooding introduced access issues for a number of homes and residents. As a result, in development of Halifax County's housing strategies, the planning team put their focus into the redevelopment of the most impacted areas, as well as in longer-term projects to increase the county's resiliency.

- McGwigan Street Drainage Improvements:** The apartment complex at McGwigan Street in the Town of Enfield has flooded repeatedly in the past and currently is in a state of disrepair. The flooding was caused primarily by poor drainage in the area. The project is redevelopment of the apartment complex possibly with cooperation from a non-profit entity to increase stock of affordable housing in the Town of Enfield. As part of the redevelopment of the apartment complex, the project should include regrading of the site to improve the drainage on the lot to reduce the future possibility of flooding onsite.

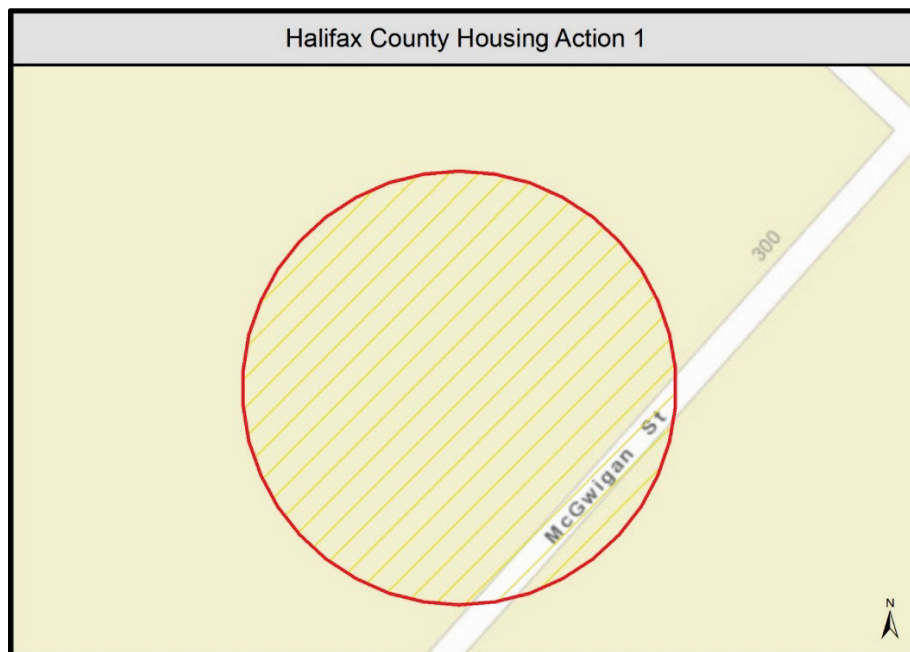


Figure 15. Housing Action 1: McGwigan Street Drainage Improvements

Housing Action 1: McGwigan Street Drainage Improvements

County: Halifax

Priority Grouping: High Priority

Priority Ranking: 4

Project Timeframe: 1-2 years

Location: McGwigan Street in the Town of Enfield

Project Summary: The apartment complex at McGwigan Street in the Town of Enfield has flooded repeatedly in the past and currently is in a state of disrepair. The flooding was caused by poor drainage in the area. The project is : Redevelopment of the apartment complex possibly with cooperation of a non-profit entity to increase stock of affordable housing in the Town of Enfield. As part of the redevelopment of the Apartment complex, the project should include regrading of the site to improve the drainage on the lot to reduce future possibility of flooding on site.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The apartment complex at McGwigan Street in Enfield has flooded repeatedly in the past and currently is in in disrepair. Therefore this is an unmet need. Redevelopment of the site would increase stock of affordable housing in the Town of Enfield.	N/A
Consistent with existing plans (describe points of intersection/departure)	Unknown	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.	Having a rehabilitated apartment complex that does not flood attract residents to stay in the area contributing to the vitality of the local economy.	Agree
For how long will this solution be effective?	Between 31 and 50 years	Agree
How effective is the risk reduction?	50-100 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	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?	Unknown	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?	N/A	N/A
What is the capability of the local government to administer this project?	Minimum	Agree
What is the financial range of this project?	\$1M+	Agree
What is the level of public support for this project?	Medium	Agree
What is the technical feasibility of this project?	Between 51 and 75%	Agree
Who will administer this project?	State	Agree

Economic Development Strategies

High Priority Economic Development Strategies

Pillar	Action Name	Priority	Overall Ranking
Economic Development	Economic Development Action 2 : Enfield Drainage Improvements	High	1

Table 7. Halifax High Priority Economic Development Summary

This single project represents the economic development strategies that Halifax County indicated is the highest priority to address. Additional detail on the projects can be found below:

- Revitalization of the Town of Enfield:** Low lying areas and drainage issues caused homes and the historic library in downtown Enfield to flood. The library is an important place for residents to access broadband internet and it is an important place used for educational and vocational training. Having a downtown area that does not flood on a regular basis encourages the residents to stay in town and contributed to the economic activity of the Town of Enfield and Halifax County. Through discussions at the planning meetings, it was estimated that approximately 60 people who work there and their dependents are directly impacted and approximately 2500 people in the town will be impacted if the flooding issue is not resolved. The project is to improve the overall drainage problems in downtown Enfield by rerouting ditches away from draining into the downtown areas and by regular maintenance of those ditches to ensure water does not get backed up and cause flooding.



Figure 16. Economic Development Action 2: Enfield Drainage Improvements

Economic Development Action 2 : Enfield Drainage Improvements

County: Halifax

Priority Grouping: High Priority

Priority Ranking: 1

Project Timeframe: 1 year

Location: Downtown Enfield, Halifax County

Project Summary: Improve drainage in downtown Enfield

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	Several homes and the historic library in downtown Enfield are susceptible to flooding. Improvements to the drainage situation prevent future flooding of the residential housing stock and to businesses in historic downtown area.	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)?	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.	Alleviate the flooding issues to the town Encourages the residents to stay in town and contributed to the economic activity of the Town of of Enfield and Halifax County.	Agree
For how long will this solution be effective?	Between 31 and 50 years	Agree
How effective is the risk reduction?	50-100 year event	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	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?	Unknown	N/A
What impact will this action have on the local economy/tax base?	Between 51 and 75%	Agree
What impacts to the environment of the county will result from this project?	Unknown	N/A
What is the capability of the local government to administer this project?	Unknown	Agree
What is the financial range of this project?	\$501K - \$1M	Agree
What is the level of public support for this project?	High	Agree
What is the technical feasibility of this project?	Unknown	Agree
Who will administer this project?	Unknown	Agree

Medium Priority Economic Development Strategies

Pillar	Action Name	Priority	Overall Ranking
Economic Development	Economic Development Action 3 : Town of Halifax Maintenance	Medium	5
Economic Development	Economic Development Action 1 : Smith Church Road Culverts	Medium	6

Table 8. Halifax Medium Priority Economic Development Summary

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

- Town of Halifax Maintenance:** The Town of Halifax is Halifax County Seat and a pre-Revolutionary War town on the Roanoke River. To ensure the viability and vitality of the Town of Halifax as a tourism destination, provide funds to ensure ditches and culverts around historic sites in the Town are well maintained and if needed, regrading of the sites need to been done to improve drainage conditions to reduce future possibility of flooding to the sites.

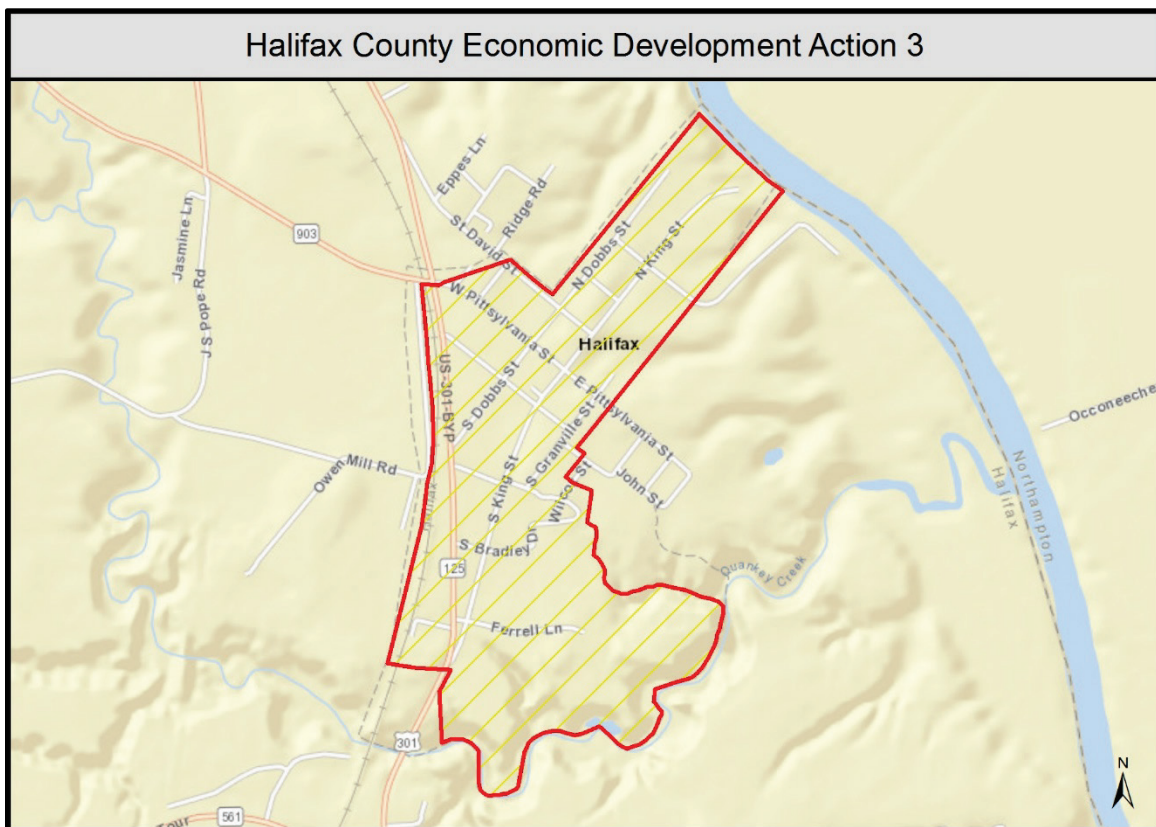


Figure 17. Economic Development Action 3: Town of Halifax Maintenance

Economic Development Action 3 : Town of Halifax Maintenance

County: Halifax

Priority Grouping: Medium Priority

Priority Ranking: 5

Project Timeframe: 1-3 years

Location: Town of Halifax

Project Summary: To ensure the viability and vitality of the Town of Halifax as a tourism destination, provide funds to ensure ditches and culverts around historic sites in the Town are well maintained and if needed, regrading of the sites need to been done to improve drainage conditions to reduce future possibility of flooding to the sites.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The Town of Halifax experienced flooding during Hurricane Matthew partially because of drainage inefficiencies. Improving the Town's drainage system will increase resiliency against future storm-related impacts.	N/A
Consistent with existing plans (describe points of intersection/departure)	Yes	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.	Improving the resiliency of the Town of Halifax to future storm events will ensure that it remains accessible for tourists and will reduce the impacts of future storms on town resources and attractions.	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)?	>6	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?	Low to moderate 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?	N/A	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?	High	Agree
What is the technical feasibility of this project?	Higher than 75%	Agree
Who will administer this project?	Local	Agree

- Smith Church Road Culverts:** Smith Church Road leading to Halifax Regional Medical Center tends to flood in heavy rain events. Overflowing water also causes generators at the Center to flood. Besides being the main Medical Center in the County, the Halifax Regional Medical Center is one of the major employers in the area. It is crucial to have access to this critical facility, to ensure the road remains passable in future storms, to alleviate any potential needs to pre – evacuate the Center and for the Center’s generators to be functional after future storms and hurricanes. Through discussions at the planning meetings, it was estimated that approximately 800 people who work there and their dependents are directly impacted and approximately 25,000 people in the County will be impacted if the flooding issue is not resolved. The project is to construct a bigger culvert on Smith Church Road and elevate the generators at the Halifax Regional Medical Center as a means to increase resiliency for future storm events and encourage economic growth by having a reliable Medical Center in Halifax County.



Figure 18. Economic Development Action 1: Smith Church Road Culverts

Economic Development Action 1: Smith Church Road Culverts

County: Halifax

Priority Grouping: Medium Priority

Priority Ranking: 6

Project Timeframe: 6 month to 1 year

Location: Smith Church Road leading to Halifax Regional Medical Center

Project Summary: Install bigger culverts on Smith Church Road near the Halifax Regional Medical Center as well as elevate the Center's generators that are currently located in the basement. Halifax Medical Center is also one of the biggest employer in the county. Under the existing conditions, Smith Church Road leading to the Halifax Regional Medical Center was closed for hours when it flooded making it hard to access the main hospital complex. Although not flooded during Matthew, the basement of the Halifax Regional Medical Center where the generators are currently located did flood during Hurricane Floyd.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	Under the existing conditions Smith Church Road, leading to the Halifax Regional Medical Center, was closed for hours when it flooded making it hard to access the main hospital complex in the County. Besides the Medical Center there is also a dialysis center next door that is also dependent on having access via Smith Church Road.	N/A
Consistent with existing plans (describe points of intersection/departure)	N/A	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.	Halifax Regional Medical Center is the only medical center and one of the biggest employers in the County.	Agree
For how long will this solution be effective?	Between 31 and 50 years	Agree
How effective is the risk reduction?	50-100 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?	No	Agree
Is this project consistent with Federal Laws	Yes	Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	Between 26 and 50%	Agree
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	Unknown	N/A
What impact will this action have on the local economy/tax base?	Less than 25%	Agree
What impacts to the environment of the county will result from this project?	Unknown/ N/A	N/A
What is the capability of the local government to administer this project?	Unknown	Agree
What is the financial range of this project?	\$251K - \$500K	Agree
What is the level of public support for this project?	High	Agree
What is the technical feasibility of this project?	Between 26 and 50%	Agree
Who will administer this project?	State	Agree

Infrastructure Strategies

High Priority Infrastructure Strategies

Pillar	Action Name	Priority	Overall Ranking
Infrastructure	Infrastructure Action 2 : Forest Hill Manor Ditch Rerouting	High	2
Infrastructure	Infrastructure Action 3 : Grant Park Drainage Ditches	High	3

Table 9. Halifax High Priority Infrastructure Summary

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

- Forest Hill Manor Ditch Rerouting:** The Forest Hill Manor Apartment Complex often floods due to the ditch that runs through the Complex. About 80 people are routinely impacted due to floods. The project is to reroute the ditch away from Forest Hill Manor Apartment Complex.

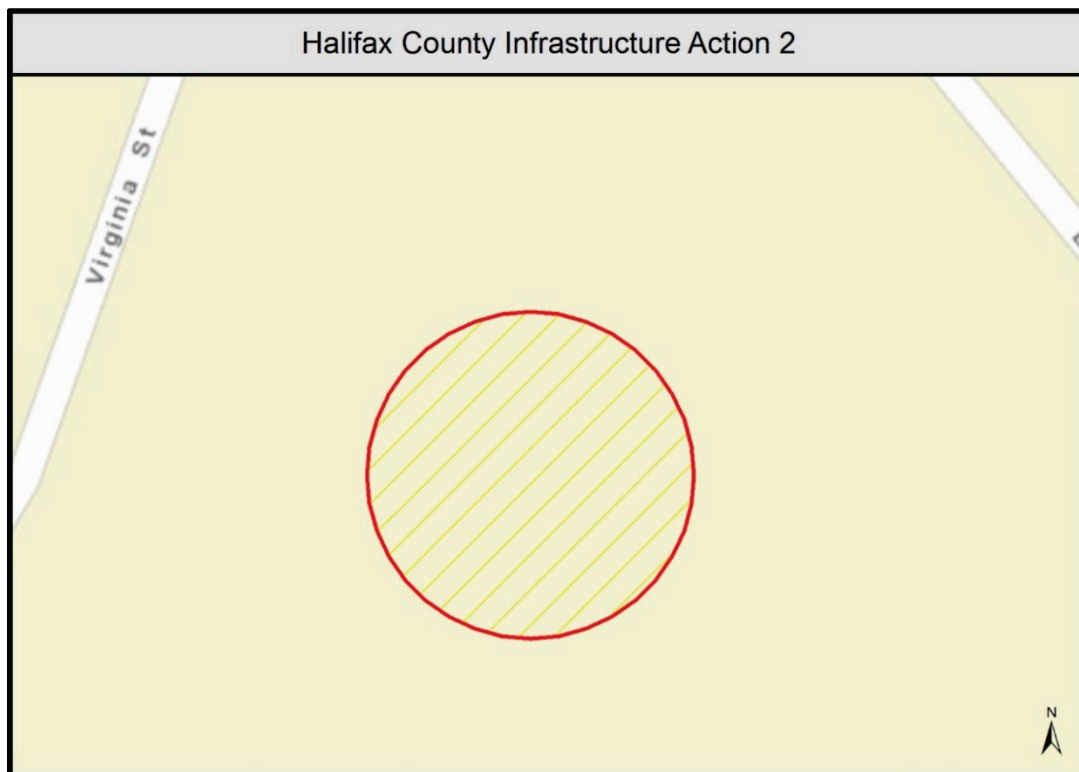


Figure 19. Infrastructure Action 2: Forest Hill Manor Ditch Rerouting

Infrastructure Action 2 : Forest Hill Manor Ditch Rerouting

County: Halifax

Priority Grouping: High Priority

Priority Ranking: 2

Project Timeframe: 6 month- 1 year

Location: Forest Hill Manor Apartment Complex

Project Summary: Rerouting of a ditch away from the Forest Hill Manor Apartment Complex at East 9th Street and Allen Avenue, in Roanoke Rapids, NC. The ditch route water towards the Forest Hill Manor Apartment complex. The apartment owners want it fixed by re-routing the ditch/culvert away from the apartment complex. Currently flood also extends to the adjacent neighborhood.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The ditch routing flows towards the apartment complex has always been an issue. Currently even with heavy rains it floods the apartment complex and the adjacent neighborhood. This is an unmet need in the town of Roanoke Rapids.	N/A
Consistent with existing plans (describe points of intersection/departure)	N/A	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.	N/A	Agree
For how long will this solution be effective?	Between 31 and 50 years	Agree
How effective is the risk reduction?	50-100 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?	No	Agree
Is this project consistent with Federal Laws	Yes	Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	Between 51 and 75%	Agree
To what degree will it be possible to positively quantify the environmental benefits and ROI of this project?	Unknown	N/A
What impact will this action have on the local economy/tax base?	Less than 25%	Agree
What impacts to the environment of the county will result from this project?	N/A	N/A
What is the capability of the local government to administer this project?	Unknown	Agree
What is the financial range of this project?	\$251K - \$500K	Agree
What is the level of public support for this project?	Medium	Agree
What is the technical feasibility of this project?	Between 51 and 75%	Agree
Who will administer this project?	County	Agree with Modifications

- **Grant Park Drainage Ditches:** Housing at the Grant Park subdivision in the Town of Weldon has suffered from repetitive flooding due to drainage issues, including poorly maintained drainage areas. The project is to fund a drainage ditch maintenance program at the Grant Park Subdivision which would positively impact approximately 100 residents in the area.

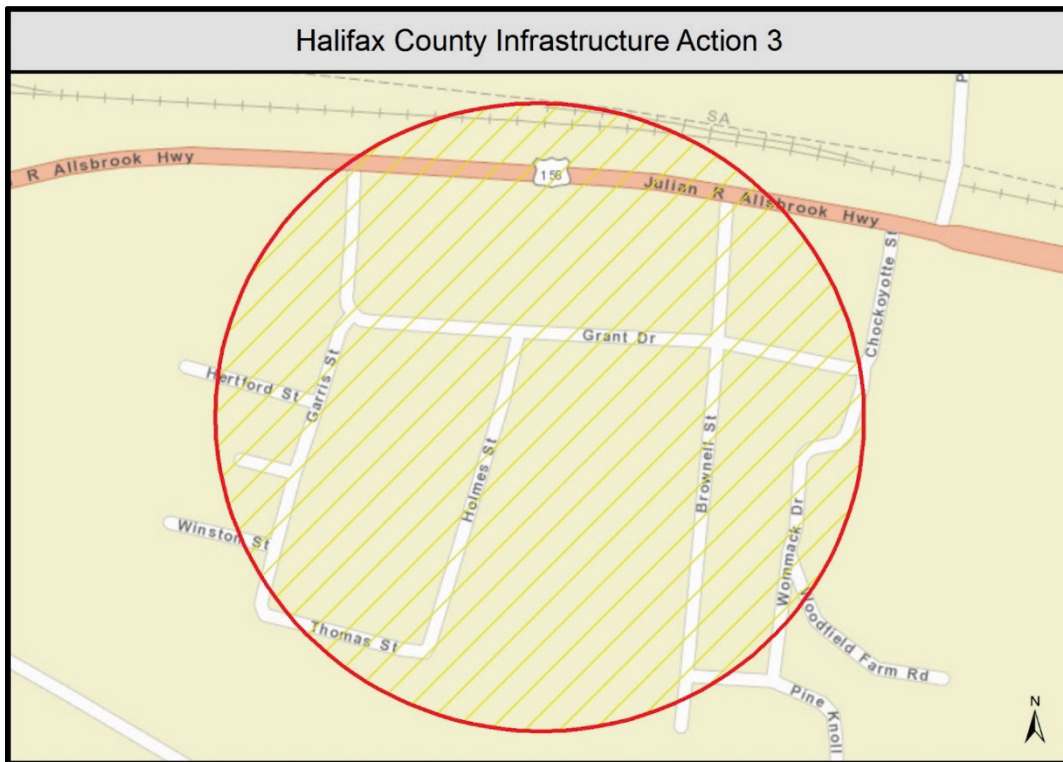


Figure 20. Infrastructure Action 3: Grant Park Drainage Ditches

Infrastructure Action 3 : Grant Park Drainage Ditches

County: Halifax

Priority Grouping: High Priority

Priority Ranking: 3

Project Timeframe: 6 month - 1 year

Location: Grant Park subdivision in the Town of Weldon

Project Summary: The houses at Grant Park subdivision in the Town of Weldon suffered repetitive flooding due to drainage issues. The main problem is, the drainage ditches in the subdivision are poorly maintained. Grants to provide funds to regularly maintain the drainage ditches in the subdivision would alleviate the repetitive flooding issues that the residents currently faced.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The drainage ditches in the subdivision are poorly maintained. Currently even with heavy rains it floods the housing units in the subdivision. This is an unmet need in the Town of Weldon in Halifax county.	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)?	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.	N/A	Agree
For how long will this solution be effective?	Between 31 and 50 years	Agree
How effective is the risk reduction?	50-100 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?	No	Agree
Is this project consistent with Federal Laws	Yes	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?	Unknown	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?	N/A	N/A
What is the capability of the local government to administer this project?	Unknown	Agree
What is the financial range of this project?	\$101K - \$250K	Agree
What is the level of public support for this project?	Medium	Agree
What is the technical feasibility of this project?	Between 51 and 75%	Agree
Who will administer this project?	County	Agree with Modifications

Medium Priority Infrastructure Strategies

Pillar	Action Name	Priority	Overall Ranking
Infrastructure	Infrastructure Action 1: Dixie Street Culvert	Medium	7

Table 10. Halifax Medium Priority Infrastructure Summary

This project represents the infrastructure strategy that Halifax County indicated is of a medium priority to address. Additional detail can be found below:

- Dixie Street Culvert** : The Chaloner Recreation Center experiences recurrent flooding. The culvert on Dixie Street leading to the Center is too small to let water pass through. Additionally, the access road might not support a larger emergency vehicle, such as a fire engine. The project is to construct a bigger culvert on Dixie Street leading to the Chaloner Recreation Center across the Chockoyotte Creek. Through discussions at the planning meetings, it was estimated that approximately 12 people who work there and their dependents are directly impacted by flood events and approximately 300 people in the town would not be able to use the Center when it floods.

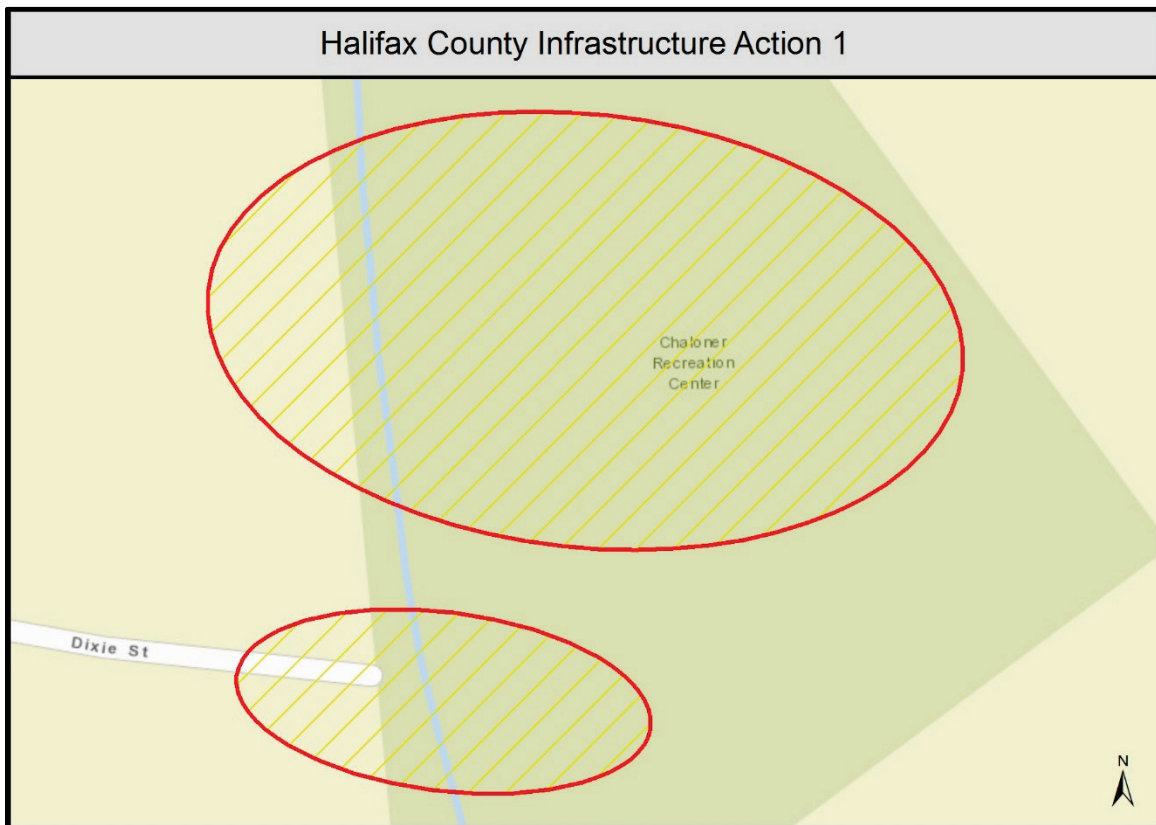


Figure 21. Infrastructure Action 1: Dixie Street Culvert

Infrastructure Action 1 : Dixie Street Culvert

County: Halifax

Priority Grouping: Medium Priority

Priority Ranking: 7

Project Timeframe: 6 month

Location: Dixie Street leading to the Chaloner Recreation Center across the Chockoyotte Creek.

Project Summary: Building new culvert on Dixie Street across the Chockoyotte Creek in Roanoke Rapids, NC. Chaloner Recreation Center besides the Chockoyotte Creek always gets flooded. The approach to the recreational center goes over a culvert on Dixie Street that is too small to let water through. Additionally the access road might not support the weight of a fire engine. Chaloner Center has sentimental value to the local population and might not be a candidate for a buyout and it might not be feasible to be elevated.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	With the proposed new culvert it will alleviate the flooding issues to the Chaloner Recreation Center. Additionally the road will remain passable in future storms.	N/A
Consistent with existing plans (describe points of intersection/departure)	Unknown	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.	N/A	Agree
For how long will this solution be effective?	Between 11 and 30 years	Agree
How effective is the risk reduction?	<50 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?	No	Agree
Is this project consistent with Federal Laws	Yes	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?	Unknown	N/A
What impact will this action have on the local economy/tax base?	No Impact	Agree
What impacts to the environment of the county will result from this project?	No impact or unknown	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?	Medium	Agree
What is the technical feasibility of this project?	Between 26 and 50%	Agree
Who will administer this project?	County	Agree with Modifications

Low Priority Infrastructure Strategies

Pillar	Action Name	Priority	Overall Ranking
Infrastructure	Infrastructure Action 4: Low Water Crossing Improvements	Low	9

Table 11. Halifax Low Priority Infrastructure Summary

This project represents the infrastructure strategy that Halifax County indicated is a lower priority. Additional details can be found below:

- Low Water Crossing Improvements:** The culverts at Highway 301, Bridges Road, Ringwood Road, and Route 481 are all roads leading to the Town of Enfield and Route 258 to Scotland Neck tends to flood in major thunderstorms and heavy rain events. The culverts are not large enough to handle floods and there are issues with obstructions of trash and sediment clogging the culverts. The project is to construct bigger culverts at those locations and fund a regular ditch maintenance program. When these major roads in the county flood, approximately 53,000 people are impacted.

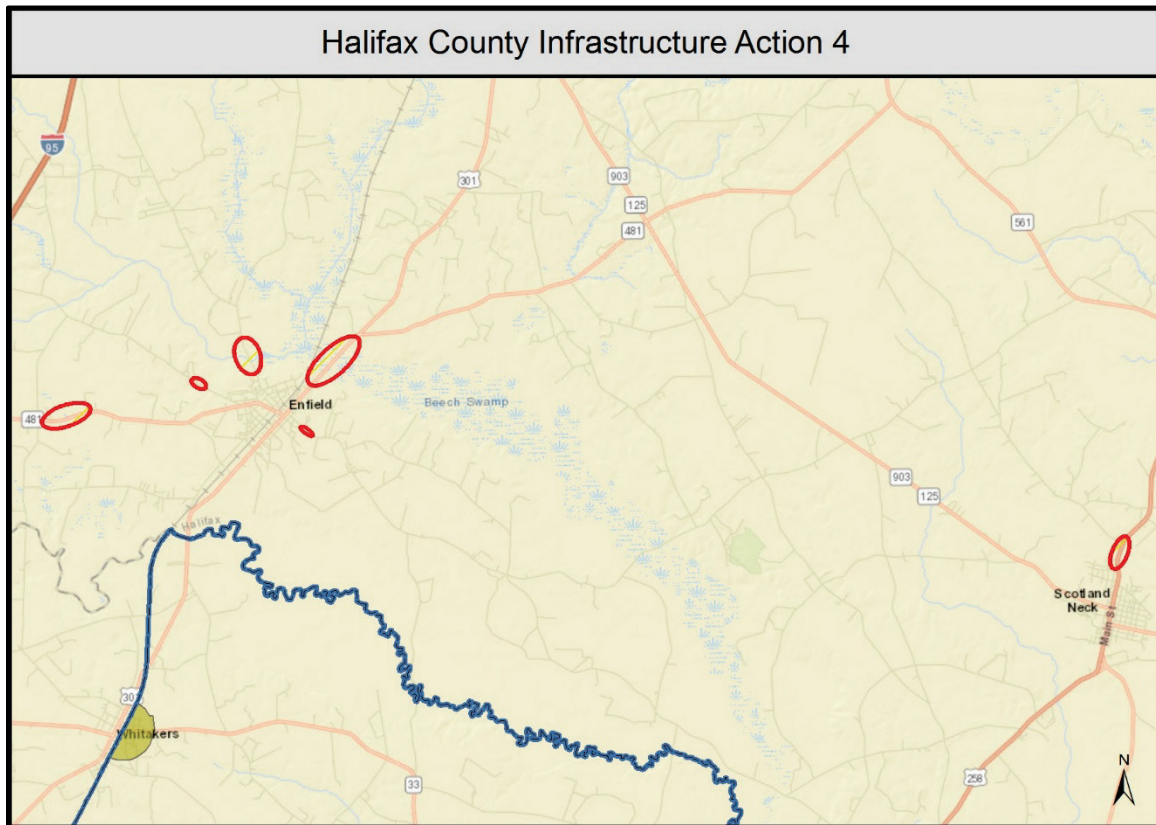


Figure 22. Infrastructure Action 4: Low Water Crossing Improvements

Infrastructure Action 4 : Low Water Crossing Improvements

County: Halifax

Priority Grouping: Low Priority

Priority Ranking: 9

Project Timeframe: Couple of years- long term.

Location: Overall Halifax County Low Water Crossing Improvement Project - elevation of roads at low water crossing. Critical roads- 301, Bridges Rd, Ringwood Rd, Route 481- Town of Enfield, Route 258 to Scotland Neck

Project Summary: Several bridge closures on major thoroughfares occurred across the county. The major impact was to high schools and other critical facilities that had to be closed until DOT could inspect bridges. Suggested solutions include elevation of roads at low water crossing, gates, better signage.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	Hurricane Matthew caused numerous low water crossings to flood creating islands and preventing access to schools and other critical facilities until the roads could be inspected by DOT. This unmet need could be addressed by improvements of low water crossings on major thoroughfares.	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)?	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.	All the roads listed above are critical main roads in the county. Having full access to the roads is critical to ensure uninterrupted transport of agriculture products or access to farm lands.	Agree
For how long will this solution be effective?	Between 11 and 30 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)?	>6	Agree
Is coordination with other communities/counties needed to complete this project?	Yes	Agree
Is this project consistent with Federal Laws	Yes	Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	Higher than 75%	Disagree
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?	Higher than 75%	Agree
What impacts to the environment of the county will result from this project?	unknown	N/A
What is the capability of the local government to administer this project?	Low	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?	Between 26 and 50%	Agree
Who will administer this project?	State	Agree

Environmental, Ecosystem and Agricultural Strategies

Low Priority Environmental Strategies

Pillar	Action Name	Priority	Overall Ranking
Environment	Environmental Action 1: Environmentally sensitive areas study	Low	8

Table 12. Halifax Low Priority Environmental Summary

This project represents the environmental strategy that Halifax County indicated is of a lower priority to address. Additional details can be found below.

- Environmentally sensitive areas study:** The project is to fund a feasibility study to determine environmentally-sensitive areas along the Roanoke River. Environmentally-sensitive areas also provide natural hazard mitigation benefits by maintaining natural storage of flood waters, and therefore slowing down, and reducing peak flood flow. So this project could prevent flood damage to infrastructure and also alleviate the need to build and maintain expensive flood control structures. It also encourages open space preservation and ecotourism along with various recreational activities, e.g. hiking, fishing.

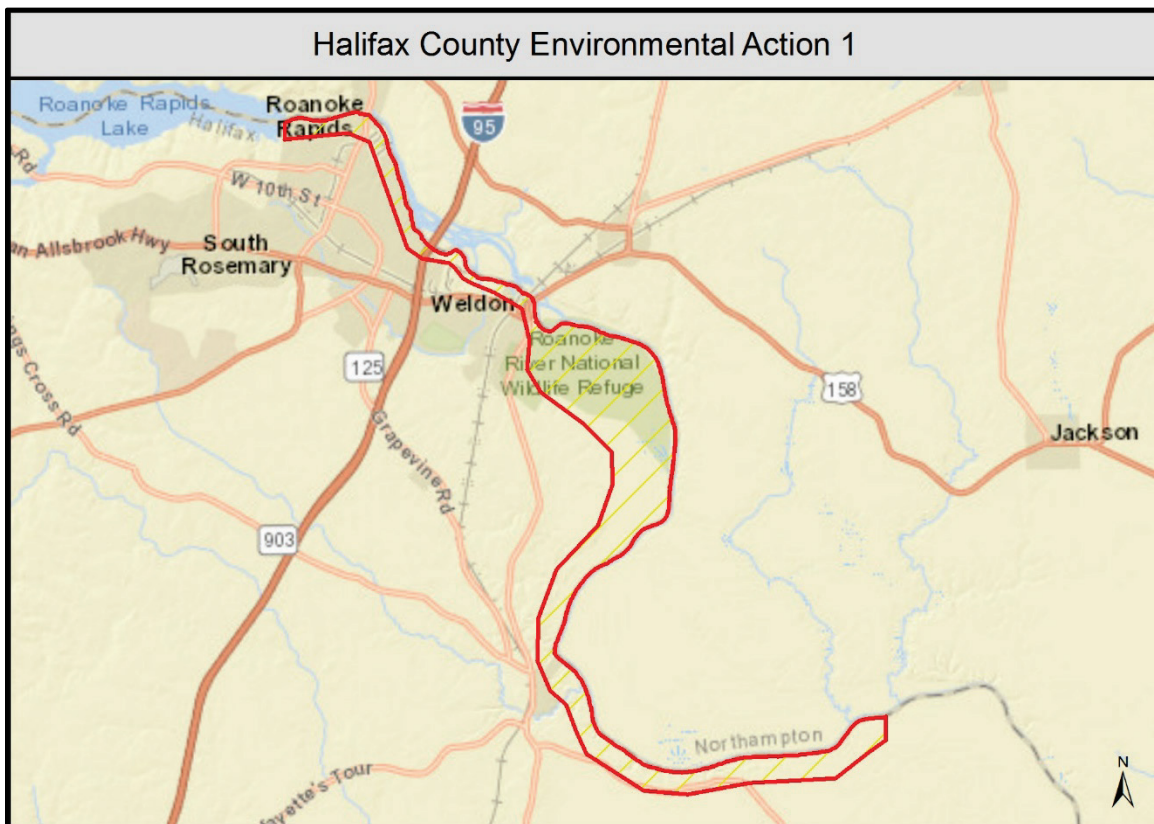


Figure 23. Environmental Action 1: Environmentally Sensitive Areas Study

Environmental Action 1 : Environmentally sensitive areas study

County: Halifax

Priority Grouping: Low Priority

Priority Ranking: 8

Project Timeframe: 1 year

Location: Along the Roanoke River

Project Summary: Feasibility study of Environmentally Sensitive Areas within Halifax County- along the Roanoke River.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	Not directly applicable	N/A
Consistent with existing plans (describe points of intersection/departure)	Unknown	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.	Potential increase for ecotourism natural hazard mitigation benefits if development could be directed away from the environmentally sensitive areas.	Agree
For how long will this solution be effective?	Between 31 and 50 years	Agree
How effective is the risk reduction?	50-100 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?	Yes	Agree
Is this project consistent with Federal Laws	Yes	Agree
To what degree does this project adversely impact local floodplain/coastal zone management?	Between 51 and 75%	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?	Direct development away from environmentally sensitive areas.	N/A
What is the capability of the local government to administer this project?	Minimum	Agree
What is the financial range of this project?	\$101K - \$250K	Agree
What is the level of public support for this project?	Minimum	Agree
What is the technical feasibility of this project?	Less than 25%	Agree
Who will administer this project?	State	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.