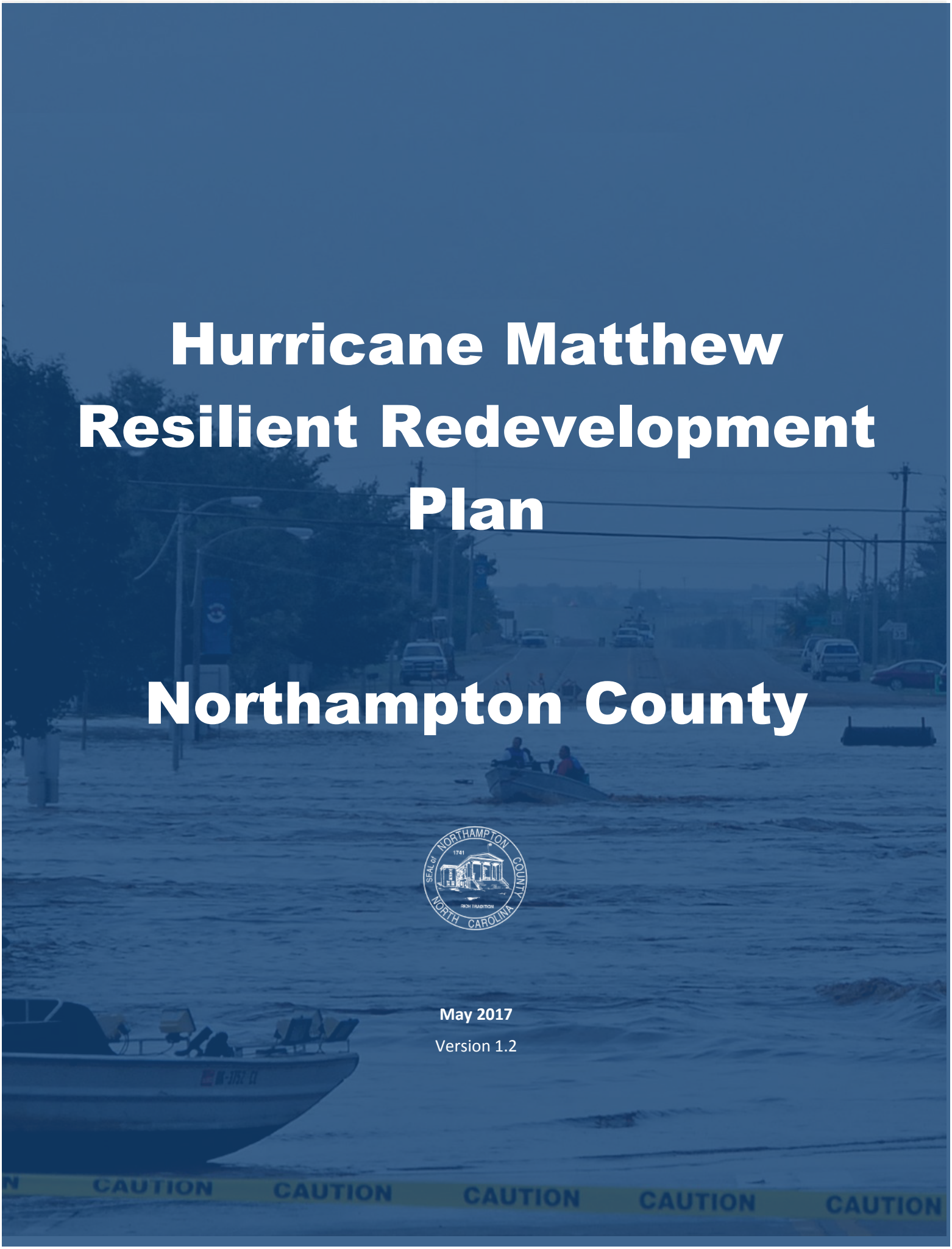
Hurricane Matthew Resilient Redevelopment Plan

Northampton County



May 2017

Version 1.2

Contents

Change Log

Version	Date	Summary of Changes
1.1	6/15/17	Minor Revisions
1.2	8/30/17	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.

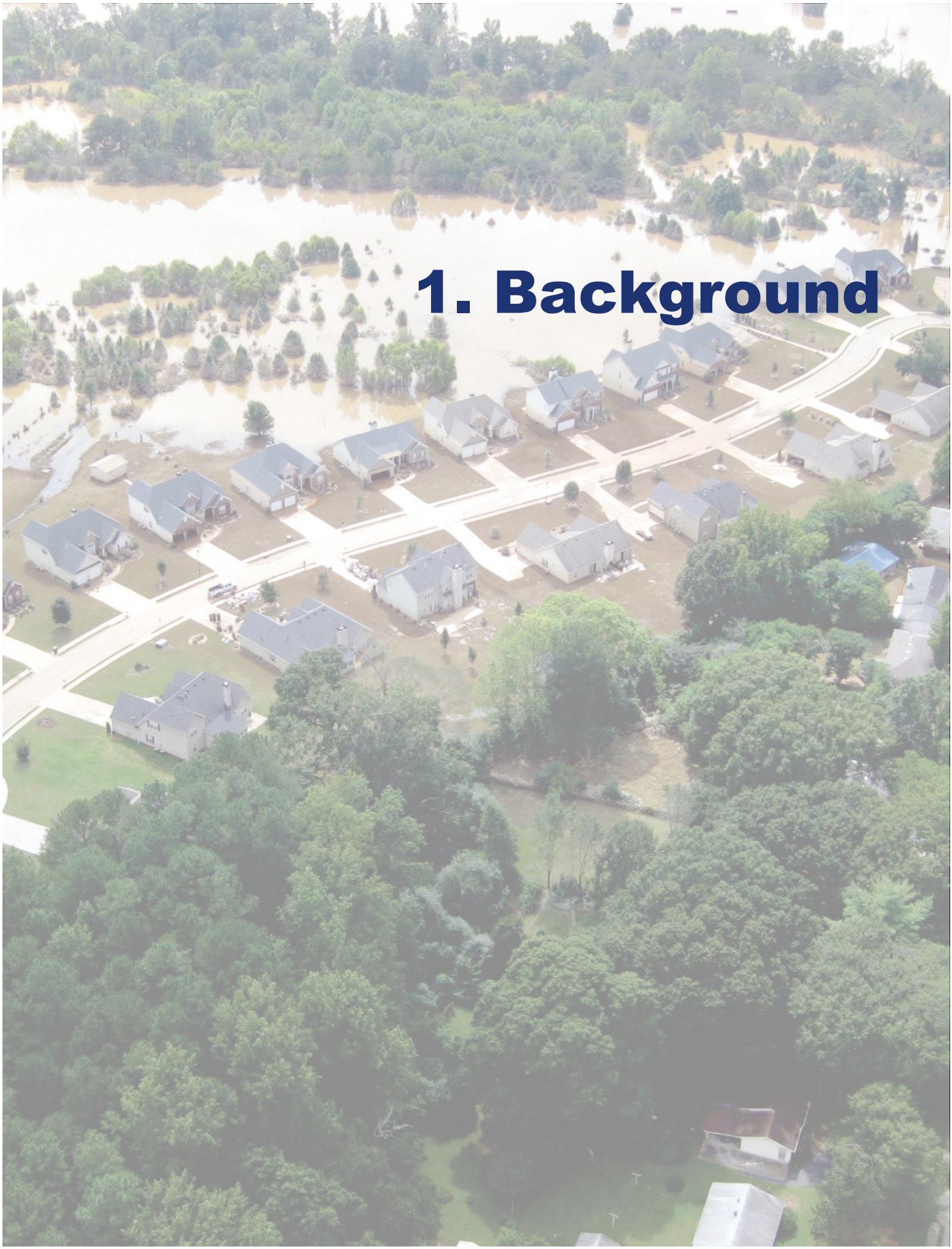
Implementation of the proposed projects and actions described in this plan is subject to applicable federal, state, and local laws and regulations. Proposed projects or actions may be eligible for state or federal funding, or could be accomplished with municipal, nonprofit, or private investments. However, 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, Northampton County has identified 11 projects in two pillars: Economic Development and Infrastructure. Details of these projects can be found in Section 4 of this plan.

Pillar	Project/Action Count
Housing	0
Economic Development	1
Infrastructure	10
Environment	0
Grand Total	**11**

Table 1. Northampton 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.[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 Source: 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 (1) to 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.

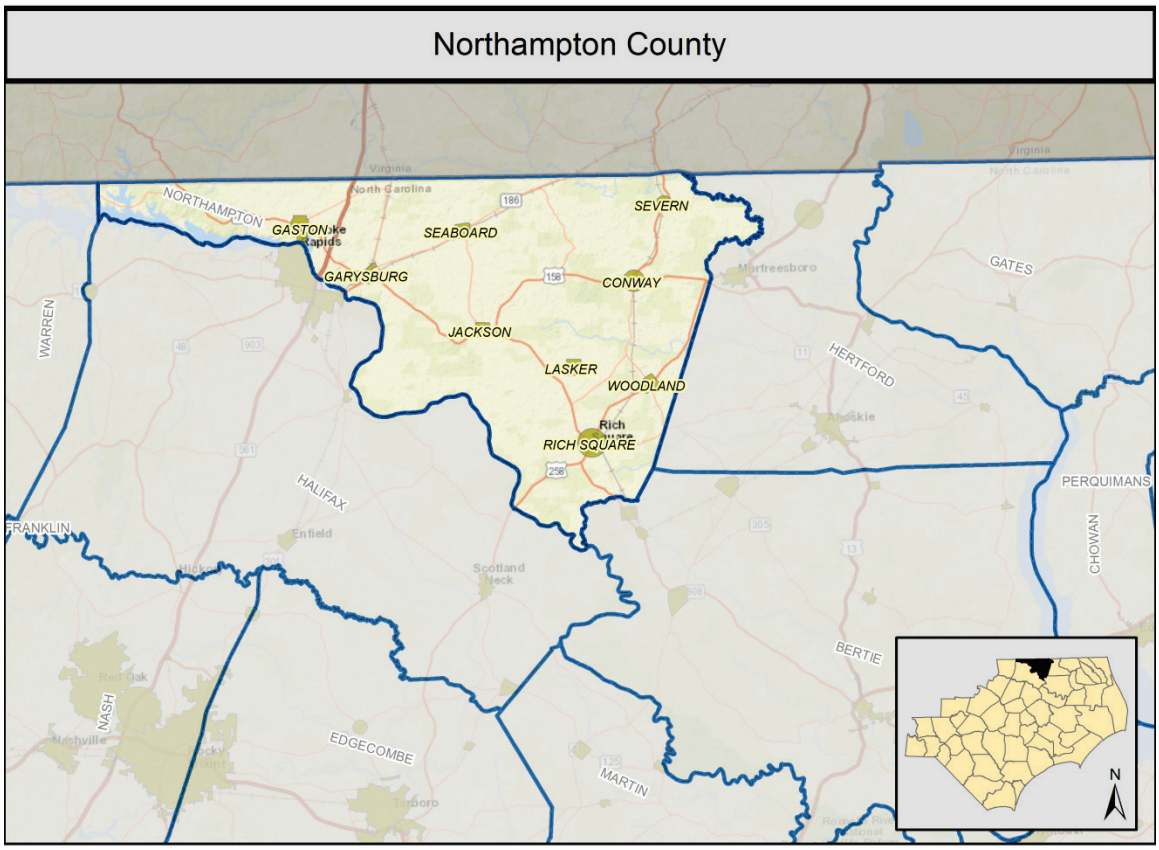
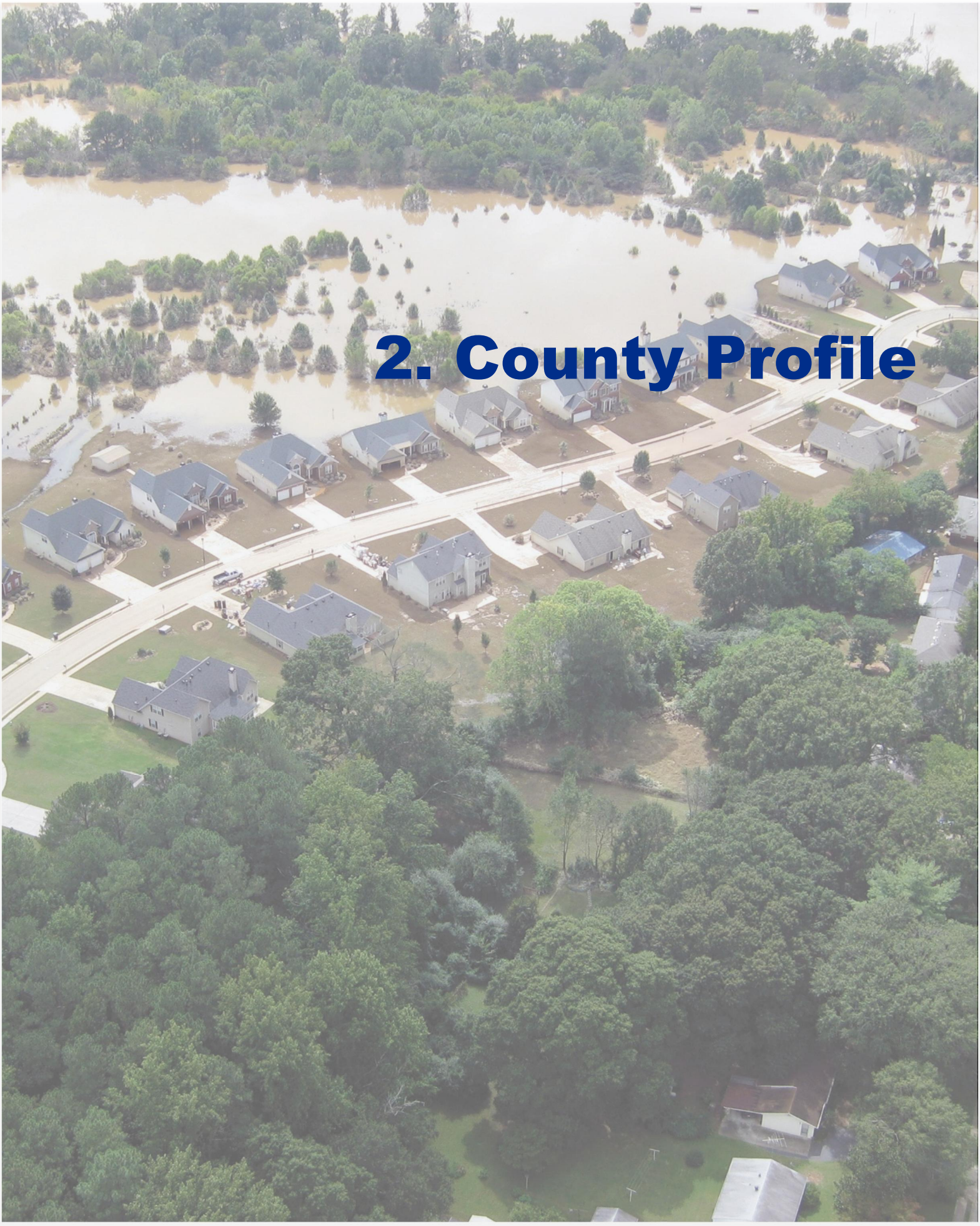


Figure 2. Northampton County and Neighboring Counties

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.



2. County Profile

2. County Profile

Northampton County is located in northern North Carolina between Murfreesboro and Elams. It is comprised of nine census-designated places: Conway, Garysburg, Gaston, Jackson, Lasker, Rich Square, Seaboard, Severn, and Woodland. Its current population is 21,011. This section provides a profile of housing, economics, infrastructure, environment, and administration within Northampton County.

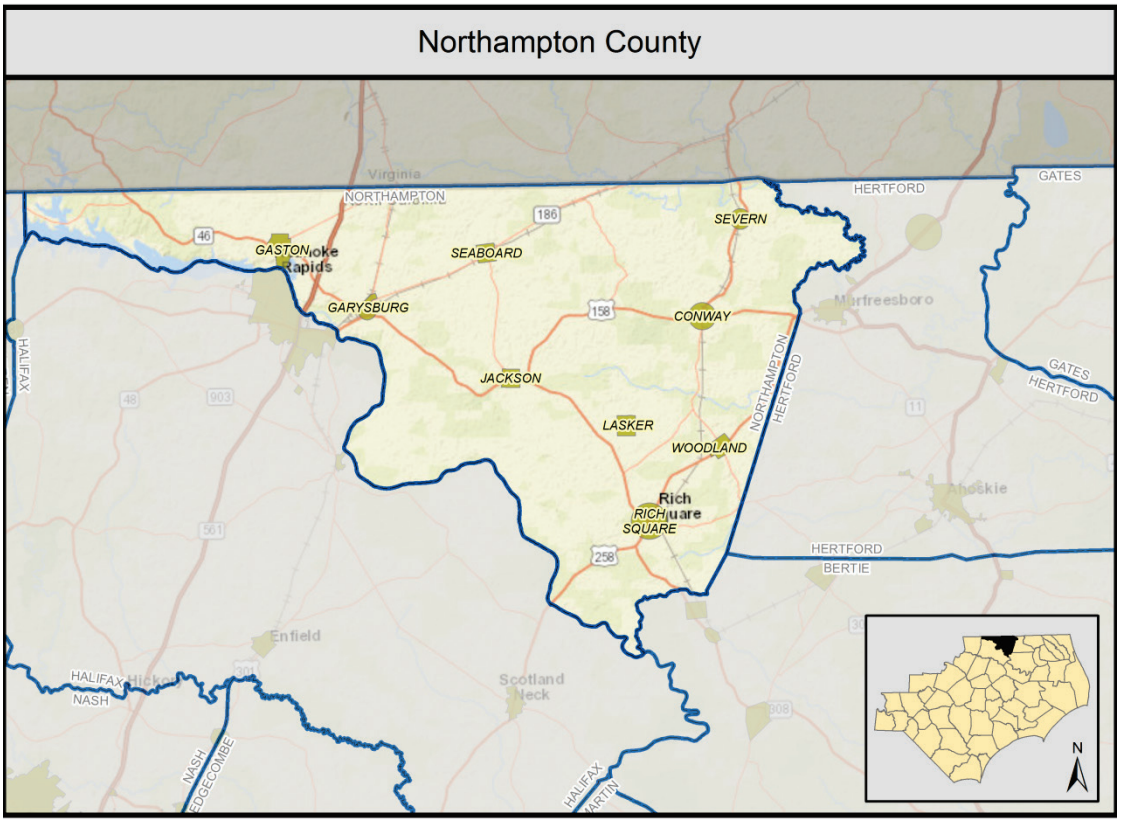


Figure 3. Northampton Base Map

Demographic Profile

Demographics for Northampton 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

Northampton County has a population of 21,011. Gaston is the most populous place within North Hampton County with a population of 1,038 and Lasker is the least populous place with a population of 124.[3]

Population Change (2000 to 2010)

The Northampton County population remained relatively the same between the 2000 and 2010 Census. In 2000 the population was 22,086 and in 2010 it was 22,099. The population increased by 13 people, or less than 1

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

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 Northampton County is 47.1, which is older than the median in North Carolina. Within North Hampton County, the Seaboard population has the oldest median age, 53.1, and the Conway population has the youngest median age, 35.[5]

Race and Ethnicity

Northampton County is mostly African American (57 percent) and White (40 percent) with other races constituting the remaining 5 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 Northampton County, Garysburg, Rich Square, Seaboard, and Woodland are predominantly African American while Conway, Gaston, Jackson, Lasker and Severn are majority White. In Lasker, 10.5 percent of the population identifies as Some Other Race.

The Latino population in Northampton County is 2 percent compared to 9 percent for North Carolina. Gaston Town has the largest Latino population (8.5 percent) while Lasker has 4 percent, Seaboard has 2 percent, Conway has 2 percent, Garysburg has 0.6 percent, Woodland has 0.5 percent, Jackson has 0.4 percent, and Rich Square and Severn 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
Conway	51.6%	45.1%	0.0%	0.3%	0.0%	0.0%	3.0%	48.4%
Garysburg	1.1%	97.4%	0.0%	0.4%	0.1%	0.4%	1.2%	98.9%
Gaston	70.5%	28.3%	0.8%	0.0%	0.0%	0.0%	0.4%	29.5%
Jackson	56.0%	41.7%	1.0%	0.0%	0.0%	10.1%	1.4%	44.0%
Lasker	81.5%	5.6%	0.0%	0.0%	10.5%	0.0%	2.4%	18.5%
Rich Square	38.6%	59.2%	0.1%	0.0%	0.0%	0.0%	2.0%	61.4%
Seaboard	25.8%	74.2%	0.0%	0.0%	0.0%	0.0%	0.0%	74.2%
Severn	69.1%	30.0%	0.0%	0.0%	0.0%	0.0%	0.9%	30.9%
Woodland	38.5%	58.4%	0.3%	0.0%	0.0%	0.0%	2.8%	61.5%

Table 2. Northampton 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 Northampton County, most of individuals identified as LEP speak Spanish while others speak Indo-Euro, Asian/Pacific, or other languages. Similarly, the primary language group for LEP individuals in North Carolina is

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

Spanish. Within North Hampton County, Gaston has the largest LEP population. The primary language group for LEP populations in Gaston, Seaboard, Conway, Rich Square and Woodland, is Spanish. Garysburg, Jackson, Lasker, and Severn do not have a LEP population according to census data.[6]

Poverty

In Northampton County, 28 percent of the population is below the poverty level compared to 17 percent of the North Carolina population. In Woodland 54 percent, 38 percent in Conway, 37 percent in Severn, 35 percent in Garysburg, 27 percent in Gaston, 24 percent in Rich Square and Seaboard, 14 percent in Jackson, and 2 percent in Lasker of the population is below the poverty level.[7]

Low and Moderate Income Individuals

In Northampton County, 49.5 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.[8]

Median Household Income

The median household income of the population 25 to 64 years old is $38,000 in Northampton County and $53,000 in North Carolina. Lasker has the highest median household income for this age group, $62,188, Rich Square, $30,238, Garysburg, $29,777 and Woodland has the lowest: $16,920. Median household income was not available for Conway, Gaston, Jackson, Seaboard, and Severn.

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/

Zero Car Households[9]

In Northampton County, 12.2 percent of households do not have a vehicle available compared to 7 percent of North Carolina households. Within Northampton County, Woodland has the highest percentage of households without access to a vehicle, 29.1 percent, while Jackson has the lowest percentage: 2.2 percent.

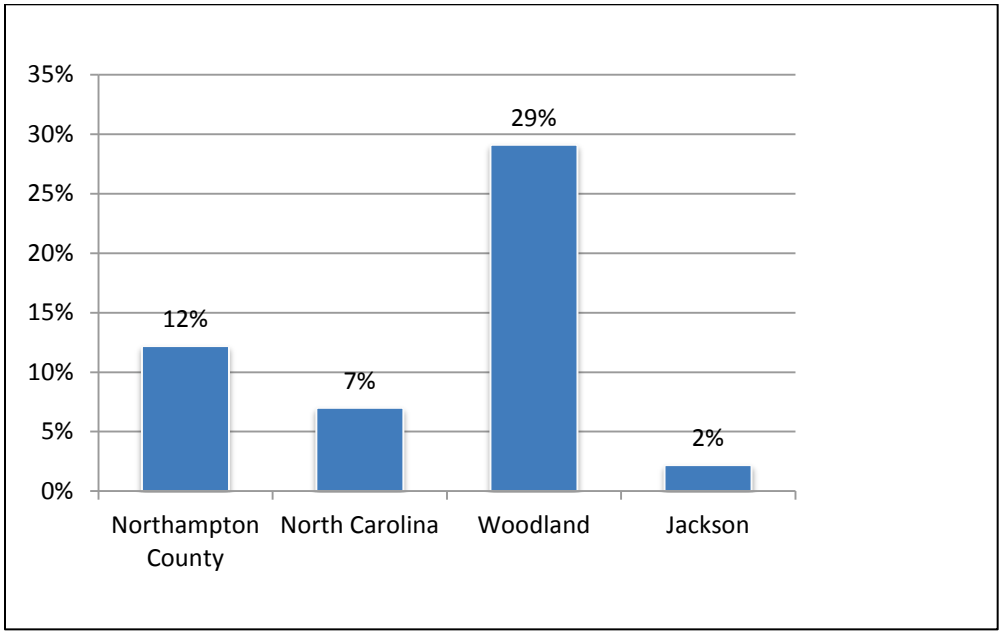


Figure 4. Zero Car Households by Percentage

9 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 Transportation[10]

The majority of Northampton County residents commute alone to work by vehicle, 81.1 percent, which is similar to North Carolina average of 81 percent. Within Northampton County, Lasker has the largest percentage of commuters commuting alone, 97.9 percent, and Gaston has the least: 68.4 percent.

Garysburg has the largest percentage of residents commuting by public transportation: 3.4 percent. In comparison, 1 percent of North Carolina commuters use public transportation. A greater percentage of Gaston, Conway, Garysburg, Severn, residents commute by walking, bike, or motorcycle than the North Carolina average of 2 percent.

The mean commute time to work for Northampton County residents is 23.8 minutes. In comparison, the North Carolina mean commute time is 24.7 minutes. Within Northampton County, Gaston has the shortest mean commute time at 15.8 minutes while Rich Square has the longest at 26.5 minutes.

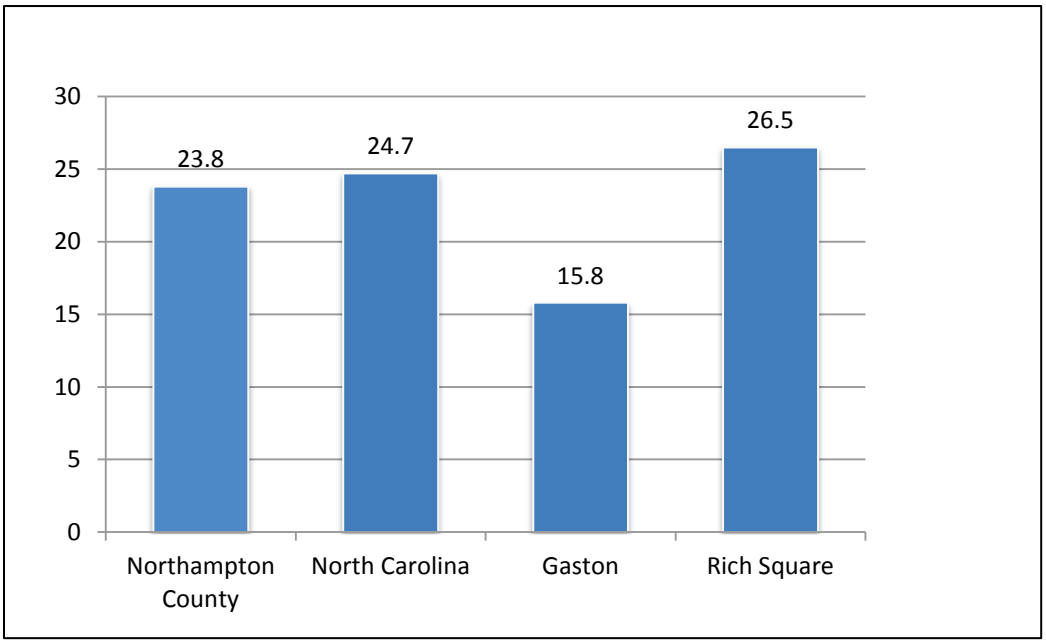


Figure 5. Mean Commute Time to Work in Minutes

10 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)

Housing Profile[11]

Northampton County has 11,567 housing units, 72.5 percent of which are single-family homes, 4.8 percent multi-family units, and 22.7 percent manufactured housing.

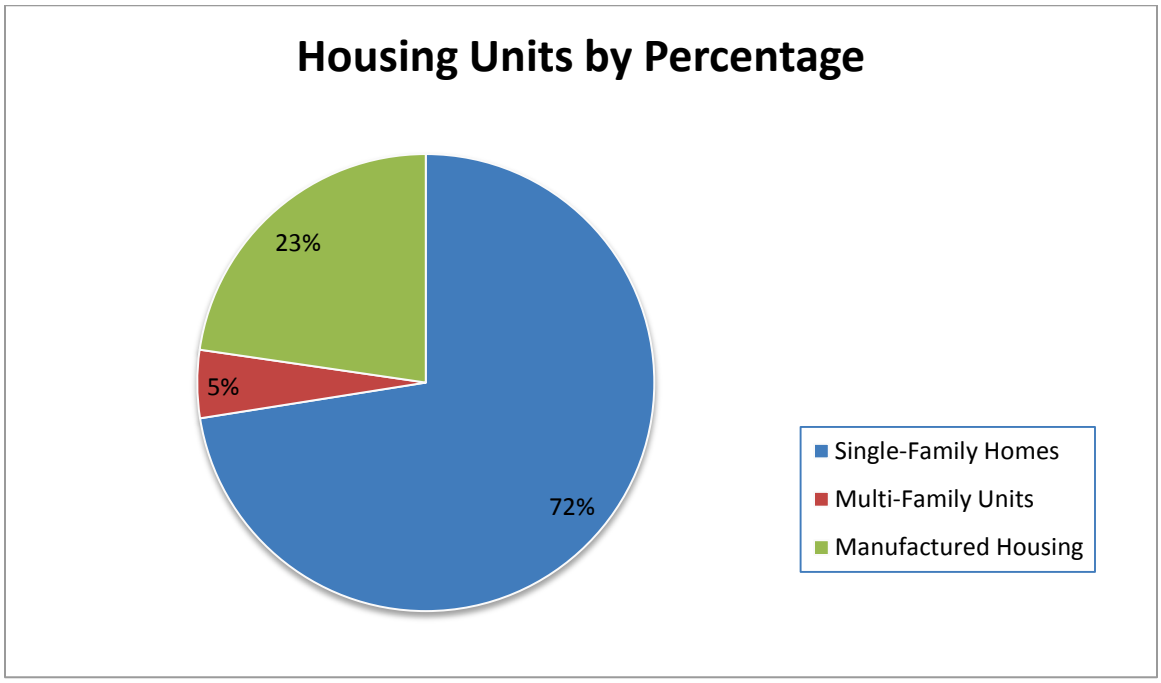


Figure 6. Housing Units by Percentage

In Northampton County 25.4 percent of housing units are vacant, which is more than the percentage for North Carolina: 14.5 percent. Within Northampton County, Seaboard has the largest percentage of vacant housing units, 26.6 percent, while Woodland has the least: 10.2 percent.

Of the occupied housing units, 68.9 percent are owner-occupied compared to 65 percent in North Carolina; 31.1 percent are renter-occupied compared to 35 percent in North Carolina.

The median housing value in Northampton County is $82,500. In comparison, the median housing value in North Carolina is $140,000. Within Northampton County, Severn has the highest median housing value: $124,100. Gaston has the lowest median housing value: $57,800.

According to the National Housing Preservation Database, Northampton County has 484 affordable housing units. Woodland has the highest amount of affordable housing units while Garysburg has the least.

11 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

Economic/Business Profile

Northampton County is home to a diverse array of businesses from manufacturing to healthcare and retail companies. According to the US Census Bureau's Longitudinal-Employer Household Dynamics Program, the largest concentrations of jobs within Northampton County are in Conway.[12]

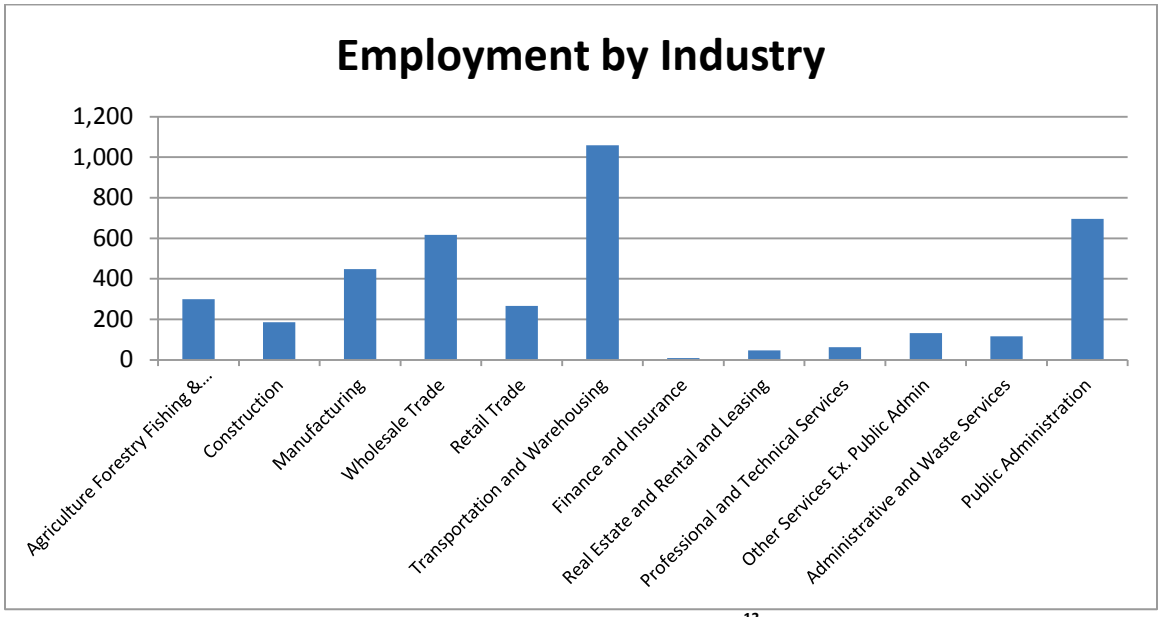


Figure 7. Employment by Industry[13]

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 Northampton County is 7,924.[14] Within Northampton County, Conway has the largest percentage of residents 16 years or over in the labor force, 57.1 percent, while Severn has the smallest: 37.5 percent.[15]

The civilian unemployment rate in Northampton County is 7.3 percent. In comparison, the North Carolina civilian unemployment rate is 5.1 percent.[14] Within Northampton County, Lasker has the smallest civilian unemployment rate at 3.8 percent while Woodland has the largest: 34.5 percent.[15]

12 Source: US Census Bureau Longitudinal-Employer Household Dynamics Program
13 Source: AccessNC – North Carolina Department of Commerce, April 2017: http://accessnc.nccommerce.com/DemoGraphicsReports/pdfs/countyProfile/NC/37065.pdf
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

Major Employers

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

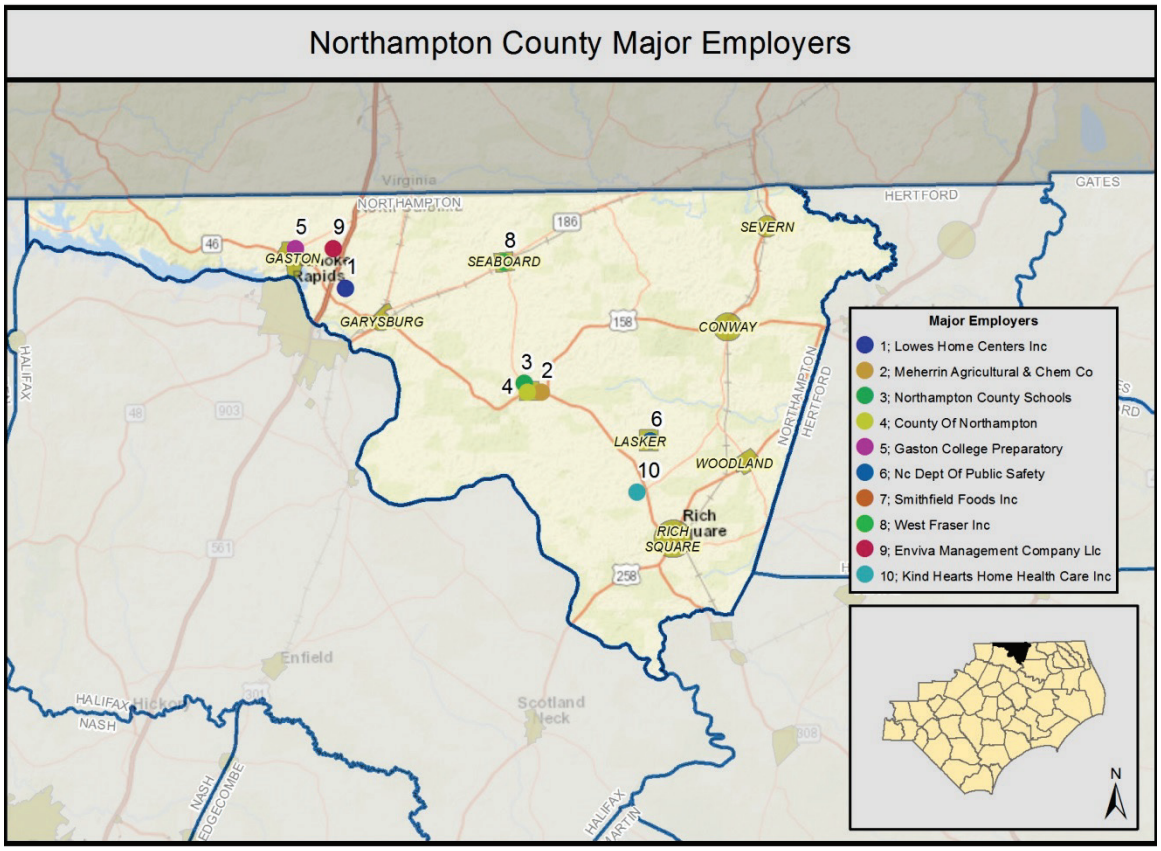


Figure 8. Major Employers by Number of Employees

Economic Development[16]

The Northampton County NC Chamber of Commerce is a nonprofit organization that offers detailed maps and networking opportunities for new and growing businesses.

Northampton Tech Early College, located in Jackson, offers employment, training, classes and job placement services through the Workforce Innovation and Opportunity Act.

16 Sources: Northampton County Department of Economic Development, Rocky Mount/Halifax Community Development Corporation, Halifax Community College, and Visit North Carolina

Infrastructure Profile

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

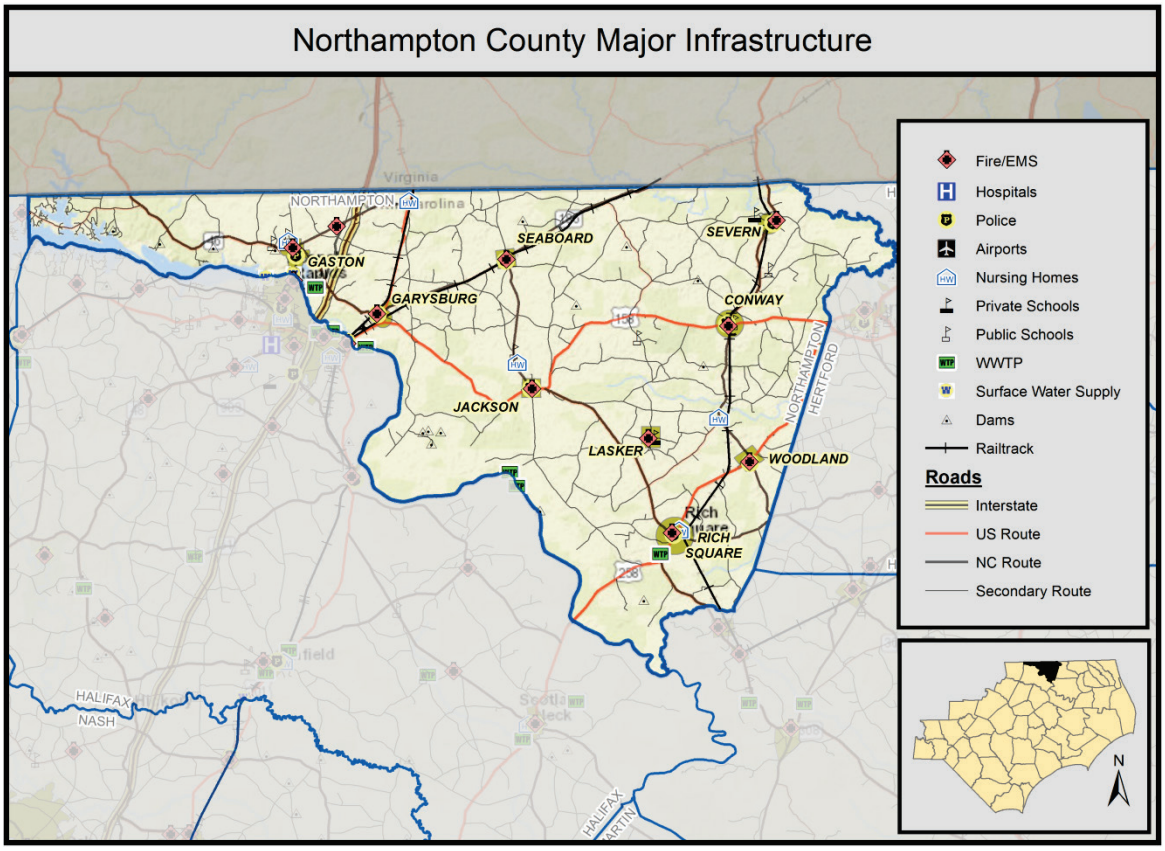


Figure 9. Northampton County Major Infrastructure

Transportation

Northampton County is connected to the region by I-95 and US 158. US 158 is a major east-west highway that provides Northampton County with access to Warrenton and Littleton to the west and Murfreesboro to the east. I-95 is a north-south highway connecting the county with Emporia to the north. Northampton County is also served by rail from CSX and smaller regional operators.

Health

Northampton County does not have any hospitals located within the county.

Education[17]

Northampton County Public Schools administers four elementary, two middle, and three high schools. Northampton Early College is located in Gaston. There are many institutions of higher learning within a 100-mile radius of Northampton County.

17 Sources: Northampton Public Schools and Northampton Early College

Water

Northampton County operates the Northampton County - North Hampton water plant. The Rich Square water plant is operated by a municipality and has a storage capacity of 350,000 gallons. Seaboard water system is operated by a municipality and has a storage capacity of 75,000 gallons. The Severn water system is operated by a municipality and has a storage capacity of 75,000 gallons. The Weldon water system is operated by a municipality and has a storage capacity of 1.4 million gallons. The Woodland water system is owned by a municipality and has a storage capacity of 100,000 gallons.[18]

Power

There are several solar farms located within Northampton County. These power plants have a net summer capacity of 5 megawatts each.[19]

Environmental Profile

Water resources, natural areas, managed areas, biodiversity, wildlife habitat, and recreation are summarized for Northampton County in the sections below.

Water Resources

The Meherrin River flows east-west through the northern part of Northampton County. Roanoke Rapids Lake borders the north western part of Northampton County. The most common wetland type in Northampton County is freshwater forested/shrub wetland.[20]

Natural and Managed Areas

According to the NC Natural Heritage Program, there are natural areas of general, high, or very high value in Northampton County. There are several managed areas under state ownership within Northampton 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 Northampton County include: the Roanoke Earthworks State Historic Site and Mud Castle Slopes in the vicinity of Garysburg, Occoneechee Neck Floodplain Forest located to the southeast of Jackson, Cypress Swamp/Sandy Run Floodplain Forest located southeast of Rich Square, Meherrin River Margarettsville Bottomlands located east of Margarettsville and various Department of Transportation mitigation sites throughout the county.[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 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]

18 Sources: NC Division of Water Resources, Local Water Supply Plans; and the Neuse Regional Water and Sewer Authority
19 Source: US Department of Energy, US Energy Mapping System
20 Source: NC Natural Heritage Program

Parks and Recreation

The Northampton County Parks and Recreation Department maintains baseball fields and facilities in Northampton County. The Northampton County Recreation Dept. & Cultural and Wellness Center is located in Jackson and has a community center, gym, and tennis courts.[20]

Administrative Profile

Northampton 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, Storm water 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.

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 Northampton County is highlighted graphically in the figure below.

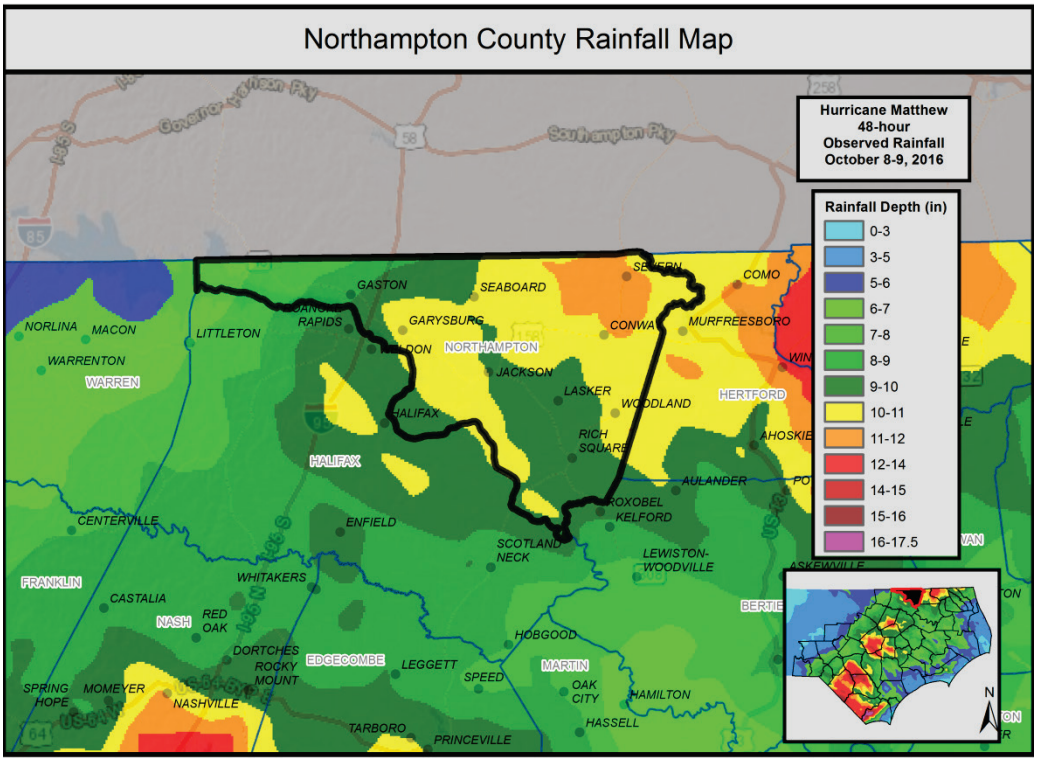


Figure 10. 48-hour Observed Rainfall Depth (October 8-9, 2016)

Riverine Flooding Summary

USGS documented streamgage 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". Streamgage data from the USGS report for Northampton County and nearby gages is summarized in Table 3 below.

USGS Gage	County	River Name and Location	Drainage Area (sq mi)	Peak Matthew Elevation (ft)	Previous Record (ft)
02081000	Northampton	Roanoke River near Scotland Neck, NC	8671.0	28.91	41.98
0208062765	Northampton	Roanoke River at Halifax, NC	8450.0	41.63	47.24
02080500	Northampton	Roanoke River at Roanoke Rapids, NC	8384.0	9.26	11.87

Table 3. Northampton 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 248 potentially impacted houses in Northampton 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.

Besides the Individual Assistance records mentioned above, Housing was minimally impacted in Northampton County as a result of Hurricane Matthew. Community officials indicated that there might be scattered locations where one or two houses were impacted by Hurricane Matthew but not a widespread damage from the Hurricane.

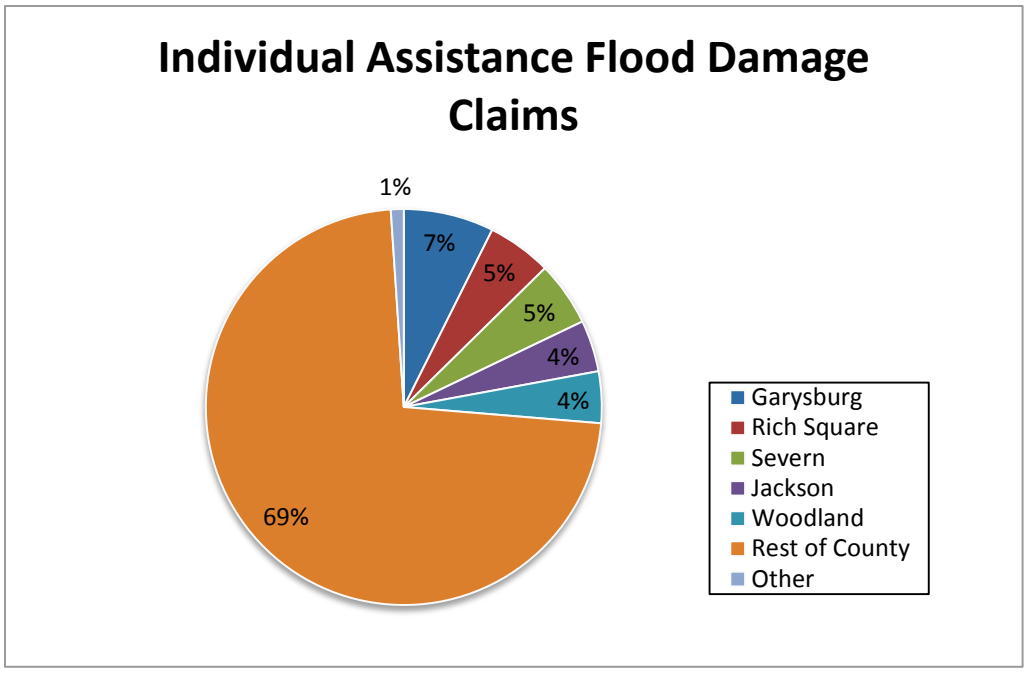


Figure 11. IA Flood Damage Claims by Area

Economics / Business / Jobs

There were impacts to the economy in Northampton 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:** Downtown Rich Square in Northampton County mostly the commercial areas located in low-lying areas frequently flood due to poor drainage. In addition, the corridor along US 305 also floods frequently due to the poor drainage in that area.
- There are several communities in the county that may not have had major impacts directly from Hurricane Matthew, but which has been impacted economically over the past several years as jobs and businesses have struggled. Particularly in Severn, Conway, Woodland, and Garysburg 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

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 identified by local officials from multiple meetings.

- **Berm and Spillway Issues:** Deberrys Pond in Northampton County is a privately owned pond but during Hurricane Matthew, the berm around the pond failed causing flooding along Deberrys Mill Road and cutting water line impacting approximately 1000 people in the County.
- **Road/Bridge Flooding:** Road and bridge overtopping are common occurrences in Northampton 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:
    - Several locations in the Town of Severn, including the culverts on Main Street, experienced overtopping.
    - The culverts at US Highway 35 in the Town of Severn are also too small, causing flooding,
    - The intersection at US 301, State Road 1310, and East Railroad Street - which is a major thoroughfare in the Town of Garysburg - is located at low elevation, creating standing water in rain events and preventing safe travel.
    - The culverts at the intersection of Big John Store and Cornwallis Roads, as well as the intersection of NCHS East Road and Zion Church Road in Northampton County are all too small to convey flows.
    - The culverts at US-158 (E Main Street), east of Conway Middle School, are too small.
    - The bridge at US 258 across Potecasi Creek, a major thoroughfare within the county, is too low and too small, causing US 258 to flood for 2-3 days after Hurricane Matthew.
    - Culverts on Cheery Street and West Woodland Avenue in the Town of Woodland are too small and caused standing water up to 6 feet deep in some locations.

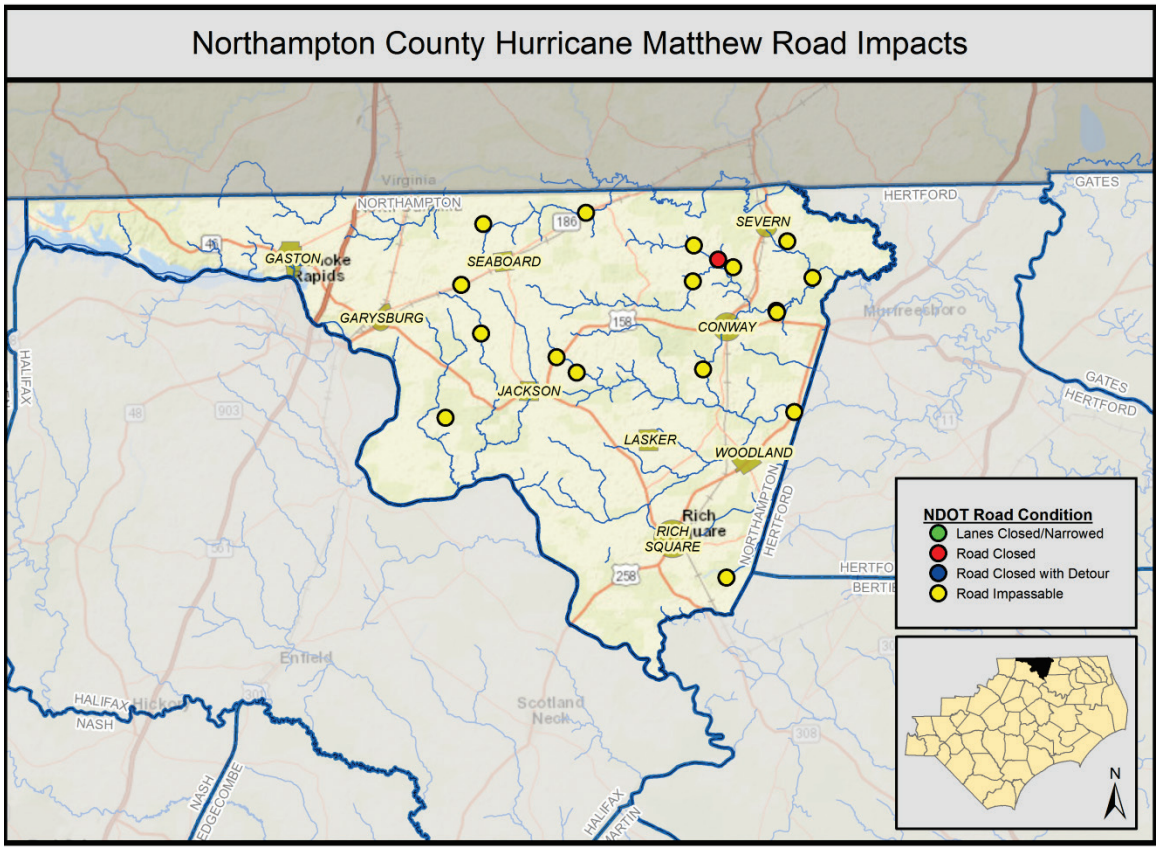
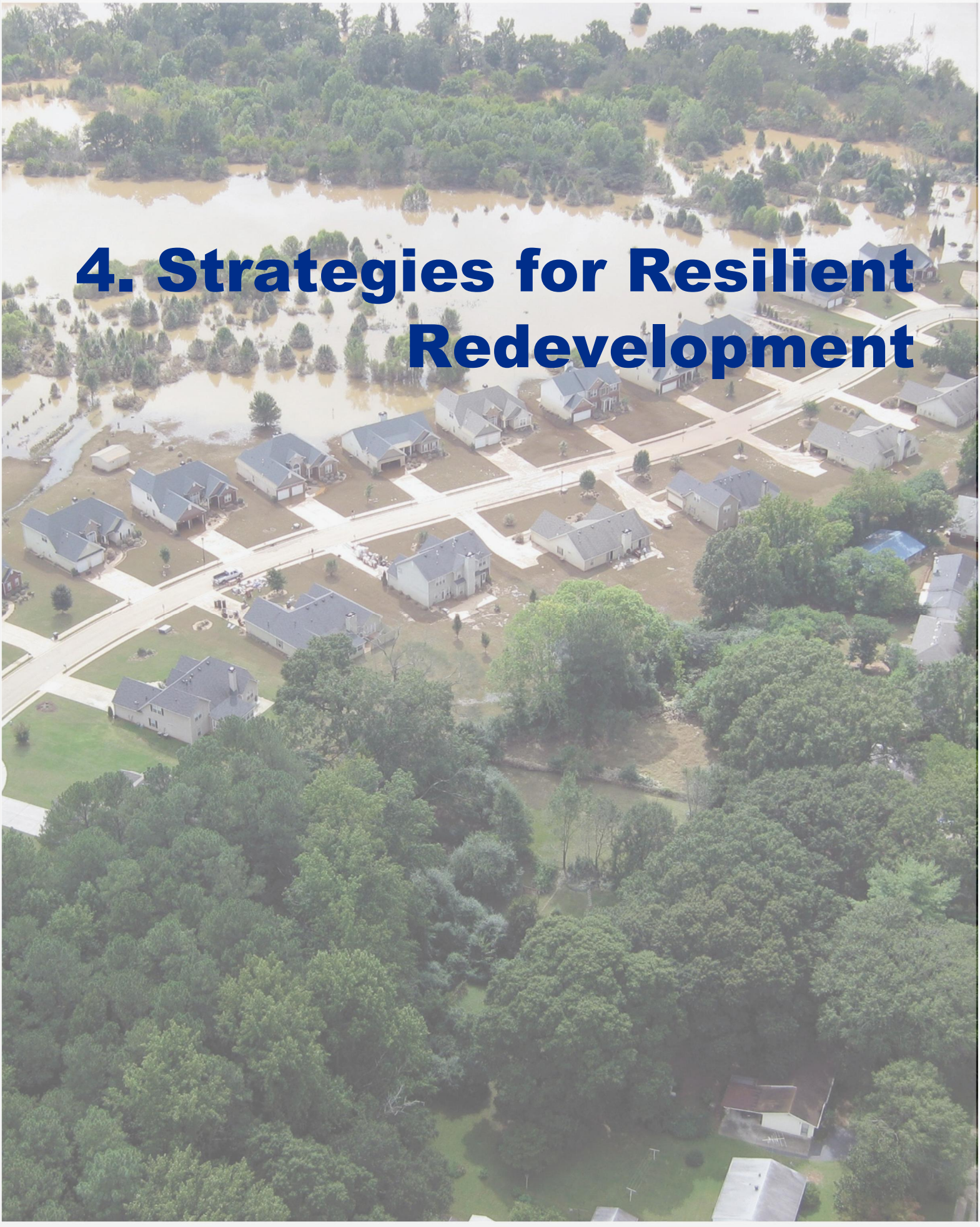


Figure 12. Northampton County Hurricane Matthew Road Impacts

Ecosystems / Environment

Overall, environmental impacts in Northampton County as a result of Hurricane Matthew were relatively minimal and at this time, no project related to the ecosystems or environment could be identified.



4. Strategies for Resilient Redevelopment

4. Strategies for Resilient Redevelopment

This section provides details about the resilience and revitalization strategies and actions identified in Northampton 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	0
Economic Development	1
Infrastructure	10
Environment	0
Grand Total	**11**

Table 4. Northampton County Summary of Projects by Pillar

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

Pillar	Project Name	Priority	Overall Ranking
Infrastructure	Infrastructure Action 1 - Vaughan Creek culvert improvements	**High**	**1**
Infrastructure	Infrastructure Action 2 - Town of Severn Culverts and Elevation	**High**	**2**
Infrastructure	Infrastructure Action 6 - Highway 158 Culverts	**Medium**	**3**
Infrastructure	Infrastructure Action 8 - US 258 Crossing of Potecasi Creek	**Medium**	**4**
Economic Development	Economic Development Action 1 - Town of Rich Square Drainage Improvements	**Medium**	**5**
Infrastructure	Infrastructure Action 10 - Cherry Street sewer replacement	**Medium**	**6**
Infrastructure	Infrastructure Action 3 - Elevation of US 301/Highway 1310/Railroad Street	**Medium**	**7**
Infrastructure	Infrastructure Action 9 - Chapel Hill Church Road Substation	**Medium**	**8**
Infrastructure	Infrastructure Action 5 - NCHS East Road and Zion Church Road Culvert Improvements	**Low**	**9**

Pillar	Project Name	Priority	Overall Ranking
Infrastructure	Infrastructure Action 4 - Big John Store and Cornwallis Roads Culvert Improvement	**Low**	**10**
Infrastructure	Infrastructure Action 7 - Deberrys Pond berm and spillway	**Low**	**11**

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

Northampton County suffered only moderate impacts with respect to housing from Hurricane Matthew. No housing strategies or projects were identified for this report.

Economic Development Strategies

Due to relatively minor Hurricane Matthew impacts to Northampton County in terms of economic development, the planning team worked with local county officials to examine ways to increase resiliency for future storm events and encourage economic growth.

Medium Priority Economic Development Strategies

Pillar	Action Name	Priority	Overall Ranking
Economic Development	Economic Development Action 1 - Town of Rich Square Drainage Improvements	**Medium**	**5**

Table 6. Northampton Medium Priority Economic Development Summary

- **Revitalization of the Town of Rich Square:**

  Low lying areas and drainage issues caused homes and businesses in downtown Rich Square to flood. Having a downtown area that does not flood on a regular basis encourages the residents to stay in town and would contribute to the economic activity of the Town of Rich Square and Northampton County. Through discussions at the planning meetings, it was estimated that approximately 150 people who work there and their dependents are directly impacted and approximately 800 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 Rich Square by rerouting ditches away from draining into the downtown areas and by regular maintenance of those ditches to ensure water does not back up and cause flooding.

Figure 13. Economic Development Action 1: Town of Rich Square Drainage Improvements

Economic Development Action 1 - Town of Rich Square Drainage Improvements

County: Northampton

Priority Grouping: Medium Priority

Priority Ranking: 5

Project Timeframe: More than 1 year

Location: Town of Rich Square

Project Summary: To revitalize economic opportunities for the Town of Rich Square, one of the primary driver toward that goal is drainage improvement project for the Town of Rich Square- culvert improvements, cleaning and maintenance of ditches, divert waters away from the Town

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	The Town of Rich Square sits in a bowl in the County. Currently it floods after major storm events.	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 Rich Square and Northampton 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?	Unknown	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?	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 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 1 - Vaughan Creek culvert improvements	**High**	**1**
Infrastructure	Infrastructure Action 2 - Town of Severn Culverts and Elevation	**High**	**2**

Table 7. Northampton High Priority Infrastructure Summary

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

- **Vaughan Creek culvert improvements:** The culverts at NC Highway 35 and Main Street in Severn tend to flood in major thunderstorms and heavy rain events. The culverts are not large enough to handle flooding and the flooding is also partly due to the culverts being obstructed with trash and sediment. The project is to construct bigger culverts at NC Highway 35 and Main Street in the Town of Severn across Vaughan Creek. Through discussions at the planning meetings, it was estimated that approximately 75 people are frequently impacted when the roads flood.

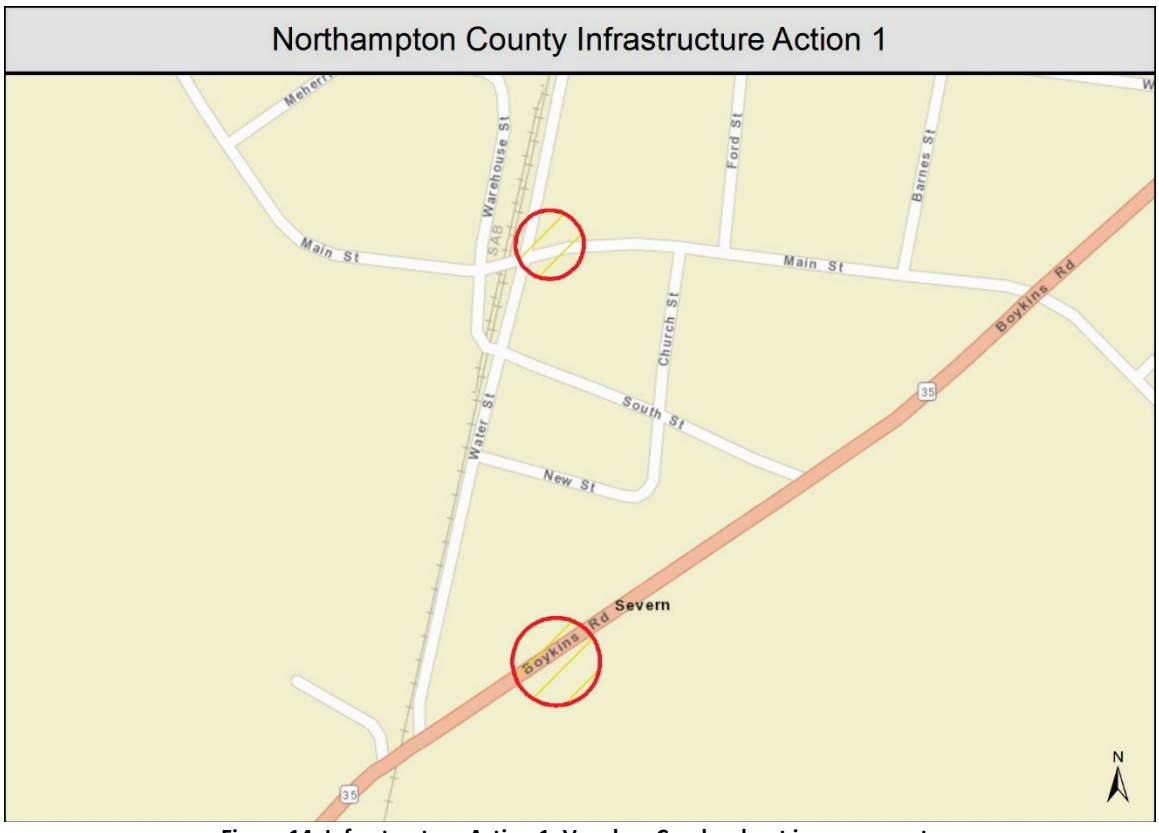


Figure 14. Infrastructure Action 1: Vaughan Creek culvert improvements

Infrastructure Action 1 - Vaughan Creek culvert improvements

County: Northampton

Priority Grouping: High Priority

Priority Ranking: 1

Project Timeframe: More than 1 year

Location: NC Hwy 35 and Main Street in the Town of Severn

Project Summary: Culverts at NC Hwy 35 and Main Street in the Town of Severn tend to flood in major thunderstorms and heavy rain events. Culverts are not large enough to handle flood and/or issues with obstructions, trash and sediment. The proposed project is to construct bigger culverts on NC Hwy 35 and Main Street across Vaughan Creek.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	During Hurricane Matthew this are got flooded because the culverts were inadequately sized for the flow in the channel. Therefore this is an unmet need that the proposed project could fulfilled.	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.	From the meetings with the officials it was suggested that no business were impacted. However the city hall might have received some water and interactions between businesses and government officials might be affected in future flooding if the current situation persists.	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?	Higher than 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?	Between 26 and 50%	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?	$251K - $500K	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?	State	Agree

- **Town of Severn Culverts and Elevation:** The Town of Severn's lift station and telephone box was constructed too low to the ground and as a result, they get flooded and the flooded telephone box cuts connections to residents. The project is to enlarge culverts and elevate the telephone box and/or floodproof the telephone box and lift station at the intersection of New and Water Streets in the Town of Severn. This project would provide relief to approximately 500 residents in town.

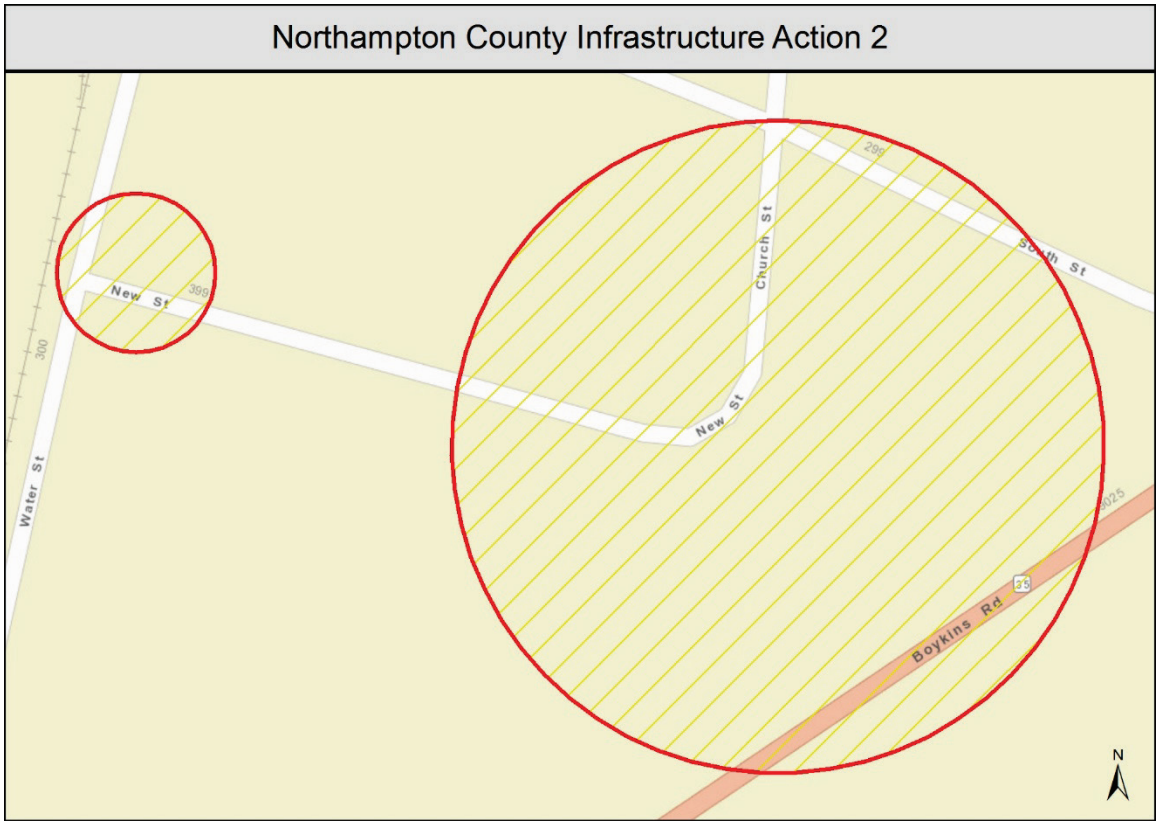


Figure 15. Infrastructure Action 2: Town of Severn Culverts and Elevation

Infrastructure Action 2 - Town of Severn Culverts and Elevation

County: Northampton

Priority Grouping: High Priority

Priority Ranking: 2

Project Timeframe: 6 months - 1 year

Location: Intersection of New and Water Streets in the Town of Severn

Project Summary: Enlarge culverts and also elevation or flood proofing of the telephone box at Intersection of New and Water Streets in Severn

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	During Hurricane Matthew this area got flooded because the culverts were inadequately sized for the flow in the channel. Therefore this is an unmet need that the proposed project could fulfill.	N/A
Consistent with existing plans (describe points of intersection/departure)	Not included in existing plans but not inconsistent with recovery goals of 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.	one of the facilities that got flooded at that location was a telephone box. Not having reliable communication negatively impact the economic vitality of the town.	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?	Minimal to low 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?	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?	Higher than 75%	Agree
Who will administer this project?	State	Agree

Medium Priority Infrastructure Strategies

Pillar	Action Name	Priority	Overall Ranking
Infrastructure	Infrastructure Action 6 - Highway 158 Culverts	**Medium**	**3**
Infrastructure	Infrastructure Action 8 - US 258 Crossing of Potecasi Creek	**Medium**	**4**
Infrastructure	Infrastructure Action 10 - Cherry Street sewer replacement	**Medium**	**6**
Infrastructure	Infrastructure Action 3 - Elevation of US 301/Highway 1310/Railroad Street	**Medium**	**7**
Infrastructure	Infrastructure Action 9 - Chapel Hill Church Road Substation	**Medium**	**8**

Table 8. Northampton Medium Priority Infrastructure Summary

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

- **Highway 158 Culverts:** The culverts at Highway 158 just east of the Town of Conway in Northampton County flood often. The culverts are not functioning properly and are possibly blocked with debris. The project is to construct bigger culverts at this location and fund a regular ditch maintenance program. When Highway 158 floods at this location, approximately 50 people who live nearby are directly impacted with an additional 5000 that frequently use the road are also impacted.

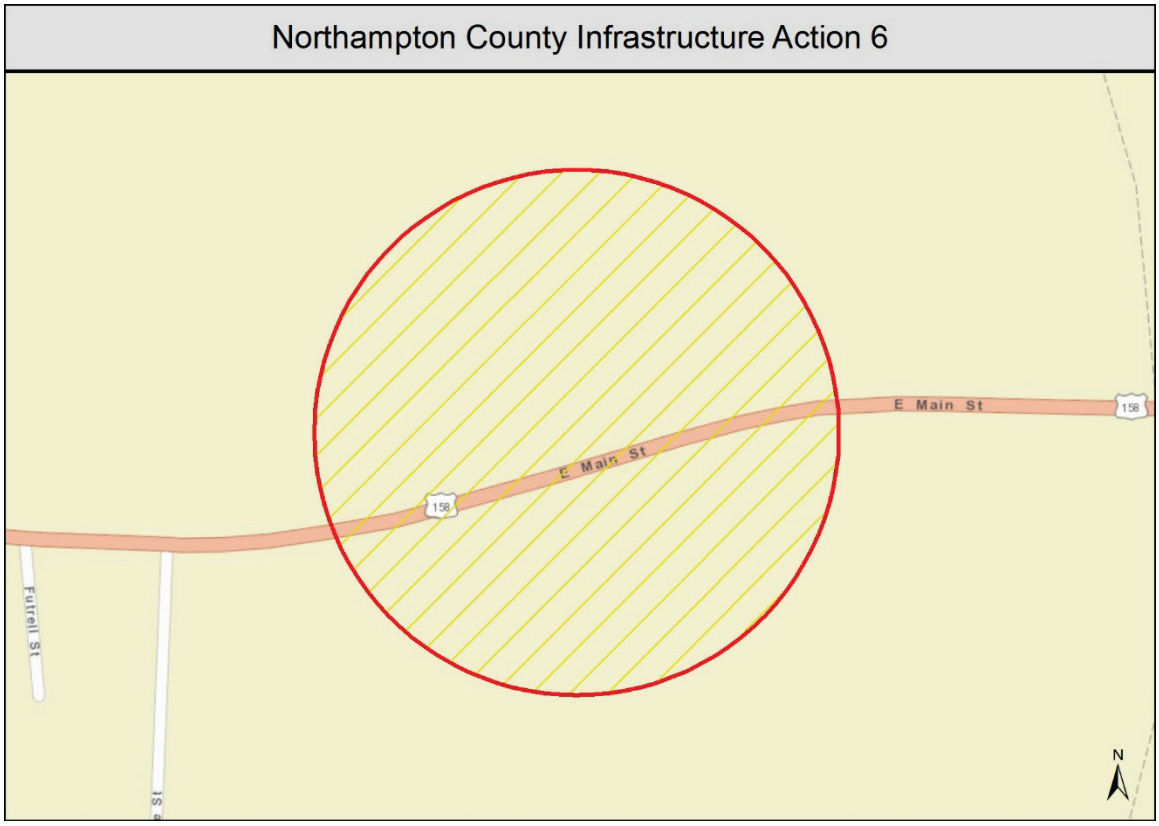


Figure 12. Infrastructure Action 6: Highway 158 Culverts

Infrastructure Action 6 - Highway 158 Culverts

County: Northampton

Priority Grouping: Medium Priority

Priority Ranking: 3

Project Timeframe: 6 months - 1 year

Location: Culverts on Highway 158 just to the west side of the Town of Conway

Project Summary: Highway 158 in the Town of Conway floods often. Culvert is not functioning properly. Pipe is higher than the culvert and possibly blocked with debris as well. The proposed project is to construct bigger culverts on Highway 158

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	During Hurricane Matthew this area got flooded because the culverts were inadequately sized for the flow in the channel. Therefore this is an unmet need that the proposed project could fulfill.	N/A
Consistent with existing plans (describe points of intersection/departure)	Consistent with goal to reduce flood impacts in the future.	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.	Highway 158 is a major thoroughfare for the county and major route for trucks passing through the state. Having the intersection inaccessible impact economic activities 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)?	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?	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?	Less than 25%	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?	$251K - $500K	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?	State	Agree

- **US 258 Crossing of Potecasi Creek:** US Highway 258 across Potecasi Creek flooded 2-3 days post-storm. The project is to elevate the profile of US 258 across Potecasi Creek, possibly by constructing a higher and bigger bridge at this location. This road is a major thoroughfare in Northampton County and when it floods, approximately 5000 people are impacted.

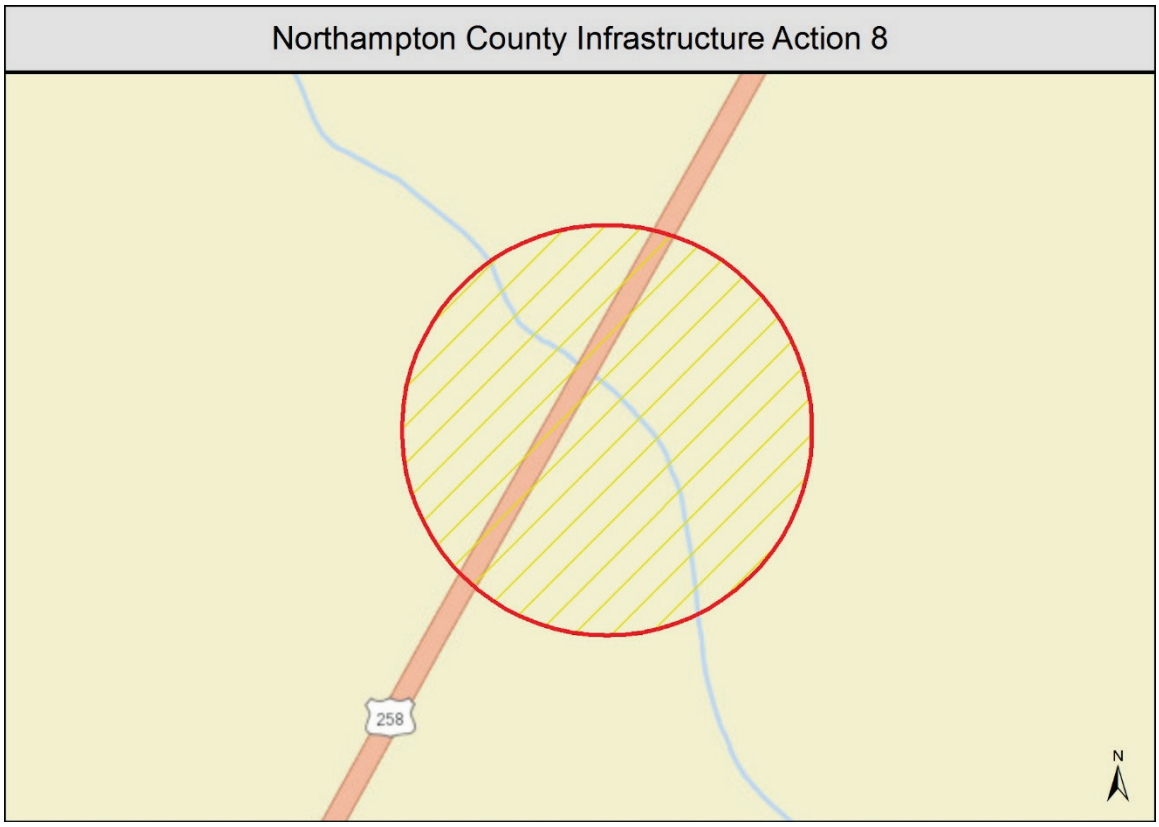


Figure 13. Infrastructure Action 8: US 258 Crossing of Potecasi Creek

Infrastructure Action 8 - US 258 Crossing of Potecasi Creek

County: Northampton

Priority Grouping: Medium Priority

Priority Ranking: 4

Project Timeframe: 1 year

Location: US 258 across Potecasi Creek

Project Summary: US Highway 258 at Potecasi Creek flooded 2-3 days post storm. The proposed project is elevation of US 258 across Potecasi Creek, and possibly by constructing higher and bigger bridge at this location

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	During Hurricane Matthew this area got flooded because the culverts were inadequately sized for the flow in the channel. Therefore this is an unmet need that the proposed project could fulfill.	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.	US Highway 258 is a major thoroughfare for the county and major route for trucks passing through the state. Having US 258 inaccessible impact economic activities in the county	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)?	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?	Unknown	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 26 and 50%	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?	Minimum	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?	State	Agree

- **Cherry Street sewer replacement:** Cherry Street in the Town of Woodland floods often and this impacts a halfway home, elderly home, and the National Guard Armory. The sewer in that area is 50 to 75 years old and as the Town of Woodland grew, the sewer system was never updated. The Town is concerned with having to rescue the older residents, as well as the population with limited mobility, when it floods. The project is to fund sewer replacement activities along Cherry Street. Approximately 40 senior residents and residents with limited mobility are impacted in this area.

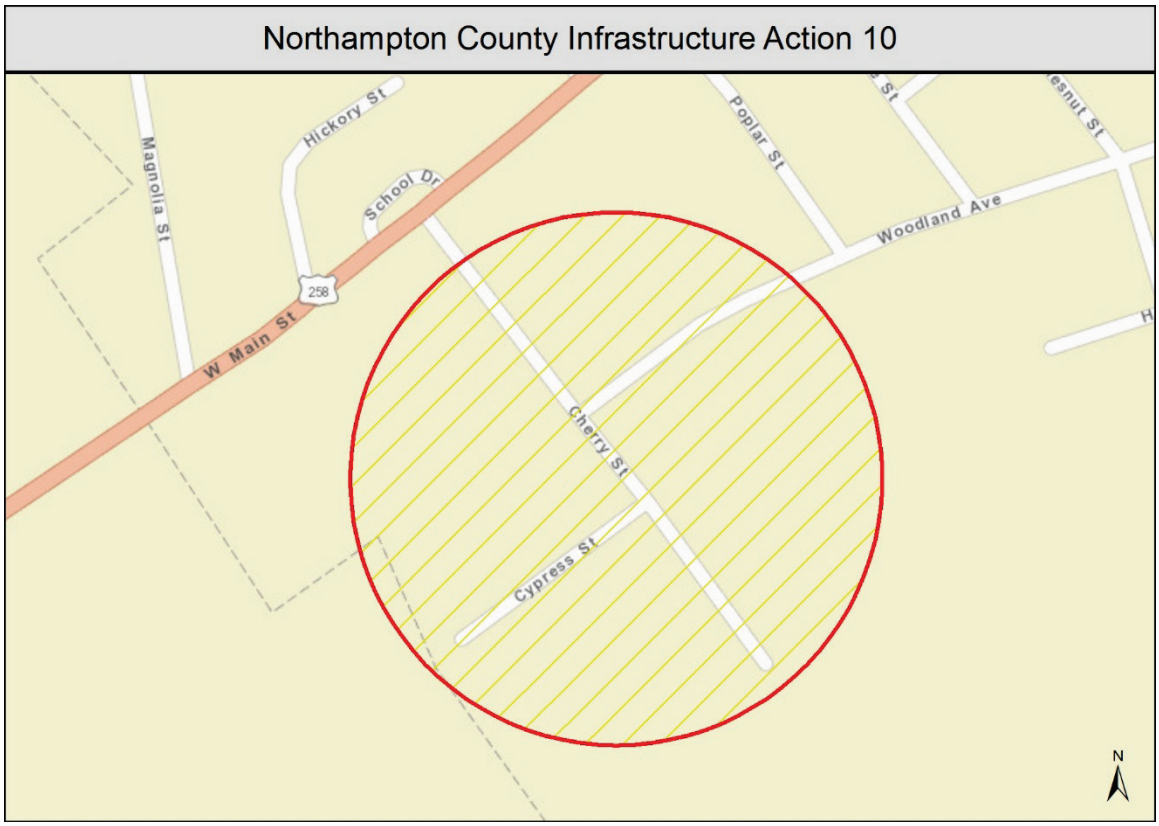


Figure 14. Infrastructure Action 10: Cherry Street sewer replacement

Infrastructure Action 10 - Cherry Street sewer replacement

County: Northampton

Priority Grouping: Medium Priority

Priority Ranking: 6

Project Timeframe: 6 months

Location: Cherry Street in the Town of Woodland, Northampton County.

Project Summary: in the Town of Woodland, Cherry Street was flooded which impacted a halfway house, elderly homes, and National Guard Armory. The Sewers are 50 to 75 years old and when the town grew the sewers were not updated. The proposed project is sewer replacement to alleviate flooding along Cherry Street

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	Cherry Street got flooded during Hurricane Matthew since/due to back up from the sewer system. The propose replacement/updating of the sewer system to accommodate the growth in the area would reduce the chance of future flooding	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.	Reduce capital loss in future flooding	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?	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?	No Impact	Agree
What impacts to the environment of the county will result from this project?	no impact	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?	Medium	Agree
What is the technical feasibility of this project?	Between 51 and 75%	Agree
Who will administer this project?	State	Agree

- **Elevation of US 301/Highway 1310/Railroad Street:** US Highway 301, a major route through the Town of Garysburg, has standing water in rain events that prevents vehicles from traveling safely. The project is to raise the elevation or revise the design of the intersection at US Highway 301, Highway 1310 and E Railroad Street in the Town of Garysburg. When these major roads in the county flood, approximately 200 people are directly impacted in town while an additional 5000 people who use this thoroughfare are indirectly impacted.

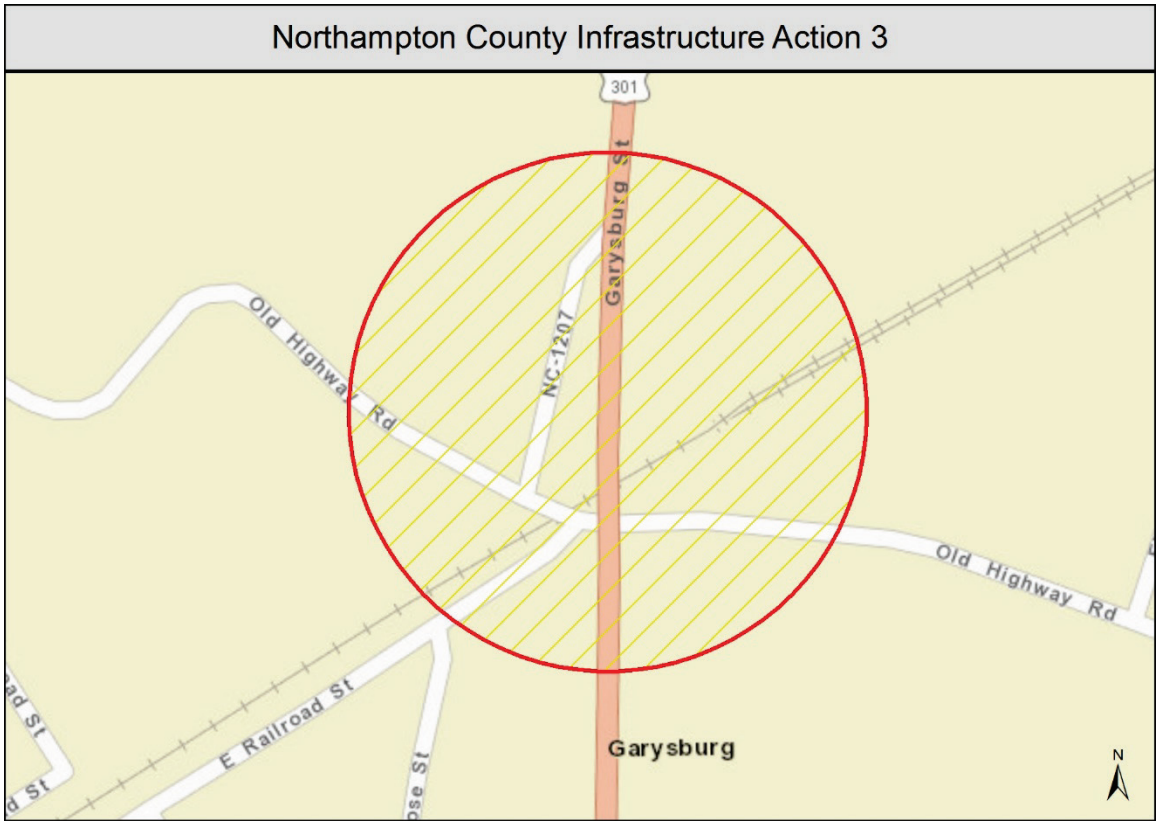


Figure 15. Infrastructure Action 3: Elevation of US 301/Highway 1310/Railroad Street

Infrastructure Action 3 - Elevation of US 301/Highway 1310/Railroad Street

County: Northampton

Priority Grouping: Medium Priority

Priority Ranking: 7

Project Timeframe: 1-5 years

Location: Intersection at US Highway 301, Highway 1310 and E Railroad Street in the Town of Garysburg

Project Summary: US Highway 301 has standing water in rain events and this prevented vehicles from traveling safely through this major route through the Town of Garysburg.
Project: Raise elevation/revise the design of the intersection at US Highway 301, Highway 1310 and E Railroad Street in the Town of Garysburg

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	During Hurricane Matthew this area got flooded because the intersection is located in a low spot. Therefore this is an unmet need that the proposed project could fulfill.	N/A
Consistent with existing plans (describe points of intersection/departure)	Consistent with aims of economic development and Hazard Mitigation plans.	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.	Intersection at US Highway 301 Highway 1310 and E Railroad Street in the Town of Garysburg is a major thoroughfare for the county and major route for trucks passing through the state. Having the intersection inaccessible impact economic activities in the county	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	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?	Between 51 and 75%	Agree
What impacts to the environment of the county will result from this project?	Unknown but likely limited to only the project area.	N/A
What is the capability of the local government to administer this project?	Unknown	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?	State	Agree

- **Chapel Hill Church Road Substation:** Poor drainage around the substation at Chapel Hill Church Road causes it to flood often. Occasionally, water gets inside the fence resulting in standing water. The project is to floodproof the substation at Chapel Hill Church Road in Northampton County. About 2500 people are directly impacted when the substation is flooded.

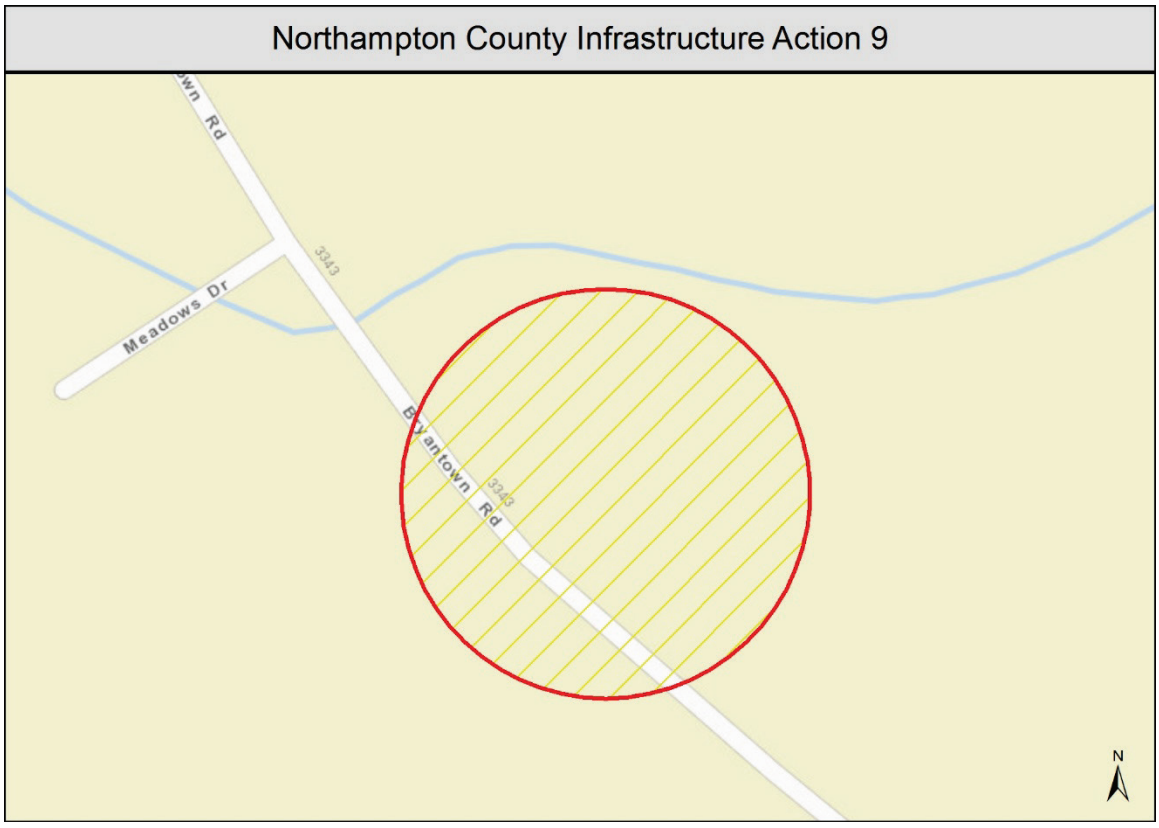


Figure 16. Infrastructure Action 9: Chapel Hill Church Road Substation

Infrastructure Action 9 - Chapel Hill Church Road Substation

County: Northampton

Priority Grouping: Medium Priority

Priority Ranking: 8

Project Timeframe: 6 months

Location: Substation at Chapel Hill Church Road, Northampton County.

Project Summary: There is poor drainage around the substation at Chapel Hill Church Road and the area does not drain well. Water got inside the fence of the substation and stays around. The proposed project is flood proofing of the substation at Chapel Hill Church Road, Northampton County.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	During Hurricane Matthew this area got flooded because the drainage in the area is poor. Therefore this is an unmet need that the proposed project could fulfill.	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.	The proposed project would reduce the chances that the substation will be flooded in the future it does provide benefits to the businesses in the area that depended on the power sub station	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?	Between 26 and 50%	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?	Minimum	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?	State	Agree

Low Priority Infrastructure Strategies

Pillar	Action Name	Priority	Overall Ranking
Infrastructure	Infrastructure Action 5 - NCHS East Road and Zion Church Road Culvert Improvements	Low	9
Infrastructure	Infrastructure Action 4 - Big John Store and Cornwallis Roads Culvert Improvement	Low	10
Infrastructure	Infrastructure Action 7 - Deberrys Pond Berm and Spillway	Low	11

Table 9 Northampton Low Priority Infrastructure Summary

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

- **NCHS East Road and Zion Church Road Culvert Improvements**: The culverts at the intersection of NCHC East Road and Zion Church Road in Northampton County flood often. The culverts are not functioning properly and are possibly blocked with debris. The project is to construct bigger culverts at this location and fund a regular ditch maintenance program. When these major roads in the county flood, approximately 80 people are impacted.

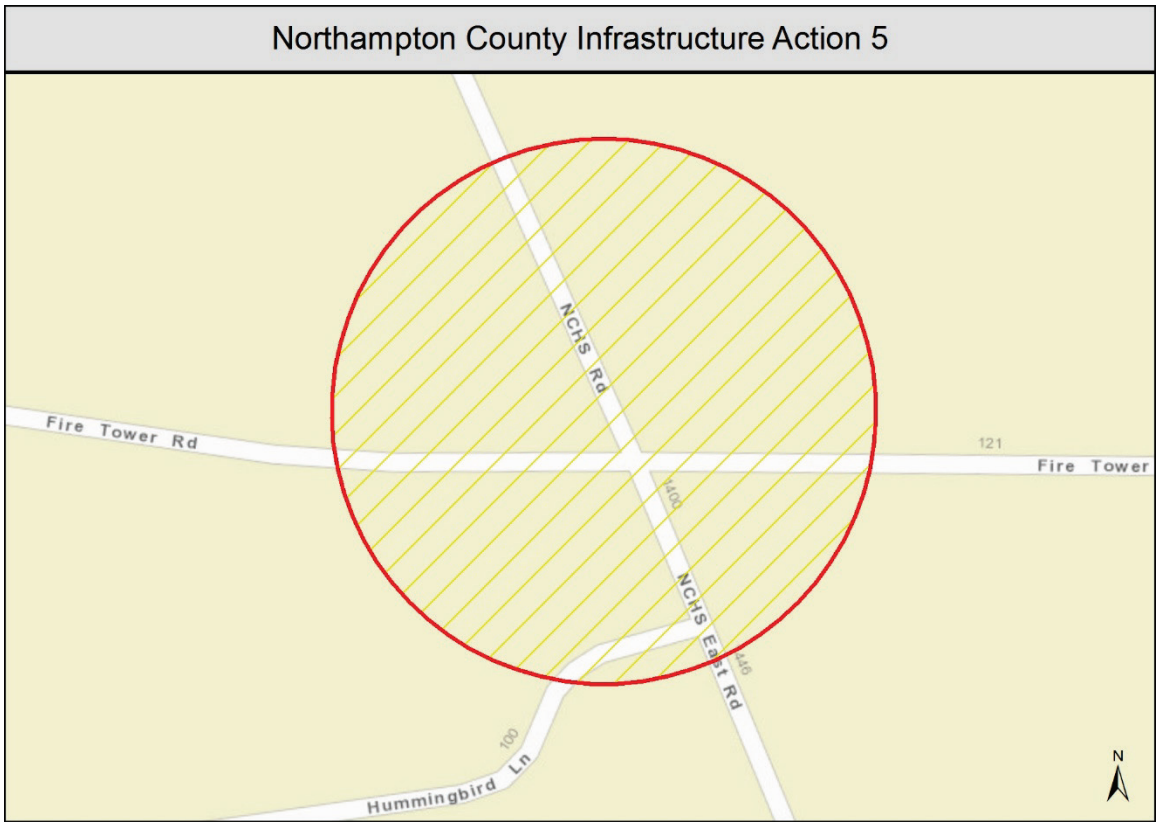


Figure 21. Infrastructure Action 5: NCHS East Road and Zion Church Road Culvert Improvements:

Infrastructure Action 5 - NCHS East Road and Zion Church Road Culvert Improvements

County: Northampton

Priority Grouping: Low Priority

Priority Ranking: 9

Project Timeframe: 6 months - 1 year

Location: Intersection of NCHS East Road and Zion Church Road in Northampton County

Project Summary: NCHS East Road and Zion Church Road, Northampton County flood often. Culvert is not functioning properly and also possibility is blocked with debris. The proposed project is to construct bigger culverts at the intersection of NCHS East Road and Zion Church Road

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	During Hurricane Matthew this area got flooded because the culverts were inadequately sized for the flow in the channel. Therefore this is an unmet need that the proposed project could fulfill.	N/A
Consistent with existing plans (describe points of intersection/departure)	Not specifically mentioned but consistent with goals of reduced flood impacts.	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.	Intersection at NCHS East Road and Zion Church Road is a one of the major thoroughfare for the county and major route for trucks passing through the state.	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?	unknown or no impact	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?	Higher than 75%	Agree
Who will administer this project?	State	Agree

- **Big John Store and Cornwallis Roads Culvert Improvement:** The culverts at the intersection of Big John Store and Cornwallis Road in Northampton County flood often. The culverts are not functioning properly and are possibly blocked with debris. The project is to construct bigger culverts at this location and fund a regular ditch maintenance program. When these major roads in the county flood, approximately 100 people are impacted.

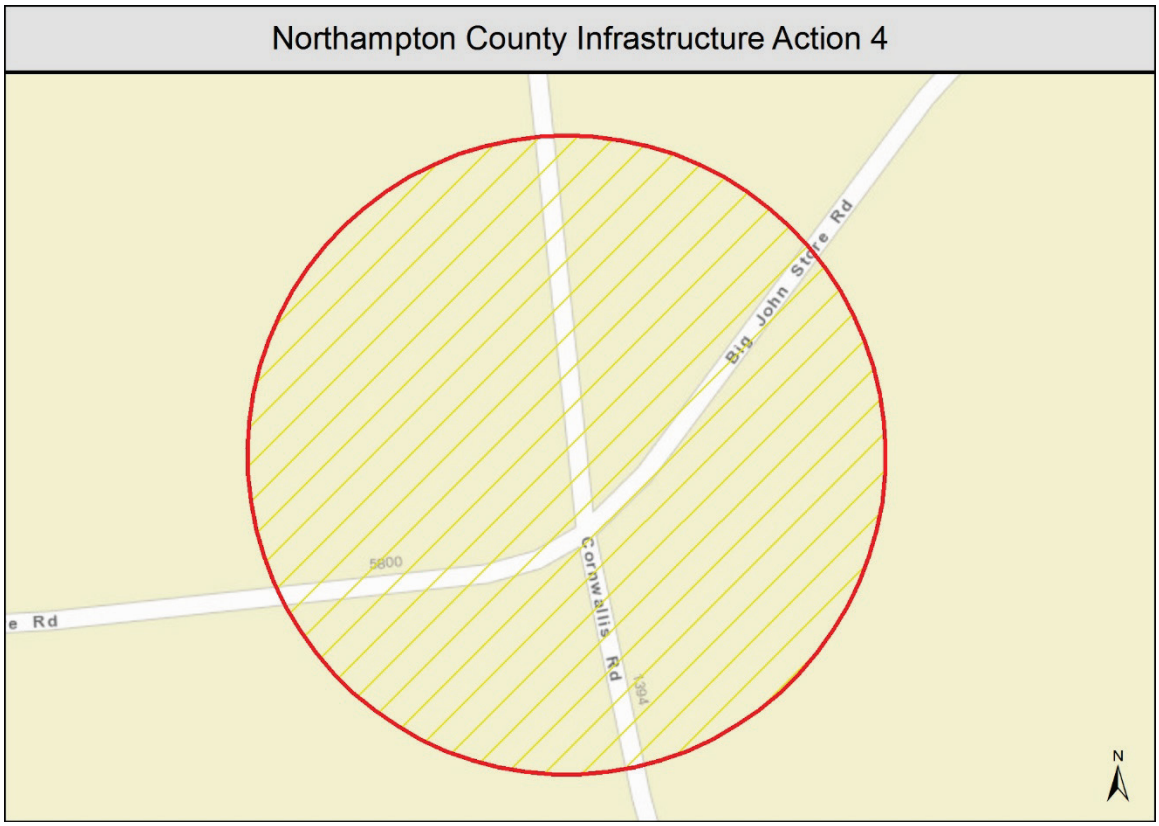


Figure 17. Infrastructure Action 4: Big John Store and Cornwallis Roads Culvert Improvement

Infrastructure Action 4 - Big John Store and Cornwallis Roads Culvert Improvement

County: Northampton

Priority Grouping: Low Priority

Priority Ranking: 10

Project Timeframe: Around 1 year

Location: Intersection of Big John Store and Cornwallis Roads in Northampton County

Project Summary: Big John Store and Cornwallis Roads, Northampton County flood often. Culvert is not functioning properly and possibility blocked with debris. The proposed project is to construct bigger culverts at the intersection of Big John Store and Cornwallis Roads

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	During Hurricane Matthew this area was flooded. Therefore this is an unmet need that the proposed project could fulfill.	N/A
Consistent with existing plans (describe points of intersection/departure)	Consistent with local plans.	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.	Intersection at Big John Store and Cornwallis Roads is a major thoroughfare for the county and major route for trucks passing through the state. Having the intersection inaccessible impact economic activities 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)?	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?	Low to moderate confidence	N/A
What impact will this action have on the local economy/tax base?	Between 26 and 50%	Agree
What impacts to the environment of the county will result from this project?	no impact	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?	Higher than 75%	Agree
Who will administer this project?	State	Agree

- **Deberrys Pond Berm and Spillway:** Deberrys Pond Spillway failed during the storm resulting in Deberrys Mill Road, in Conway, Northampton County, being washed out. Additionally the washed out road damaged the water lines at this location. The project is to strengthen or improve the berm and spillway at Deberrys Pond. Through discussions at the planning meetings, it was estimated that approximately 1000 people were impacted when the water lines broke. Additionally, the flooded roads indirectly impacted approximately 200 people who had to find an alternative route.

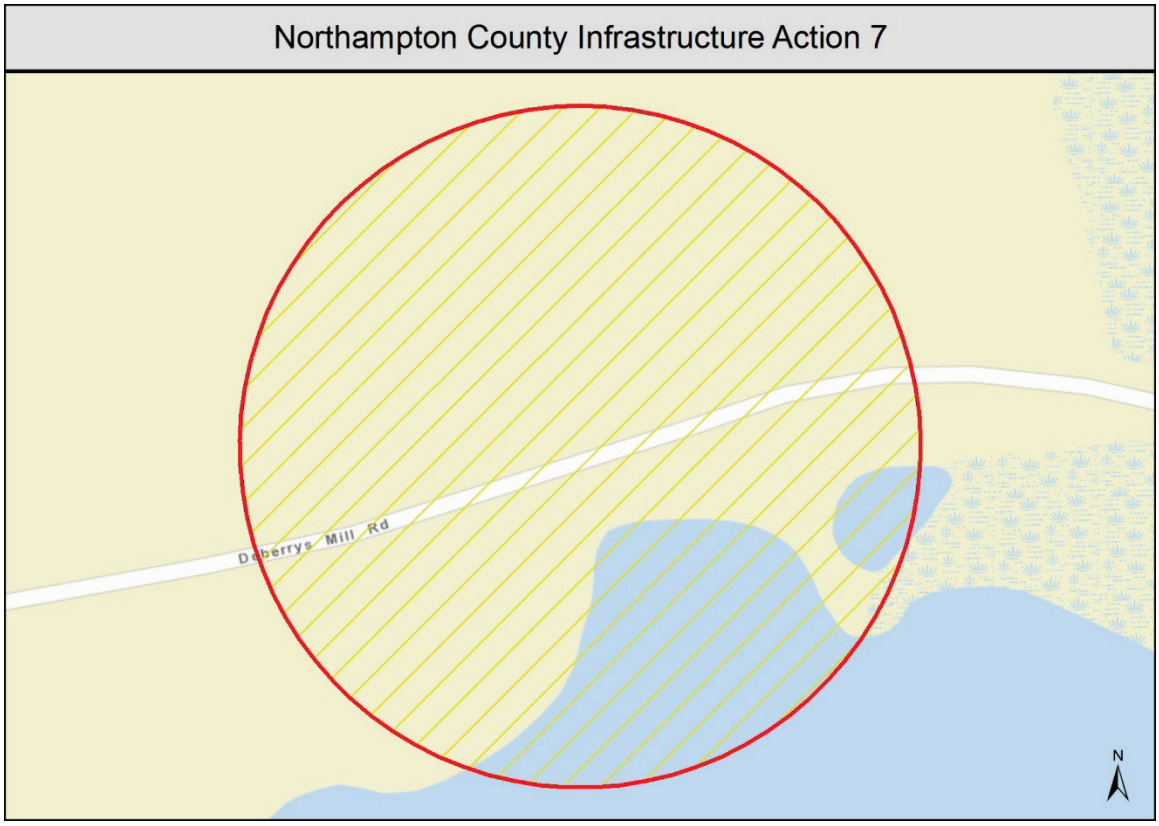


Figure 23. Infrastructure Action 7: Deberrys Pond Berm and Spillway

Infrastructure Action 7 - Deberrys Pond Berm and Spillway

County: Northampton

Priority Grouping: Low Priority

Priority Ranking: 11

Project Timeframe: 6 months to 1 year

Location: Berm and spillway at Deberrys Pond

Project Summary: At Deberrys Mill Road in Conway, Northampton County, the pond's spillway failed during storm. It washed out the road and damaged waterlines. Deberrys Mill Road also tend to flood even during regular storms. The proposed project is to strengthen/improve the berm and spillway at Deberrys Pond.

Question	Response	Disposition
Articulate how this project addresses an unmet need that has been created by damage from Hurricane Matthew.	During Hurricane Matthew this area got flooded since the berms at Deberrys Mill Road failed. Therefore this is an unmet need that the proposed project could fulfill.	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.	The road is one of the major thoroughfares for the county and major route for trucks passing through the state. Having the intersection inaccessible impact economic activities 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?	Between 26 and 50%	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?	Minimum	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?	Between 51 and 75%	Agree
Who will administer this project?	State	Agree

Environmental, Ecosystem and Agricultural Strategies

Northampton County suffered only moderate impacts with respect to the environment, ecosystem, and agriculture from Hurricane Matthew and did not identify any environmental strategies or projects for this plan.

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.