

Executive Summary

In September 2018, Hurricane Florence brought high winds, dangerous storm surge and record rainfall that caused historic flooding throughout North Carolina. At its peak, Hurricane Florence was a Category 4 storm as wide as the entire state with winds reaching 140 mph. The storm hovered over North Carolina for six days, inflicting even higher levels of rainfall, storm surge, and flooding than Hurricane Matthew only two years prior.

This deadly storm has left a lasting impact on families and neighborhoods across our state, resulting in 40 confirmed fatalities. Property damage and power outages were widespread, cutting power to over a million people and forcing tens of thousands of families to take refuge in emergency shelters. While the impacts of Hurricane Florence were felt across the state, those who live in the southeast bore the brunt of the storm. Forty-four counties have been designated by FEMA for federal disaster assistance.¹ An estimated 3.9 million people, almost 40% of North Carolinians, live in one of the designated counties.²

Preliminary impact estimates approach \$17 billion in damages across the state. This is over three times the \$4.8 billion physical and economic cost of Hurricane Matthew in 2016. While the storm affected nearly every aspect of life in Eastern North Carolina, three categories drive approximately 80% of the direct and indirect damage estimates: (1) Business, (2) Housing and (3) Agriculture:

- **Business:** The impact on businesses and non-profits in North Carolina has also been significant, currently estimated at \$5.7 billion. Over 3,800 private-sector business and nonprofit properties incurred water damage; more than 23,000 incurred wind damages. The ripple effect of this impact is immense. Hurricane related interruption results in lost revenue for the businesses and lost wages and ancillary benefits for employees, both of which can lead to substantial knock-on effects to local economies and businesses, exacerbating the impact.
- **Housing:** Current estimates show that approximately 1.2 households or 30% of North Carolina households have been affected by the storm resulting in a preliminary impact estimate of \$5.6 billion. While single and multi-family dwellings drive a significant portion of those costs, Affordable, Temporary, and Supporting Housing damages are also substantial and could continue to grow as the recovery continues.
- **Agriculture:** Florence has also had devastating effects on North Carolina's agriculture industry, causing large scale loss of crops and livestock with impact estimated at upwards of \$2.4 billion. Among other elements, this figure includes \$1.1 billion in crop, livestock and commodity losses and \$117.7 million in farm buildings, equipment, and infrastructure losses.

In terms of sources of funding, initial estimates indicate at least \$2.5 billion of potential federal aid (majority in CDBG-DR and FEMA funds). While private insurance coverage is difficult to estimate at this early stage, high-level estimates suggest \$4.6 billion in private coverage. That leaves a significant gap of \$8.8 billion which will need to be met by a combination of additional federal, private, and state aid.

¹ There are 44 counties FEMA designated by 10/26/2018 for Individual (31) or Public Assistance (44)

² NC OSBM, Certified Population Estimates, Vintage 2017.

Summary of Preliminary Damage and Needs Estimates

Preliminary Total Damage and Needs Assessment Costs (Millions)					
Category	Direct ¹	Indirect/ Induced ²	Subtotal	Resiliency Efforts	Total Impact
Business	\$3,780	\$1,900	\$5,680	\$20	\$5,700
Housing	\$5,339	\$0	\$5,339	\$291	\$5,630
Agriculture	\$1,332	\$1,023	\$2,355	\$75	\$2,430
Utilities, Water and Sewer	\$779	\$0	\$779	\$25	\$804
Natural Resources	\$410	\$0	\$410	\$145	\$554
Government Property and Revenue	\$333	\$69	\$402	\$5	\$407
Transportation	\$419	\$7	\$426	\$50	\$476
Education	\$275	\$28	\$303	\$0	\$303
Health and Human Services	\$192	\$40	\$233	\$0	\$233
Recovery Operations	\$194	\$0	\$194	\$0	\$194
Total Recovery Costs	\$13,053	\$3,067	\$16,120	\$611	\$16,731

1. *Direct effects* are the results of changes in spending and investment by businesses and organizations in a given region, including money spent to pay for salaries, supplies, raw materials, and operating expenses.
2. *Indirect effects* are the results of business-to-business transactions within a given region indirectly caused by the direct effects, such as changes in spending on business supplies or product components. *Induced effects* are the results of changes in personal income caused by direct and indirect effects. Businesses experiencing changes in revenue from the direct and indirect effects will subsequently alter payroll expenditures (e.g., by hiring more employees, increasing payroll hours, raising salaries, etc.). Households will, in turn, change amounts spent at local businesses. The induced effect is a measure of the resulting change in purchases by households from businesses within a given region.

Summary of Preliminary Damage Estimates (cont.)

Preliminary Total Damage & Need Assessment costs (Millions)						
	Current Expected Funding Level		Appropriated			
Total Impact	Private	Federal	State	Unmet Impact	Additional Federal Request	Remaining Unmet Impact
\$16.7	\$4.6	\$2.5	\$0.8	\$8.8	\$5.0	\$3.8

Governor Cooper's Hurricane Florence State Recovery and Resiliency Plan	
Total Recommendation	Initial Down Payment
\$1.5 billion	\$750 million

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Historical Comparison of Florence to other Storms

Measure	Florence	Matthew	Floyd
Total Damage	\$16.7 billion	\$4.8 billion	\$7.0-\$9.4 billion (inflation adjusted)
FEMA Individual Assistance applications	122,080 ¹	82,000	87,000
Inches of Rain	25-35	18-20	17-20
Storm Surge (ft.)	10	6	9
Fatalities	40	28	51
Strongest wind (mph)	90	80	100
Duration (days)	6	2	4

1. As of 10/12/2018

Glossary

AAA – Area Agencies on Aging

ACS – American Community Survey

ADM – Average Daily Membership

AT – Assistive Technology

BEA – US Bureau of Economic Analysis

CDBG - Community Development Block Grant

CDBG-DR – Community Development Block Grant Disaster Recovery

CHIP - Children’s Health Insurance Program

CPS - Child Protective Services

CWMTF - Clean Water Management Trust Fund

D-SNAP - Disaster Supplemental Nutrition Assistance Program

DACS – Department of Agriculture and Consumer Services

DEM – Division of Emergency Management

DEQ – Department of Environmental Quality

DHHS – Department of Health and Human Services

DME - Durable Medical Equipment

DMF - Division of Marine Fisheries

DOA – Department of Administration

DOI – Department of Insurance

DOT – Department of Transportation

DPI – Department of Public Instruction

DSS - Departments of Social Services

ECP - Emergency Conservation Program

EFRP - Emergency Forest Restoration Program

ELAP - Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish Program

EPAP - Emergency Prescription Assistance Program

EQIP - Environmental Quality Incentives Program

EWP - Emergency Watershed Protection

FCC – Federal Communications Commission
FEMA – Federal Emergency Management Agency
FHWA – Federal Highway Administration
FICA - Federal Insurance Contributions Act
FIMAN - Flood Inundation Mapping and Alert Network
FNS - Food and Nutrition Services
FSEOG - Federal Supplemental Education Opportunity Grants
FTA – Federal Transit Administration
FY – Fiscal Year
GDP – Gross Domestic Product
GIS – Geographic Information System
HCCBG - Home and Community Care Block Grant
HFA – Housing Finance Agency
HMGP - Hazard Mitigation Grant Program
HOA – Homeowner Association
HUD – Housing and Urban Development
I/DD – Intellectual and/or Developmental Disabilities
IFA - Interjurisdictional Fisheries Act
LEAs – Local Education Agencies
LGC – Local Government Commission
LIDAR – Light Detection and Ranging
LIP - Livestock Indemnity Program
LME/MCOs - Local Management Entity / Managed Care Organization
MSFCMA - Magnuson-Stevens Fishery Conservation and Management Act
NCDOR – North Carolina Department of Revenue
NCEL – North Carolina Education Lottery
NCEM – North Carolina Emergency Management
NCHA - North Carolina Hospital Association
NCVPS - North Carolina Virtual Public School

NFIP – National Insurance Flood Program
NOAA – National Oceanic and Atmospheric Administration
NRCS - Natural Resources Conservation Service
OSBM – Office of State Budget and Management
OSHR – Office of State Human Resources
SARF - State Acquisition and Relocation Fund
SBA – Small Business Administration
STEP - Sheltering and Temporary Essential Power
TAP - Tree Assistance Program
TCLI - Transitions to Community Living
UNC – University of North Carolina
US EPA – US Environmental Protection Agency
USACE – US Army Corps of Engineers
USDA – US Department of Agriculture
USTs – Underground Storage Tanks
VOADs - Volunteer Organizations Active During Disasters
WHIP - Wildfires and Hurricane Indemnity Program