



Housing

Addresses physical damage to residential structures and cost of housing assistance

1. Summary

The preliminary need for housing assistance and recovery is estimated at \$3.2 billion. The total estimate includes \$2.8 billion due to residential structure damages. This estimate will change as FEMA conducts further on-the-ground assessments of damages. Single-family homes, manufactured homes, and duplexes account for the vast majority of affected residential structures; three out of four of these residences – nearly 56,000 of 74,000 – have an estimated replacement value of less than \$150,000. Repairing and replacing these homes will cost an estimated \$1.3 billion, just over one half of the entire estimated residential damage. Of the overall estimated need, we expect \$2.6 billion to be covered by private and federal sources of funding, resulting in an unmet housing impact of at least \$902.1 million.

Preliminary Damage and Needs Estimate (Millions)						
Category	Direct	Indirect/ Induced	Total Impact	Federal Funding	Private Funding	Unmet Impact
Residential	\$2,837.0	\$0.0	\$2,837.0	\$1,083.0	\$1,170.0	\$584.0
Transitional Shelter	\$2.2	\$0.0	\$2.2	\$1.6	\$0.0	\$0.6
Housing Assistance	\$236.2	\$0.0	\$236.2	\$236.2	\$0.0	\$0.0
Public Assistance	\$54.0	\$0.0	\$54.0	\$40.5	\$0.0	\$13.5
Other Needs Assistance	\$51.9	\$0.0	\$51.9	\$38.9	\$0.0	\$13.0
Subtotal	\$3,181.3	\$0.0	\$3,181.3	\$1,400.2	\$1,170.0	\$611.1
Resiliency efforts	\$0.0	\$0.0	\$291.0	\$0.0	\$0.0	\$291.0
Total	\$3,181.3	\$0.0	\$3,472.3	\$1,400.2	\$1,170.0	\$902.1

*FEMA Federal Share Projection (\$317 million) + CDBG-DR (\$1.1 billion) = \$1.4 billion + TBD Future Federal Funding

**Zero does not indicate that indirect and induced losses do not exist for these categories, only that estimates are not available.

2. Scope

The scope for preliminary housing estimates includes:

- Residential housing: single-family, multi-family, rental residences, and supportive housing (includes subsidized affordable housing)
- Temporary housing, public assistance (STEP program for emergency repairs), and individual assistance payments

These estimates do not include losses from private, non-residential buildings or government buildings. These items are covered in other sections.

The table below provides additional detail on estimates by level and type of damage. This data also includes nursing homes and temporary lodging, which are reflected in the health and business sections, respectively.

SUMMARY OF ESTIMATED DAMAGES TO RESIDENTIAL PROPERTIES									
FLOOD DEPTH	DAMAGE LEVEL	All Hazards		Surge Flooding		Riverine Flooding		Wind	
		Estimated Damages (M)	Building Count						
Substructure	Minor	\$142.2	37,391	\$51.5	8,900	\$90.7	28,491		
0 - 2 ft	Minor	\$562.9	15,474	\$340.7	8,552	\$222.2	6,922		
2 - 4 ft	Moderate	\$765.8	10,712	\$550.4	7,617	\$215.4	3,095		
4 - 6 ft	Major	\$624.0	6,711	\$466.7	4,880	\$157.3	1,831		
6+ ft	Destroyed	\$435.0	4,275	\$321.1	2,938	\$113.8	1,337		
Total		\$2,611.1	509,067	\$1,730.4	32,887	\$799.4	41,676	\$81.2	434,504

Source: NC Division of Emergency Management; estimates include temporary lodging, nursing homes, and institutional dormitories, which are otherwise excluded from housing damage estimates.

3. Methodology

NCEM flood models indicate that approximately 74,000 residential structures incurred damage from water, and their wind-damage models indicate that more than 430,000 incurred wind damages. These preliminary estimates represent \$2.84 billion in damages, which includes \$2.49 billion in total flood damage, \$80 million in wind damage to the structures and their contents, and a 10% inflation factor to account for anticipated higher construction costs. Fifty-seven percent (57%) of these damages are uninsured or underinsured based on NFIP coverage data from NCEM.

The estimates include damages from the coastal storm surge, flooding from rivers, and wind.

- Storm surge:* To produce the storm surge damage estimates, NCEM used national models to create a GIS layer of the storm surge. In conjunction with the GIS layer, NCEM used data on the elevation of the structures’ first floor to determine the depth of the flooding incurred by structures. Then, NCEM translated the flood depth into damage estimates by relying on Army Corps of Engineers’ formulas and estimated replacement values for buildings and contents in NCEM’s statewide database of buildings. Replacement values include the value of equipment contained in the buildings. The estimate for the number of buildings affected by the storm surge only includes primary structure.
- Flooding from rivers:* To produce the riverine estimates, NCEM employed NOAA National Severe Storms Laboratory data to determine the amount of flooding sustained from rivers and create a GIS layer of riverine flooding. To increase precision, the GIS layer combines model calculations of precipitation accumulation with actual river gage and high-water observations. The riverine flooding GIS layer allowed NCEM to estimate the flood depth sustained by structures, and in turn the flood depth informed the loss estimate for structures and their contents (including equipment). The estimate for the

number of buildings affected by flooding from rivers only includes primary structures.

- *Wind damages:* To produce the wind damage estimates, NCEM used information on Hurricane Florence wind speeds from the National Weather Service. The agency used NCEM Risk Management tools to model the wind speed effect on structures and to derive a wind damage estimate. Structures for wind damage include minor buildings as well, such as detached garages and sheds.
- *Flood insurance:* NCEM's statewide building database includes data on NFIP insurance coverage for each building. OSBM relied on this data to estimate the share of flood-affected buildings that were un- and under-insured and the aggregate insurance gap between estimated damages and NFIP coverage.
- *Flood mapping:* The structural damage estimates above will likely increase as NCEM will continue to refine estimates to account for FEMA inspections data and for people outside the floodplain making assistance requests.
- *Other considerations:*
 - Based on 5-year ACS estimates of housing tenure by structure type (e.g., single-family dwellings, duplexes, etc.) for each of the 28 FEMA disaster-declared counties, OSBM estimates approximately 53,000 owner-occupied structures suffered \$1.7 billion in flood-related damages and 21,000 rental structures suffered approximately \$740 million in flood-related damages.
 - Outside of the 28 FEMA disaster-declared counties, OSBM calculations based on NCEM flood modeling indicate that approximately \$72 million in flood damages to residential buildings occurred.
 - The supply of affordable housing in the Florence-affected region of the state was far below the needs of the local population even before the storm hit: the NC Housing Finance Agency estimated an affordable-housing shortfall of more than 200,000 homes. Florence exacerbated this shortfall.
 - Among single-family homes, manufactured homes, and duplexes, which account for the clear majority of affected residential structures, three out of four estimated flood-affected residences – nearly 56,000 of 74,000 – have an estimated replacement value of less than \$150,000. Repairing and replacing these homes will cost an estimated \$1.3 billion.

4. Assumptions

- *Construction cost:* The preliminary estimate for property damages conservatively assumes construction costs will be 10% higher than the replacement values in the NCEM database. Experience from hurricanes Matthew, Katrina, Harvey, and Superstorm Sandy suggests construction costs were 8-20% higher in the aftermath of the event due to a shortage of available construction services or an increase in the cost of raw material or labor. In addition, Hurricane Florence construction costs are likely to be

driven up by the impact of tariffs on the price of lumber, steel, aluminum, and other materials, which would increase further the preliminary estimate.

- *Building estimation:* The estimate for the number of buildings affected by storm surge and riverine flooding only includes primary structures. The estimate for wind damage also includes detached garages, sheds, and the like.

5. Primary Data Sources

- DEM
- Census Bureau: American Community Survey 5-Year County Estimates
- FEMA
- HUD

6. Potential Sources of Funding for Unmet Impact

Federal:

- North Carolina expects to receive approximately \$276 million from FEMA for individual assistance, temporary shelter, and other assistance programs, resulting in a state match need of \$13.5 million.
- North Carolina expects to receive approximately \$124 million from FEMA for hazard mitigation, resulting in a state match need of \$41 million.
- Based on FEMA estimates as of October 5, 2018, the state is expected to receive \$554 million in Public Assistance funds from FEMA with a state match of \$185 million for a total of \$739 million. Based on allocations from Hurricane Matthew, we anticipate that approximately \$54 million of those funds will be for housing related items, resulting in a state match need of \$14 million.
- The US Congress has earmarked approximately \$1.14 billion to North Carolina in the form of HUD CDBG funding. We anticipate that a large portion of this (\$1.08 billion) will be utilized for housing program needs.
- Additional funds may also be available from USDA.

Private:

- Using NCEM preliminary data, \$1.17 billion of water damages would be covered through NFIP.
- Estimates are still pending that will show the amount that could potentially be covered by private insurance companies for covered damages (e.g., wind).

7. State Funding Recommendation for Unmet impact

Rebuilding - \$243 million

FEMA State Match for Individual and Public Assistance – \$27.5 million

Funds state match for FEMA individual assistance programs to provide short to medium term housing and temporary emergency repairs to damaged homes. Assistance is also provided for other needs, such as: medical and dental assistance, child care, repair or replacement of clothing and household items, moving and storage, and other critical needs.

Rapid Rehousing Program (Back@Home NC) – \$12 million

Assists individuals and families still living in shelters or staying in unsafe or unstable arrangements due to Hurricane Florence quickly transition to safe and sustainable longer-term housing. Services include help finding housing, rent and utility assistance, move-in supplies, and, if needed, help accessing other stability supports like job training and placement and child care.

Transitions to Community Living Initiative (TCLI) Displacement Recovery – \$1.3 million

Provides funding to help to secure new placements and provide additional tenancy support services to TCLI participants who were displaced during Hurricane Florence.

Volunteer Organizations Active During Disasters (VOADs) – \$2 million

Provide support to volunteer organizations that provide multiple services to storm survivors.

Homeowner Repair and Rehabilitation Fund – \$176 million

Provide funding for programs that help homeowners and renters remain in their communities, for activities that are not eligible for federal reimbursement. Strategies to implement this include the following:

- *Homeowner reimbursements, repairs and rehabilitation funding.* For example, owners can be reimbursed for flood damaged appliances, emergency repairs, urgent and pressing needs or other documented costs that may not be covered by federal funding sources, because the volume of applicant demands exceed federal award amounts for North Carolina.
- *Forgivable loans or grants to SBA housing loan recipients.* For example, if an individual has received an SBA loan but has difficulty affording the payments, this program would provide funds to assist with the payments or loan interest buydown.
- *Extension of Rental/Mortgage Assistance* for displaced individuals who must pay current rental leases or mortgages while their damaged properties are repaired. For example, many funding sources that provide rental and mortgage assistance do so on a time-limited basis. If a qualified individual has received assistance but continues to have unmet needs after exhausting the time limit of the benefit, this program would provide funds to continue providing the much-needed rental or mortgage assistance.
- *Gap assistance payments.* For example, if an individual has qualified for a FEMA hazard mitigation grant to re-locate their house, and the FEMA award

is less than an equivalent market priced home that is not in a floodplain, gap assistance payments can supplement these awards to make up the difference

Cash Flow Assistance to Distressed Agencies - \$24 million

Provides cash flow management assistance for small, rural, and distressed agencies. Hazard Mitigation Grant Program (HMGP) awards can greatly exceed small local government operating budgets and cash reserves. For example, the Town of Fair Bluff received an \$8.3 million FEMA grant to rebuild over 100 houses destroyed from Hurricane Matthew. However, the town's annual general fund operating budget is \$900,000. The town does not have the cash capacity to pay construction contractors first and wait for lengthy reimbursements on its FEMA grant without risking town payroll and other budget needs.

To address this fiscal challenge, it is recommended that the Office of State Budget and Management be provided with adequate funding and authority to enter into fiscal agent agreements with these agencies to ensure they have the cash flow and financial capacity to reimburse federal agencies for disaster response and recovery grant awards. The final federal reimbursements from this cash flow assistance program would be re-directed to future FEMA grants or support housing reconstruction, repairs and state mitigation efforts.

Resiliency - \$291 million

FEMA State Match for Hazard Mitigation – \$41 million

After a presidential declared disaster, FEMA hazard mitigation grants requests are reviewed and approved often in advance of federal CDBG-DR funding requests. These HMGP approvals support housing acquisitions, elevations and reconstruction activities to minimize and mitigate these homes from future risk of loss of life and property. HMGP federal grants are awarded to impacted Counties and municipalities who must hire contractors, execute repairs, and then seek reimbursements from FEMA for the federal share and the State for the state share.

It is estimated that NC would qualify for a minimum of \$164 million FEMA HMGP approvals, with 75% (or \$123 million) supported by FEMA federal grant funds that require a 25% (or \$41 million) state or local agency match.

State Acquisition and Relocation Fund (SARF) – \$180 million

Provides funding to SARF, which is currently authorized by statute and has a primary focus to buyout, acquire, and totally reconstruct homes outside from the 100-year floodplain. The types of things SARF can assist with include the following:

- Home acquisition and buyouts that minimize future flood damage
- Financial assistance in the form of interest buy down grants
- Gap assistance grants for associated loans
- Flood insurance assistance

Residential Construction Infrastructure Grants - \$20 million

Recommends funds for the Department of Commerce's Rural Economic Development Division to provide grants to local and regional agencies for infrastructure required to support new residential structures in areas outside the 100-year floodplain or to repair or replace existing infrastructure. Funds may be used to cover water, sewer, sidewalks, storm drainage, and other similar projects.

Affordable Housing – \$50 million

Provides funds to the Housing Finance Agency (HFA) to create housing development incentives for high-quality, resilient, affordable housing options in the affected communities. Funds may also be used to repair damaged HFA properties, emergency, homeless, and domestic violence shelters.