Business

Addresses physical damage and economic losses for non-agricultural businesses

1. Summary

The following is documentation of the methodology used to derive a preliminary estimate for non-agriculture business and non-profit losses due to Hurricane Florence.

Preliminary estimates used flood mapping to identify affected private, non-residential structures to estimate structural damages and to model the disruption to the economy. This analysis leverages North Carolina Emergency Management (NCEM) and Bureau of Economic Analysis (BEA) data. The preliminary estimate for total impact is $3.9 billion—of this, $2.6 billion is the direct impact and $1.3 billion is the secondary impact (indirect and induced). Based on preliminary data, we expect $1 billion to be covered by federal and private sources of funding, resulting in an unmet non-agriculture business and non-profit impact of $2.9 billion. There is an opportunity to close the unmet need gap by providing loans and grants to businesses and to increase resiliency by investing in economic development programs.

Preliminary Damage and Needs Estimate (Millions)						
Category	Direct	Indirect/ Induced	Total Impact	Federal Funding	Private Funding	Unmet Impact
Real estate and equipment	$754.2	$0.0	**$754.2**	$205.1	$103.7	**$445.4**
Economic loss	$1,855.7	$1,273.9	**$3,129.6**	$0.0	$742.3	**$2,387.3**
Subtotal	**$2,609.9**	**$1,273.9**	**$3,883.8**	**$205.1**	**$846.0**	**$2,832.7**
Resiliency efforts	$0.0	$0.0	**$20.0**	$0.0	$0.0	**$20.0**
Total	**$2,609.9**	**$1,273.9**	**$3,903.8**	**$205.1**	**$846.0**	**$2,852.7**

2. Scope

Losses in scope for the business and non-profit estimates include:

- Real estate and equipment damage, and
- Business-disruption effects.

The estimates of damages to structures do not include agricultural enterprises and hospitals/clinics – these estimates are included in other sections, but include churches and temporary lodgings (i.e. hotels). The business disruption loss estimate

covers the whole of the state's economy, except for the farming and fishing industries (those losses are covered in the Agriculture section) and government (losses to government entities are covered in the Government Property and Revenue section).

3. <u>Methodology</u>

NCEM estimated that a total of 3,800 private-sector business and nonprofit properties incurred water damage and more than 49,000 incurred wind damages. These estimates represent $754.2 million in total damage to the structures and their contents.

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

- *Storm surge:* NCEM used national models to create a GIS layer of the storm surge. NCEM compared the GIS layer against the elevation of the structures' first floor to determine the depth of flooding. Then, NCEM translated the flood depth into damage estimates by relying on Army Corps of Engineers (USACE) formulas and on estimated replacement values (based on property tax value) in NCEM's statewide database of buildings. The estimate for the number of buildings affected by the storm surge only includes primary structures; the replacement values include the building and its contents.

- *River flooding:* In a similar process as storm surge analysis, a GIS layer was constructed for riverine flooding. This 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 damages were once again determined from NCEM's replacement values.

- *Wind:* 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.

- *Insurance levels:* NCEM's statewide building database includes data on NFIP insurance coverage for each building. The Office of State Budget and Management (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:* It is very likely that the estimates for structural damages presented above are underestimated. NCEM will continue to refine estimates as they receive more information.

Business Disruption: The total nonfarm business-disruption loss to North Carolina from Hurricane Florence is estimated at $3.13 billion—inclusive of the direct and

secondary (indirect and induced) effects. In terms of value-added GDP, this amounts to $1.53 billion, or about .3% of annual GDP.

- All 100 counties were grouped into 5 categories of impact – critical, high, moderate, low, and minimal. Criteria for designation include: FEMA designation for individual disaster assistance, proportion of county's properties damaged, evacuations, and school closures.
- Each category had its own set of assumptions around decreased economic output (see table in Assumptions below).
- The disruptions assumptions were applied to the daily employee compensation figures in each county to determine the total direct impact on compensation.
- Compensation losses were modeled in an economic modeling platform to calculate decreases in economic output and secondary effects. Models were run separately for the major disaster area (coastal counties in the critical and high impact categories) and emergency area (rest of the counties). These secondary effects include changes to business-to-business purchases and household purchases that are affected by the disruptions and wage losses. The total business-disruption loss reported is total effect on business output, which is consistent with how business disruption was reported for Superstorm Sandy.
- This approach to estimating disruption does not include loss in welfare from preparing for, responding to, and recovering from the hurricane. The billions of dollars in physical damages to infrastructure and lost inventory account only for a portion of the welfare loss.

Analysis of each part of the scope leads to a total estimate of $3.9 billion, which is in line with expectations as seen in Hurricane Floyd ($1 billion in structural damages to non-agricultural businesses and $4 billion in economic loss).

4. **Assumptions**

- *Business disruption:* Assumptions for disruptions by county impact category are below. These assumptions are based on power outages, school and road closures, and share of damaged property.

County Impact Level	Critical	High	Medium	Low	Minimal
Assumed Disruption (Share of Daily Activity)	35%	15%	10%	5%	2%
Assumed Impact Duration (Days)	25.0	15.0	6.0	3.0	1.0
Disruption-Permanency Factor	80%	70%	65%	60%	50%

- *Construction cost:* The preliminary estimate for property damages conservatively assumes construction costs would 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 $754.2 million preliminary estimate.

5. **Primary Data Sources**

- NCEM for number of structural damages and values
- U.S. Bureau of Economic Analysis for county-level employee compensation
- IMPLAN for economic multipliers

6. **Potential Sources of Funding for Unmet Impact**

Federal:

- *Small Business Administration (SBA)* – The federal agency provides disaster loans for physical and economic losses to eligible small businesses. Based on SBA loans for Hurricane Matthew and Superstorm Sandy, SBA could cover a quarter of the damages to structures and their contents – preliminary estimate of $ 205.1 million.
- *Housing and Urban Development (HUD) Community Development Block Grant – Disaster Recovery (CDBG-DR)* – HUD funding could be used for small business loans. The preliminary federal funding estimate in the table above does not include any potential funding from CDBG-DR funds. For Hurricane Matthew, the state allocated $12.5 million of CDBG-DR funds for small business loans and assistance.

Private:

- *Private business disruption insurance* – $742.3 million could potentially be covered by private insurance companies for business disruption losses for the business that were directly affected. This preliminary estimate assumes 40% of direct business disruption losses would be covered by insurance. This is based on a 2007 survey of small businesses conducted by the National Association of Insurance Commissioners. Many businesses are likely to use insurance payments for business-interruption losses to at least partially compensate employees for lost wage and salary income. This preliminary estimate may be overestimating the private funding; businesses that do have private business disruption insurance may still face a cap on the total income loss covered by their insurance.

- *FEMA National Flood Insurance Program* – $103.7 million of water damages would be covered based on the structures that have coverage through NFIP according to NCEM data.

7. State Funding Recommendations for Unmet Impact

Rebuilding - $30 million

Small Business Loans and Grants– $20 million

Provides funds to the Department of Commerce to award to eligible small business lending institutions to expand access to credit for small businesses within Florence-affected areas. Funds may be used to provide loans and forgivable loans to businesses that could not obtain SBA loans or that need supplemental loans in addition to what SBA provides. Funds may also be used to provide emergency bridge loans to businesses to meet short-term needs until federal loans, insurance payouts, and other disaster relief funds are approved. Utilize best practices for disaster assistance loans, including:

- Implement appropriate program guidelines and internal controls to clearly define rules for determining loan amounts and circumstances for forgiving loans.
- Establish a process for considering exceptions to the guidelines and ensure any exceptions are thoroughly documented.
- Develop a uniform reporting template and reporting requirements for all participating entities to capture information on loans applications, approved loans, disbursements, and other metrics.
- Create an online system for applicants to track their application.
- Specify any restrictions or required uses of loan funds that have been repaid.
- Connect businesses with technical assistance providers, including business and financial planning, legal assistance, and other resources to address short-term needs and build stronger businesses for the future.

Assistance for Historically Underutilized Businesses – $5 million

Provides funding to the Carolina Small Business Development Fund to provide low-rate loans and recovery assistance to historically underutilized businesses impacted by Hurricane Florence. Utilize the same best practices listed above.

Commercial Building Disaster Assistance – $5 million

Funds the Department of Commerce to award grants to local governments that focus on repairing, mitigation upgrading, or demolishing non-residential structures damaged by Hurricane Florence.

Boost to Historic Preservation Tax Credit – $1-2 million estimated revenue loss

Provides an additional 5% disaster zone bonus tax credit for qualified rehabilitation expenses in federally declared disaster areas for five years, changes the current five-year cycle for non-income-producing properties to a two-year cycle in federally declared disaster areas for five years, and repeals the sunset for the program.

Resiliency - $20 million

OneNC Fund – $5 million

Raises the cap on the Fund to attract high-impact economic development projects in the affected areas.

NC Main Street and Rural Planning Center – $10 million

Offers economic development planning technical assistance services and grants to local governments of impacted communities. The grants will be used to implement business district revitalization projects.

Marketing North Carolina as a Business Destination and Tourism Advertising – $5 million

Provides funds to be used for marketing the state as business destination and for advertising for tourism-related businesses and for highlighting regional assets in the affected areas.