

Exhibit A: Executive Summary

Applicant Name: State of North Carolina

North Carolina Emergency Management (NCEM), on behalf of the State of North Carolina is submitting to HUD for consideration a proposal under the National Disaster Resilience Competition (NDRC). This proposal, titled, NC Sound Approach seeks to address unmet recovery needs and enhance resiliency in the coastal, sound, estuary, and coastal plain communities of eastern North Carolina that were impacted by the April 2011 tornadoes and Hurricane Irene.

After analysis of HUD's Most Impacted and Distressed (MID) criteria, Dare County and census tracts within Tyrrell, Bertie, Greene, Pitt, Washington, Beaufort, Pamlico, Currituck, Craven, and Carteret Counties are considered as eligible MID areas for this application. NCEM has identified Unmet Recovery Needs (URN) in Beaufort, Pamlico, Washington, and other communities.

NC Sound Approach frames the following program areas for consideration to build a more resilient eastern North Carolina: 1) Resilient Housing; 2) Resilient Infrastructure; 3) Resilient Jobs; Resilient Environment.

NC Sound Approach seeks innovative solutions to meet serious Unmet Recovery Needs from the April 2011 Tornadoes and Hurricane Irene by fostering long-term resilience.

Exhibit B: Threshold Requirements

Applicant Name: State of North Carolina

File Name:

Threshold Requirements

Eligible Applicant: State of North Carolina

Eligible County: This application includes project areas within the following counties:

Currituck, Dare, Tyrrell, Washington, Bertie, Beaufort, Pitt, Greene, Craven, Pamlico, and Carteret. All 11 counties were declared as part of DR-1969 and DR-4019.

Most Impacted and Distressed Target Area:

DARE COUNTY		
All Census Tracts/Entire County		

BEAUFORT		
GEOID	Geo Name	Tract
370139301001	Block Group 1, Census Tract 9301, Beaufort County, North Carolina	930100
370139301002	Block Group 2, Census Tract 9301, Beaufort County, North Carolina	930100
370139301003	Block Group 3, Census Tract 9301, Beaufort County, North Carolina	930100
370139301004	Block Group 4, Census Tract 9301, Beaufort County, North Carolina	930100
370139301005	Block Group 5, Census Tract 9301, Beaufort County, North Carolina	930100
370139301006	Block Group 6, Census Tract 9301, Beaufort County, North Carolina	930100
370139302001	Block Group 1, Census Tract 9302, Beaufort County, North Carolina	930200
370139302002	Block Group 2, Census Tract 9302, Beaufort County, North Carolina	930200
370139302003	Block Group 3, Census Tract 9302, Beaufort County, North Carolina	930200
370139303001	Block Group 1, Census Tract 9303, Beaufort County, North Carolina	930300
370139303002	Block Group 2, Census Tract 9303, Beaufort County, North Carolina	930300
370139303003	Block Group 3, Census Tract 9303, Beaufort County, North Carolina	930300
370139304001	Block Group 1, Census Tract 9304, Beaufort County, North Carolina	930400
370139304002	Block Group 2, Census Tract 9304, Beaufort County, North Carolina	930400
370139304003	Block Group 3, Census Tract 9304, Beaufort County, North Carolina	930400
370139304004	Block Group 4, Census Tract 9304, Beaufort County, North Carolina	930400
370139305011	Block Group 1, Census Tract 9305.01, Beaufort County, North Carolina	930501
370139305012	Block Group 2, Census Tract 9305.01, Beaufort County, North Carolina	930501
370139305013	Block Group 3, Census Tract 9305.01, Beaufort County, North Carolina	930501
370139305021	Block Group 1, Census Tract 9305.02, Beaufort County, North Carolina	930502
370139305022	Block Group 2, Census Tract 9305.02, Beaufort County, North Carolina	930502
370139306001	Block Group 1, Census Tract 9306, Beaufort County, North Carolina	930600
370139306002	Block Group 2, Census Tract 9306, Beaufort County, North Carolina	930600
370139307001	Block Group 1, Census Tract 9307, Beaufort County, North Carolina	930700

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370139307002	Block Group 2, Census Tract 9307, Beaufort County, North Carolina	930700
370139308001	Block Group 1, Census Tract 9308, Beaufort County, North Carolina	930800
370139308002	Block Group 2, Census Tract 9308, Beaufort County, North Carolina	930800
370139308003	Block Group 3, Census Tract 9308, Beaufort County, North Carolina	930800
370139309001	Block Group 1, Census Tract 9309, Beaufort County, North Carolina	930900
370139309002	Block Group 2, Census Tract 9309, Beaufort County, North Carolina	930900
370139309003	Block Group 3, Census Tract 9309, Beaufort County, North Carolina	930900
370139310001	Block Group 1, Census Tract 9310, Beaufort County, North Carolina	931000
370139310002	Block Group 2, Census Tract 9310, Beaufort County, North Carolina	931000
370139310003	Block Group 3, Census Tract 9310, Beaufort County, North Carolina	931000
370139310004	Block Group 4, Census Tract 9310, Beaufort County, North Carolina	931000

BERTIE		
GEOID	Geo Name	Tract
370159601001	Block Group 1, Census Tract 9601, Bertie County, North Carolina	960100
370159601003	Block Group 3, Census Tract 9601, Bertie County, North Carolina	960100
370159601005	Block Group 5, Census Tract 9601, Bertie County, North Carolina	960100
370159603001	Block Group 1, Census Tract 9603, Bertie County, North Carolina	960300
370159603003	Block Group 3, Census Tract 9603, Bertie County, North Carolina	960300
370159604005	Block Group 5, Census Tract 9604, Bertie County, North Carolina	960400
370159604006	Block Group 6, Census Tract 9604, Bertie County, North Carolina	960400
370159604007	Block Group 7, Census Tract 9604, Bertie County, North Carolina	960400

CARTERET		
GEOID	Geo Name	Tract
370319701021	Block Group 1, Census Tract 9701.02, Carteret County, North Carolina	970102

CRAVEN		
GEOID	Geo Name	Tract
370499601021	Block Group 1, Census Tract 9601.02, Craven County, North Carolina	960102
370499601023	Block Group 3, Census Tract 9601.02, Craven County, North Carolina	960102
370499602001	Block Group 1, Census Tract 9602, Craven County, North Carolina	960200
370499603005	Block Group 5, Census Tract 9603, Craven County, North Carolina	960300
370499605001	Block Group 1, Census Tract 9605, Craven County, North Carolina	960500
370499605003	Block Group 3, Census Tract 9605, Craven County, North Carolina	960500

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370499605004	Block Group 4, Census Tract 9605, Craven County, North Carolina	960500
370499606001	Block Group 1, Census Tract 9606, Craven County, North Carolina	960600
370499606002	Block Group 2, Census Tract 9606, Craven County, North Carolina	960600
370499609002	Block Group 2, Census Tract 9609, Craven County, North Carolina	960900

CURRITUCK		
GEOID	Geo Name	Tract
370531104012	Block Group 2, Census Tract 1104.01, Currituck County, North Carolina	110401

GREENE		
GEOID	Geo Name	Tract
370799503004	Block Group 4, Census Tract 9503, Greene County, North Carolina	950300

PAMLICO		
GEOID	Geo Name	Tract
371379501022	Block Group 2, Census Tract 9501.02, Pamlico County, North Carolina	950102
371379501024	Block Group 4, Census Tract 9501.02, Pamlico County, North Carolina	950102
371379502011	Block Group 1, Census Tract 9502.01, Pamlico County, North Carolina	950201

PITT		
GEOID	Geo Name	Tract
371470009002	Block Group 2, Census Tract 9, Pitt County, North Carolina	000900
371470009003	Block Group 3, Census Tract 9, Pitt County, North Carolina	000900
371470020012	Block Group 2, Census Tract 20.01, Pitt County, North Carolina	002001
371470020013	Block Group 3, Census Tract 20.01, Pitt County, North Carolina	002001
371470020024	Block Group 4, Census Tract 20.02, Pitt County, North Carolina	002002
371470020025	Block Group 5, Census Tract 20.02, Pitt County, North Carolina	002002

TYRRELL		
GEOID	Geo Name	Tract
371779601002	Block Group 2, Census Tract 9601, Tyrrell County, North Carolina	960100
371779601003	Block Group 3, Census Tract 9601, Tyrrell County, North Carolina	960100

WASHINGTON		
GEOID	Geo Name	Tract
371879501005	Block Group 5, Census Tract 9501, Washington County, North Carolina	950100

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371879502001	Block Group 1, Census Tract 9502, Washington County, North Carolina	950200
371879502004	Block Group 4, Census Tract 9502, Washington County, North Carolina	950200
371879502005	Block Group 5, Census Tract 9502, Washington County, North Carolina	950200

Eligible Activity: Anticipated project types are described in Exhibit E. Soundness of Approach and fall within eligible activity types.

Proposal Incorporates Resilience: See Exhibit E. Soundness of Approach and Exhibit G. Long-Term Commitment.

National Objective: Projects are anticipated to meet the “Urgent Need” objective as outlined in section V.A.1.f of Appendix A of the NOFA.

Overall Benefit: It is anticipated that the final projects implemented with CDBG-NDR funds will sufficiently benefit low-to moderate income (LMI) persons to meet the national objective of benefit to LMI persons. As described in above in Most Impacted and Distressed Target Area, the target areas were qualified under the LMI category.

Tie-back: North Carolina understands that projects funded with CDBG-NDR funds must tie back to a qualifying disaster. See the description in the needs factor, below.

One application per Applicant: North Carolina certifies it is submitting only one application.

Certifications: See Attachment C. Certifications.

Exhibit C: Capacity

Applicant Name: State of North Carolina

File Name:

Factor 1: Phase I Capacity

Subfactor A: General Management Capacity

Implementing Agency

The State of North Carolina has selected the North Carolina Division of Emergency Management (NCEM) in the Department of Public Safety to be the implementing agency for the United States Department of Housing and Urban Development (HUD) National Disaster Resilience Competition (NDRC). NCEM will be the lead for all programmatic activities and brings extensive management capacity, including:

- Certification under the Emergency Management Accreditation Program,
- Designation by the Federal Emergency Management Agency (FEMA) as an approved Enhanced Hazard Mitigation Plan, and
- Significant experience and leadership in managing Stafford Act post-disaster recovery programs.

NCEM will partner with the NC Department of Commerce, who brings broad experience managing HUD-funded Community Development Block Grant (CDBG) programs, and, as the administrator of the Consolidated Plan, brings significant reporting and financial management capacity.

Management Capacity

NCEM has significant program experience in financial management for emergency management programs, including Stafford Act recovery programming. An audit by FEMA Region IV staff in October 2014 showed that the Public Assistance and Hazard Mitigation

programs were compliant and had best practices in their project and fiscal management of DR-1969 (April 2011 Tornadoes) and DR-4019 (Hurricane Irene).

NCEM's Risk Management section has a significant capacity in contracting for services including data collection and community-based project management. NCEM's Recovery Section brings years of experience in working with local units of government (Subgrantees) in dispersing and reimbursing funds for Stafford Act programs according to federally-compliant guidelines, including the four disasters eligible for the NDRC competition. The NC Department of Commerce brings significant capacity managing CDBG funds and fostering capacity building for local governments statewide. Together, NCEM and the Department of Commerce have the capability to quickly launch a compliant and effective model building either on local units of government or a contractor-based model.

Partnership Experience

NCEM has a broad array of experience working with coordinating partners including contractors for Risk Management data collection, local units of government for the administration of Stafford Act recovery and homeland security programs, and community stakeholders ranging from individuals to non-governmental organizations, to other state agencies. Weather and climate experts, universities, local planners, state agencies, and emergency management professionals comprise the State Hazard Mitigation Advisory Group, which is consulted annually to support the Enhanced State Mitigation Plan. NCEM also facilitates Recovery Support Functions around working groups including housing, agriculture, and environmental issues to form task forces and have dialogue under the NCEM's Recovery Support Function process both pre- and post- disaster. The NC Department of Commerce also

has significant experience in working with local units of government in executing CDBG programs statewide.

Application Writer

NCEM's Recovery Staff in Hazard Mitigation Grants and Risk Management have taken the lead in drafting this application. NCEM's Risk Management Section has retained Dewberry to assist with content development and provide subject matter expertise.. Dewberry has participated in NDRC Executive Committee meetings and participated with NCEM staff as an integrated team at the Southeast Resilience Academy December 17-19, 2014.

Collectively, this team has over 50 years of experience in community planning, community development, and disaster recovery programs. All team members will continue engaging in the NDRC process going forward, including webinar participation, interfacing with Subject Matter Experts via the Academy, and developing the Phase II application.

Subfactor B: Cross-disciplinary Technical Capacity

Partner Capacity

North Carolina's NDRC proposal draws on a wide array of partners and potential partners leveraged through existing mechanisms including the State Emergency Response Commission, State Recovery Framework, and State Hazard Mitigation Advisory Committee. These partners possess significant capacity as State Agencies, local units of government, non- profit organizations, federal agencies, and community partnerships.

Table 1: Partner Descriptions				
Partner/Expertise	Residential Resilience	Infra-structure Resilience	Green Infra-structure	Economic Resilience
<p>North Carolina Emergency Management</p> <ul style="list-style-type: none"> • Emergency Management • Recovery and Mitigation Programming • Grants Management • Risk Management • Data Analysis • Local Capacity Building • Financial Management 	✓	✓		
<p>NC Department of Commerce, Division of Community Assistance</p> <ul style="list-style-type: none"> • CDBG Administration • Economic Development • Program Administration • Community Development 	✓	✓	✓	
<p>Economic Development Partnership of North Carolina</p> <ul style="list-style-type: none"> • Economic Development 		✓	✓	
<p>North Carolina Housing Finance Agency</p> <ul style="list-style-type: none"> • Housing 	✓			

<p>NC Department of Health and Human Services, Division of Mental Health, Development Disabilities, and Substance Abuse Services</p> <ul style="list-style-type: none"> • Housing • Social Services 	✓			
<p>NC Department of Health and Human Services, Division of Vocational Rehabilitation Services</p> <ul style="list-style-type: none"> • Social Services • Economic Resilience 	✓			
<p>NC Department of Health and Human Services, Division of Aging and Adult Services</p> <ul style="list-style-type: none"> • Social Services 	✓			
<p>North Carolina Division of Coastal Zone Management</p> <ul style="list-style-type: none"> • Coastal Management 		✓	✓	
<p>NC Military Affairs Commission</p> <ul style="list-style-type: none"> • Military Relations 	✓	✓		
<p>NC Department of Transportation</p>		✓	✓	

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<ul style="list-style-type: none"> • Transportation 				
<p>NC Department of Environment and Natural Resources (DENR), Division of Water Quality (DWQ)</p> <ul style="list-style-type: none"> • Environment and Natural Resources 		✓	✓	
<p>NC DENR, Division of Land Resources (Dam Safety Program)</p> <ul style="list-style-type: none"> • Dam Safety 		✓		
<p>NC DENR, Division of Water Resources, Public Water Supply Section</p> <ul style="list-style-type: none"> • Water Quality 		✓		
<p>NC Department of Commerce, State Energy Office (SEO)</p> <ul style="list-style-type: none"> • Resilient Energy Programming 				
<p>NC Department of Commerce, Utilities Commission</p> <ul style="list-style-type: none"> • Utilities 				
<p>NC DENR, Division of Energy, Land and Mineral Resources, Energy Assurance Program</p> <ul style="list-style-type: none"> • Energy Resources 				
<p>NC Electric Membership Corporation</p>				

<ul style="list-style-type: none">• Electrical Coops				
NC Department of Agriculture, Motor Fuels Section <ul style="list-style-type: none">• Available Fuels				
NC Department of Administration <ul style="list-style-type: none">• Insurance				
North Carolina National Guard <ul style="list-style-type: none">• Military Affairs				

Cross-Disciplinary Experience

NCEM has established a standing NDRC Executive Committee, which includes participation from NCEM and NC Department of Commerce program staff. The Executive Committee will work at regular intervals throughout Phase I and Phase II development and implementation to ensure coordination with relevant partners. Committee staff experience includes community planning, hazard mitigation, recovery, engineering, data analytics, and grants management.

NCEM has experience in achieving project goals through multi-disciplinary work, including:

- the State Hazard Mitigation Advisory Committee, which provides input on State Hazard Mitigation planning activities statewide, and includes input from academia such as the Community College system, North Carolina State University, and the University of North Carolina system;
- NCEM's facilitation of Recovery Support Function groups via the State Recovery Framework; and
- Standing committees including the State Emergency Response Commission and Risk Management Coordinating Council.

Comprehensive Planning Experience

NCEM and its partners are skilled with area-wide and comprehensive planning. The Division's certification in the Emergency Management Accreditation Program ensures that plans such as the Enhanced Mitigation Plan, Emergency Operations Plan, State Recovery Framework and other plans are compatible and coordinated with each other. Each of these plans is statewide in focus. In addition, NCEM assists communities throughout North Carolina with development of local and regional planning efforts (e.g., hazard mitigation plans, emergency operations plans) through [describe technical assistance].

Complex Program Experience

NCEM has significant experience in managing large, complex programs. Its Hazard Mitigation Grants program has acquired over 8,000 structures and elevated another 800 statewide since 1996, and manages approximately \$70 million in federal funds annually across all phases of the grants management life cycle. Major recent disasters such as the April 2011 tornadoes and Hurricane Irene (2011) were major Stafford Act disasters. Public Assistance and Hazard Mitigation programs passed a FEMA Region IV site visit in October 2014 with no deficiencies and operational best practices noted.

The Risk Management Section of NCEM oversees a comprehensive floodplain mapping program, as well as a world class risk data management program that contains state-wide imagery and topography, and all building footprints of 800 square feet or larger in the state. Other states including Virginia and Alabama have been incorporated into North Carolina's world class Flood Risk Information System. Risk Management has also undertaken a bold sea level rise analysis project for vulnerable coastal communities, and has updated storm surge modeling for coastal North Carolina.

Relevant Capacity

NCEM has managed several affordable housing programs since Hurricane Floyd in 1999 and Hurricanes Frances and Ivan in 2004. In addition, NCEM's Risk Management Section has powerful data analytics that integrate risk and vulnerability data and analysis into its flagship iRISK multi-hazard Geographic Information System for the state and local communities. NCEM also fosters community engagement by working with Subgrantee/local units of government in their implementation of Stafford Act and homeland security programs, as well as Recovery Planning and Mitigation Planning efforts.

NCEM has used both a Grantee-Subgrantee grants management model (i.e. funds are administered to eligible local units of government), as well as a Grantee-Grantee model (i.e., NCEM serves as Grantee and Subgrantee and uses pre-qualified engineering and planning contractors to execute projects, including floodplain mapping and First Floor Elevation documentation). Two of these standing contractors, have written Resilient Construction manuals for FEMA. NCEM's Hazard Mitigation Grants Branch has Environmental and Historic Preservation (EHP) dedicated staff, who have worked with state and federal partners to ensure environmental compliance of over 400 structures submitted for Unified Hazard Mitigation Assistance funding since 2011.

Add NC Commerce Information here.

Science-based Risk Identification and Assessment

NCEM has a flagship, science-based approach to addressing present and long-term hazards through its multi-hazard iRISK Geographic Information System that provides multi-scale risk and vulnerability analysis for all areas of the state. iRISK integrates short-term hazard information, such as flooding, and is in the process of including longer-term hazards that episodically impact the state, such as drought. Vulnerability and hazard data analysis assesses financial and structural impacts using damage curves developed by the US Army Corps of Engineers. This structure-based risk can be assessed for each natural hazard that occurs in North Carolina. iRISK also includes a long-term Sea Level Rise component, which can provide structure, neighborhood, county, and regional assessments of potential inundation based on long term changes to climate.

Civil Rights and Fair Housing Issues

Add NC Commerce Information here.

Design Quality

At a program level, NCEM has engineers on staff in its Risk Management section, and has also contracted with engineers who can ensure design quality (e.g., these engineering firms have written FEMA Resilient Construction manuals, participate in industry committees and participated in the Rebuild by Design competition). As part of its collaboration and outreach strategy, NCEM is in collaboration with universities who focus on disaster-resilient construction, possibly to include the North Carolina Sea Grant program. NCEM also provides design guidelines to communities to foster wiser and more resilient floodplain management practices.

Capacity Retention

By establishing a broad array of partnerships, NCEM will create backfill capacity and redundancy in the event that a partner drops out. Some umbrella entities such as agencies under the Recovery Framework and Risk Management Coordinating Council have multiple partners to ensure adequate collaboration and capacity. Refer to the partnership matrix in Section X.

Cost Reasonableness and Effectiveness

NCEM's Recovery Section/Hazard Mitigation (HM) Grants Branch and Risk Management Section bring significant capacity in the arena of Benefit Cost Analysis (BCA). Since 2011, the HM Grants Branch has run detailed BCAs for hundreds of properties statewide with FEMA software to assess long-term risk to structures from riverine and coastal flooding, using both hydrological analysis and statistical reoccurrence models. More complex BCA has also been completed by NCEM for tornado safe rooms, wind shutter, and stormwater management projects. NCEM's contractors (AECOM/URS, Dewberry) have significant experience with

FEMA BCA software, having led development of the underlying methodology and managed FEMA's BCA helpline for more than 5 years. In addition, Dewberry developed the Federal Transit Administration's Hazard Mitigation Cost Effectiveness tool, which incorporated impacts of sea level rise on future effectiveness of projects. The tool was used to assess the cost effectiveness of more than \$3B resilience projects funded after Hurricane Sandy.

NCEMs' Flood Risk Information System GIS tool has a built-in benefit cost analysis tool called "Return on Investment" that will be utilized to help pre-screen structures and infrastructure projects to be potentially pursued in Phase II. This capacity (Return on Investment and FEMA Benefit Cost Analysis methodology) will be a centerpiece of pre-screening and determining a cost effective/ reasonableness for funded projects.

Add NC Commerce Information here.

Subfactor C: Community Engagement Capacity

Stakeholder Engagement

NCEM and its partners will leverage community engagement mechanisms and capacities already developed through:

- Recovery and Mitigation post-disaster and non-disaster program outreach;
- CDBG outreach efforts;
- National Flood Insurance Program outreach efforts;
- Local and regional mitigation planning; and
- Recovery planning.

Outreach is underway, utilizing NCEM area field staff, local emergency managers, planners, and floodplain administrators, engaging community stakeholders and local government leaders in the

proposed project area. Dialogue is underway to review with these stakeholders the risk and vulnerability set forth by the Enhanced State Mitigation Plan and local/regional Hazard Mitigation Plans to current hazards and long term hazard/climate risks. There is a sense of existing resilience needs, as approximately 700 structures in the project area were submitted for mitigation grant funding under DR-1969 and DR-4019, but their vulnerabilities have yet to be effectively addressed due to funding limitations or FEMA benefit cost analysis policies at the time of each disaster. Unmet Recovery Needs are being reviewed especially closely because more than three years have passed since these two disaster events occurred that cover the current project area. Feedback from community leaders and stakeholders continues to refine the Phase I approach and will help to scope more concrete tactics for Phase II.

Community Leadership

Although community leadership is at the local level, NCEM's Stafford Act-funded recovery programs have a long history of engaging with local communities following a disaster, including the two qualifying events covered by this proposal: DR-1969 and DR-4019. Communities were engaged through processes including Town Hall meetings, Kick-off Meetings, and Applicant Briefings under the Public Assistance Program and public meetings regarding the Hazard Mitigation Grant Program (including a unique Mitigation Disaster Recovery Center set up in Pamlico County that worked with local leaders to screen and prequalify over 200 applicants for mitigation projects in DR-4019). NCEM's floodplain mapping Initial Scoping Meetings cover many community leaders in vulnerable areas, and mitigation planning processes and Recovery Support Function meetings are designed to integrate community leaders.

Diverse Stakeholder Coordination

NCEM's Public Assistance and Mitigation programs require significant stakeholder consultation to ensure harmony among environmental, historic, tribal, and community issues as well as potential long term plans of local units of government: the US Army Corps of Engineers, US Fish and Wildlife Service, and North Carolina Department of Transportation. As federal Grantees, NCEM and NC Commerce have experience with diverse stakeholder consultation required by NEPA and Section 106 (historic preservation). Any issues that arise are addressed in a holistic way to ensure that the project supports recovery and mitigation while ensuring that a process is in place to capture impacts from potentially impacted stakeholders.

Add NC Commerce Information here.

Subfactor D: Regional or Multi-Governmental Capacity

Regional Experience

NCEM fully supports regional approaches to a wide variety of emergency management and long-term recovery and resilience issues. NCEM's field staff is divided into 15 regions to ensure optimum coordination of response and recovery issues. Likewise, NCEM's Domestic Preparedness programs are also split into regions to ensure maximum leverage of existing resources. Since 2010, NCEM's Mitigation Planning has taken on a regional planning emphasis and, with the support of grant funding, much of the local units of government are now engaged in regional Hazard Mitigation Plan. During the post-disaster recovery process, actors such as neighboring counties, Councils of Government, and multiple levels of government are engaged through a "whole community" approach to Recovery service delivery.

Regional Resilience

The project areas described in this proposal—the sound, estuary, and coastal communities of eastern North Carolina—share common hazards. The 11 counties described as most impacted and distressed are covered in several hazard mitigation plans that operate at a watershed and/or regional level since the multitude of issues they face is similar. The configuration of eastern North Carolina into a small number of efficient regional Hazard Mitigation Plans is a best practice for NCEM and was cited as part of EMAP Certification in 2013. A regional solution is likely a very effective approach for this region given the commonalities—i.e. similar unemployment rates, housing stock issues, agricultural and maritime-based livelihoods. From an unmet recovery needs perspective, and because of the relatively sparse population distribution in the project area, a regional approach would allow distinct unmet recovery needs to be met in geographically separate areas.

Impact of Regional Approach on Vulnerable Population and Protected Classes

Through its experience of recovering from DR-1969 and DR-4019, as well as from Hurricane Floyd in 1999, NCEM and its partners recognize that the project area in this application face a complex tapestry of socio-economic issues, history, shocks, and stressors. Our experience proves a regional approach that supports local units of governments is an appropriate way to address class-related disparities and to support vulnerable populations. In many areas of Eastern North Carolina, elevation and retrofit of existing housing stock is an optimum choice over acquisition and buyout, as tax bases of poor local governments are impacted; and populations of historic communities can be “checker-boarded” or even depopulated over time.

Means of Project Implementation

While NCEM and the NC Department of Commerce will partner to share Grantee responsibilities for this project, an Executive Committee has been established to oversee input from state, regional, and local stakeholders. While NCEM will operate at the project level, educational institutions such as the University of North Carolina System, Community Colleges, and pre-existing relationships in the Recovery Support Functions, regional Mitigation Action Committees, and the State Emergency Response Commission will be leveraged to bring existing multiagency mechanisms into the proposed project.

Exhibit D: Need

Applicant Name: State of North Carolina

File Name:

Factor 2: Phase 1 Need/Extent of the Problem

Subfactor A: Unmet Needs

This proposal, titled NC Sound Approach, focuses on 11 communities in eastern North Carolina that are coastal, sound, coastal plain and estuary communities and were impacted by the April 2011 Tornadoes (DR-1969) and Hurricane Irene (DR-4019). This approach includes all of Dare County and Beaufort County, as well as certain census tracts within Tyrrell, Currituck, Bertie, Pitt, Greene, Washington, Pamlico, Craven, and Carteret Counties. These census tracts used HUD Low and Moderate Income (LMI) data to establish the most distressed characteristic, as well as HUD housing data to establish the most impacted characteristic. From there, most distressed and most impacted geographic areas were overlaid to form a composite most impacted and distressed geographic area, as depicted in yellow on the map below.

Details on MID in the project area are provided in DropBox at: “Low-Mod-Summary-NC Disaster Counties_11032014.xls” indicates all of declared counties affected by the Spring Storms of 2011 (DR-1969) and Hurricane Irene (DR-4019). Housing met the threshold for the “Most Impacted Characteristic”. The housing data were obtained from HUD’s Appendix C1 - Non-MIC Census Tracts with FEMA data on disaster related housing damage, see <http://www.huduser.org/portal/CDBGRDR/Disaster-AppendixC.pdf> .

For the “Distressed Characteristic” threshold, these declared counties had census tract(s) that met the more than 50% Low- and Moderate-Income household requirement. The low- to moderate- income data were extrapolated from the Low and Moderate National Data Set (Excel 17.8 MB) at the following website: <https://www.hudexchange.info/manage-a-program/acs-low-mod-summary-data-national> .

Attachment A was created by overlaying Appendix C1 with the data in the Low and Moderate National Data Set spreadsheet. The individual census tracts are also shown in Exhibit B in table format. Please note that Dare County was defined by HUD in its entirety to meet the Most Impacted and Distressed criteria.

To establish Phase I threshold tie-back areas, NCEM focused on working with impacted local governments to determine pockets of Unmet Recovery Needs (URN) based on the updated Appendix G of the NDRC NOFA, technical assistance from the HR&A, as well as updates to the HUD Frequently Asked Questions. NCEM strongly feels that there are threshold-eligible pockets of Unmet Recovery Needs within the MID geographic area. For Phase I threshold:

- 27 Irene-impacted structures with remaining unmet needs were identified by **Pamlico County** within the eligible census tracts. The Pamlico County Manager classified these within three groups of potential resilience measures: 1) elevation; 2) repair; 3) replacement.
- 2 Irene-impacted structures with unmet needs were identified in the eligible MID census tracts in **Tyrrell County**.
- **XX** Irene-impacted structures with unmet needs from Hurricane Irene have been identified in the MID areas of **Washington County** by Washington County Emergency Management, especially around the vulnerable low-lying communities of Creswell and Roper. **Add surveys/photos here.**
- **XX** Irene-impacted structures with unmet needs from Hurricane Irene have been identified by **Beaufort County** with unmet needs from Hurricane Irene have been identified in the MID areas of Beaufort County by Beaufort County Emergency

Management. Many of these residents are identified as elderly. [Add surveys/photos here.](#)

NCEM's Phase I Approach to Aggregation of Unmet Recovery Needs

Following a close review of the HUD's technical correction to the NDRC NOFA (Appendix G) on December 17, 2014, NCEM acknowledges that aggregation of Unmet Recovery Needs across MID areas is allowed, as was confirmed in an e-mail of technical assistance from HR&A to NCEM on January 29, 2015. This e-mail is saved in the NCEM NDRC "Threshold" DropBox folder. Accordingly, NCEM is proceeding under the guidance that Unmet Recovery Needs for Housing can be added across *all* identified MID areas.

NCEM's Phase I Approach to the Definition of Unmet Recovery Housing Needs

During its initial 45-day threshold review exercise, NCEM identified approximately 600 structures that were impacted by Hurricane Irene (DR-4019) and the April 2011 Tornadoes (DR-1969) in the 11 identified Counties that were impacted by one or both of these disasters, but have yet to be made more resilient as part of the recovery process due to lack of eligibility (for Benefit-Cost Analysis) under the FEMA Hazard Mitigation Grant Program. During its initial threshold review, HUD stated that the Hazard Mitigation Grant Program "is a mitigation program and, taken alone, does not establish a connection to unmet needs from the Qualified Disaster." After further analysis, it is estimated that there are at least 150-250 structures that were impacted by Irene that did not qualify for the HMGP in the MID areas of these 11 Counties.

For this Phase I threshold response, NCEM focused on Appendix G's criteria of "twenty or more households displaced by the disaster or twenty homes still damaged by the disaster." These represent the data collection efforts described above.

However, NCEM is also in receipt of the clarification from HUD issued on January 29, 2015 that states that "HUD has determined that generally, designing a project that improves resilience to the negative effects of climate change while meeting an Unmet Recovery Need is a necessary and reasonable cost of recovery," and furthermore, "if houses in the floodplain were damaged, then repaired to a pre-disaster condition, but not elevated, then the costs of elevation may be considered for threshold." [FAQ 159]. Such a clarification has potential to greatly increase the number of tie-back areas in Phase II.

As such, Dare County in particular had a large number of structures that were impacted by Hurricane Irene, but have yet to be made more resilient for elevation through either: 1) the Hazard Mitigation Grant Program; 2) National Flood Insurance Program/Increased Cost of Compliance; 3) Private funds; 4) Support from non-governmental organizations. Dare County has **XX** structures that may meet this specific threshold definition. [\[Link to DropBox\]](#)

Unmet Needs Narrative

North Carolina experienced four qualifying disasters (i.e., DR-1969, DR-4019, DR-4146, and DR-4153) but only the geographic areas relating to DR-1969 and DR-4019 have met the threshold requirements in our analysis based on currently available data. However, our consultation with all areas impacted by all four disasters is ongoing. If further analysis merits the geographic expansion of this project, we will consider this during Phase II.

The geographic area described in NC Sound Approach has unique historical tradition of agricultural and maritime livelihoods, and represents a diverse demographic mix: the traditional African American and Caucasian communities are adding Hispanic and Vietnamese populations that are vital to local farming and fishing industries. Dare County, in particular, relies on a booming summer tourist population. Military installations, local governments, schools, and hospitals are major employers for Elizabeth City, Havelock, Onslow County, and Dare County. The sound areas between the barrier islands of the outer banks and the Coastal Plain comprise the largest estuary ecosystem in the world. The region is vulnerable to ongoing stressors of high unemployment and a shortage of durable and resilient housing stock (both owner-occupied and rental). Extreme weather such as hurricanes, coastal storms, droughts, fires, riverine, and coastal flooding are shocks that can have resounding impacts throughout the region.

Riverine flooding associated with Hurricane Floyd inundated enormous swaths of the project area in 1999. The resulting Stafford Act recovery programs and state-funded disaster housing initiatives resulted in thousands of buyouts and elevation projects, and initiatives to provide stick-built, safe, and sanitary housing for the unique and vulnerable region.

In 2011, severe tornadoes and Hurricane Irene re-tested the region with severe events. In 2011, the 11 counties identified in this application suffered major housing impacts due to the severe tornado outbreak that struck on April 16 and especially Hurricane Irene, which impacted the eastern and central part of the state during August 27-28. Although Irene made landfall in North Carolina as a Category 1 hurricane, its size and trajectory through North Carolina's sounds and estuary communities caused a tremendous storm surge event stretching from Carteret County in the south, through the sound-side areas of Dare County to the north.

Dramatic sound-side flooding reported by some communities as a “tsunami of storm surge” caused impacts far in excess of the 100-year flood event in communities including Pamlico, Dare, Tyrrell, and Beaufort. For the first time since Hurricane Floyd, the sound-side communities in eastern North Carolina faced significant housing issues, as thousands of homes were severely damaged by Irene’s surge.

FEMA’s Stafford Act recovery programs—Public Assistance, Individual Assistance, and Hazard Mitigation—were fully engaged in the aftermath of Irene’s landfall. Over 7,900 families in the impact zone received Individual Assistance support. Over 160 temporary housing units were used to support those displaced in Hyde, Dare, Beaufort, Carteret, and Pamlico Counties.

In addition, approximately 840 structures were submitted by local governments to NCEM for potential mitigation assistance—i.e. acquisition and demolition or elevation—under the Hazard Mitigation Grant Program. Ultimately, 180 structures qualified for mitigation under HMGP due to FEMA’s eligibility criteria at the time of application. These 180 properties comprise the bulk of HMGP 1969 (April 2011 Tornadoes) and HMGP 4019 (Hurricane Irene) Mitigation funding—and represent a major project effort in the Irene-impacted sound side communities to this day. Over 120 properties are being mitigated in Pamlico County alone; an effort that will make the County and its residents significantly more resilient for future storm events and long-term coastal hazards.

NC Sound Approach seeks to address unmet recovery needs from those disasters while promoting innovative resilience measures as the region faces new risks in the coming years.

Subfactor B: Most Impacted and Distressed

While much emphasis is being placed on the minimum required geography of overlapping Most Impacted and Distressed and Unmet Recovery Needs to establish eligibility, the

implications of this proposal is significantly larger. While North Carolina hasn't successfully quantified unmet recovery needs three years following the qualifying disasters, the needs are still prevalent and dire for those experiencing them. An innovative approach to resilience covers the entire region—i.e. all 11 counties in this proposal as well as neighboring counties, and even Eastern North Carolina as a whole, and all communities surrounding the estuary ecosystem who share characteristics described above.

Subfactor C: Response to Questions

Targeted Threats, Hazards and Vulnerabilities

NC Sound Approach focuses primarily on addressing the threats of hurricanes and coastal storms (nor'easters) that can bring significant shocks to the project area. Hurricanes and nor'easters can bring impacts such as riverine and coastal flooding, storm surge, severe winds, and tornado events. NC Sound Approach also considers tornado outbreak vulnerability, which can impact the coastal plain, sound communities, and coastal areas of North Carolina. In addition, drought and severe winter weather, including ice storms, are also threats that can occur on a frequent basis.

Identification Methodology

The threats, hazards, and vulnerabilities identified above were primarily identified from the Enhanced State Hazard Mitigation Plan (adopted in 2014), which drew its analysis from National Oceanic and Atmospheric Administration (NOAA) National Climate Data Center information; risk and vulnerability software including North Carolina's iRISK platform and HAZAUS; the National Weather Service; and post-disaster Preliminary Damage Assessments conducted in the project area following recent disasters. The hazards in the Enhanced State Mitigation Plan (and this proposal) are also the foundation of the risk assessment for the State of North Carolina's

Emergency Management Accreditation Program (EMAP). Risk and vulnerability were also assessed by cross-referencing the regional and multi-jurisdictional hazard mitigation plans in the project area.

Best Available Data Sources

These data sources are considered the best available in the geographic area as they include:

- Official FEMA Individual Assistance from the two relevant disasters of record;
- Building footprints, flood damage curves, and parcel data that is annually collected and conflated to the building);
- Updated risk and vulnerability data from local, regional, and state hazard mitigation planning processes per the FEMA-required five year planning life cycle; and
- Data from community-based efforts including flood hazard mapping outreach.

Affected Populations and Infrastructure

Future Risk & Known Unknowns

North Carolina is aware that the DR-1969 tornado outbreak took place within the context of larger tornado outbreaks in the Southeast US during 2011—the strongest La Nina in recorded history. La Nina episodes have been connected to regional tornado outbreaks in climatological research. Likewise, Hurricane Irene’s landfall and track across the Pamlico Sound brought with it an anomalously strong minimum central pressure (952 milibars, generally associated major Category 3 hurricane) for a Category 1 hurricane. The unique meteorological context and destructiveness of these two events are possible analogues for severe weather episodes throughout the project area in the coming decades.

In addition, the storm surge that caused devastation of residential housing communities in the sound and estuary communities inundated the 500 year floodplain in areas such as Pamlico and Beaufort counties. Looking forward, North Carolina’s Sea Level Rise inundation study, part of its iRISK tool, correlates the extent of future sea level rise inundation to the 500 floodplain, making Hurricane Irene a potentially extremely vital benchmark to analyze future conditions.

As described above, the sound and estuary communities are historically very diverse and rural, with significant socio-economic stressors including unemployment and lack of adequate (and resilient) owner-occupied and rental housing stock. Military installations, socials, hospitals and local governments, and traditional agriculture and maritime activities comprise the economic livelihood of most residents of the region. An increase in the “shocks” associated severe weather events and inundation episodes in the coming decades would put significant pressure on the fragile socio-economic and cultural fabric of the region.

Likelihood of Risk

Based on historical data alone, per the Enhanced State Mitigation Plan, the risks of future hurricanes, flood events, and tornadoes are serious and have occurred with regularity in the project area based on the following tables:

Eastern North Carolina Declared Flooding Disasters Since 1977		
EVENT	LOCATION	DAMAGES
Hurricane Diana (09/1984)	Coast	\$67,000,000
Hurricane Gloria (09/1985)	Coast	\$8,500,413
Hurricane Emily (08/1993)	Dare County	\$12,500,000
Hurricane Bonnie (08/1998)	Eastern North Carolina	\$22,000,000
Hurricane Dennis (08/1999)	Eastern North Carolina	\$10,000,000

INITIAL DRAFT FOR PUBLIC COMMENT

Hurricane Floyd (09/1999)	Mid/East North Carolina	\$3,403,839,436
Hurricane Isabel (09/2003)	Mid/East North Carolina	\$372,500,000
Hurricane Ophelia (10/2005)	Coastal North Carolina	\$70,000,000
Tropical Storm Hanna (10/8/08)	Beaufort, Brunswick, New Hanover and Person Counties	\$10,000,000
Tropical Storm Nicole (10/14/10)	Eastern North Carolina	\$5,431,477 (IA only)
Hurricane Irene (8/31/11)	Eastern and Central North Carolina	\$115,431,919 (IA and PA)

Table X. NORTH CAROLINA DETAILED HURRICANE HISTORY (1993-2012)				
Event	Duration	Location	Severity	Extent of Damages
Hurricane Emily	08/31/1993	Hyde, Carteret	Injuries: 1	Property: \$50 million
Hurricane Gordon	11/17/1994	Carteret, Currituck, Dare, Hyde		Property: \$500,000
Hurricane Felix	08/15/1995	Carteret, Currituck, Dare, Hyde, Onslow, Pamlico	Fatalities: 1	Property: \$500,000 Crops: \$500,000

Table X. NORTH CAROLINA DETAILED HURRICANE HISTORY (1993-2012)				
Event	Duration	Location	Severity	Extent of Damages
Hurricane Bertha	07/12/1996	Alamance, Anson, Bertie, Beaufort, Brunswick, Camden, Carteret, Chatham, Chowan, Craven, Cumberland, Currituck, Dare, Davidson, Duplin, Durham, Edgecombe, Forsyth, Franklin, Gates, Granville, Greene, Guilford, Halifax, Harnett, Hertford, Hoke, Hyde, Johnston, Jones, Lee, Lenoir, Martin, Montgomery, Moore, Nash, New Hanover, Northampton, Onslow, Orange, Pamlico, Pasquotank, Pender, Perquimans, Person, Pitt, Randolph, Richmond, Sampson, Scotland, Stanly, Tyrrell, Vance, Wake, Warren, Washington, Wayne, Wilson	Fatalities: 1 Injuries: 10	Property: \$167.5 million Crops: \$144.5 million

Table X. NORTH CAROLINA DETAILED HURRICANE HISTORY (1993-2012)				
Event	Duration	Location	Severity	Extent of Damages
Hurricane Edouard	08/29/1996	Carteret, Dare		

Table X. NORTH CAROLINA DETAILED HURRICANE HISTORY (1993-2012)				
Event	Duration	Location	Severity	Extent of Damages
Hurricane Fran	09/04/1996– 09/05/1996	Alamance, Anson, Beaufort, Bertie, Brunswick, Camden, Carteret, Chatham, Chowan, Craven, Cumberland, Currituck, Dare, Davidson, Duplin, Durham, Edgecombe, Forsyth, Franklin, Gates, Granville, Greene, Guilford, Halifax, Harnett, Hertford, Hoke, Hyde, Johnston, Jones, Lee, Lenoir, Martin, Montgomery, Moore, Nash, New Hanover, Northampton, Onslow, Orange, Pamlico, Pasquotank, Pender, Perquimans, Person, Pitt, Randolph, Richmond, Sampson, Scotland, Stanly, Tyrrell, Vance, Wake, Warren, Washington, Wayne, Wilson	Fatalities: 13 Injuries: 6	Property: \$1.2 billion Crops: \$49 million

Table X. NORTH CAROLINA DETAILED HURRICANE HISTORY (1993-2012)				
Event	Duration	Location	Severity	Extent of Damages
Hurricane Bonnie	08/26/1998– 08/28/1998	Beaufort, Bertie, Brunswick, Camden, Carteret, Chowan, Craven, Cumberland, Currituck, Dare, Duplin, Edgecombe, Franklin, Greene, Harnett, Hoke, Hyde, Johnston, Jones, Lenoir, Martin, Nash, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Pitt, Sampson, Tyrrell, Wake, Washington, Wayne, Wilson	Fatalities: 1	Property: \$92 million Crops: \$237.1 million

Table X. NORTH CAROLINA DETAILED HURRICANE HISTORY (1993-2012)				
Event	Duration	Location	Severity	Extent of Damages
Hurricane Dennis	08/30/1999– 09/04/1999	Alamance, Anson, Beaufort, Bertie, Brunswick, Camden, Carteret, Chatham, Chowan, Craven, Cumberland, Currituck, Dare, Davidson, Duplin, Durham, Edgecombe, Forsyth, Franklin, Granville, Greene, Guilford, Halifax, Harnett, Hoke, Hyde, Johnston, Jones, Lee, Lenoir, Martin, Montgomery, Moore, Nash, New Hanover, Onslow, Orange, Pamlico, Pasquotank, Pender, Perquimans, Person, Pitt, Randolph, Richmond, Sampson, Scotland, Stanly, Tyrrell, Vance, Wake, Warren, Washington, Wayne, Wilson		Property: \$110,000 Crops: \$3 million

Table X. NORTH CAROLINA DETAILED HURRICANE HISTORY (1993-2012)				
Event	Duration	Location	Severity	Extent of Damages
Hurricane Floyd	09/14/1999– 09/15/1999	Alamance, Anson, Beaufort, Bertie, Brunswick, Camden, Carteret, Chatham, Chowan, Craven, Cumberland, Currituck, Dare, Davidson, Duplin, Durham, Edgecombe, Franklin, Granville, Greene, Guilford, Halifax, Harnett, Hoke, Hyde, Johnston, Jones, Lee, Lenoir, Martin, Montgomery, Moore, Nash, New Hanover, Onslow, Orange, Pamlico, Pasquotank, Pender, Perquimans, Person, Pitt, Randolph, Richmond, Sampson, Scotland, Stanly, Tyrrell, Vance, Wake, Warren, Washington, Wayne, Wilson	Fatalities: 13	Property: \$3.5 billion Crops: \$981 million

Table X. NORTH CAROLINA DETAILED HURRICANE HISTORY (1993-2012)				
Event	Duration	Location	Severity	Extent of Damages
Hurricane Irene	10/16/1999– 10/17/1999	Beaufort, Bertie, Camden, Carteret, Chowan, Craven, Currituck, Hyde, Onslow, Pamlico, Pasquotank, Perquimans	Fatalities: 1	Property: \$31,000
Hurricane Isabel	09/17/2003– 09/18/2003	Beaufort, Bertie, Camden, Carteret, Chowan, Craven, Cumberland, Currituck, Dare, Duplin, Durham, Edgecombe, Franklin, Gates, Granville, Greene, Halifax, Hertford, Hyde, Jones, Lenoir, Martin, Nash, Northampton, Onslow, Pamlico, Pasquotank, Perquimans, Person, Pitt, Tyrrell, Vance, Wake, Warren, Washington, Wayne, Wilson	Fatalities: 2	Property: \$463.7 million Crops: \$14.3 million

Table X. NORTH CAROLINA DETAILED HURRICANE HISTORY (1993-2012)				
Event	Duration	Location	Severity	Extent of Damages
Hurricane Alex	08/03/2004	Beaufort, Carteret, Craven, Dare, Hyde, Onslow, Pamlico, Tyrrell, Washington		Property: \$7.6 million
Hurricane Charley	08/14/2004	Beaufort, Bladen, Brunswick, Carteret, Columbus, Craven, Dare, Duplin, Greene, Hyde, Jones, Lenoir, Martin, New Hanover, Onslow, Pamlico, Pender, Pitt, Tyrrell, Washington	Injuries: 3	Property: \$17 million Crops: \$5.4 million
Hurricane Ophelia	09/13/2005– 09/14/2005	Beaufort, Brunswick, Carteret, Craven, Dare, Duplin, Greene, Hyde, Jones, Lenoir, Martin, New Hanover, Onslow, Pamlico, Pender, Pitt, Tyrrell, Washington	Injuries: 5	Property: \$50.5 million Crops: \$11.5 million

Table X. NORTH CAROLINA DETAILED HURRICANE HISTORY (1993-2012)				
Event	Duration	Location	Severity	Extent of Damages
Hurricane Earl	9/01/2010	Beaufort, Bertie, Brunswick, Camden, Carteret, Chowan, Columbus, Craven, Currituck, Dare, Duplin, Edgecombe, Gates, Greene, Halifax, Hertford, Hyde, Jones, Lenoir, Martin, New Hanover, Northampton, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Pitt, Tyrrell, and Washington .	Fatalities: 0 Injuries: 0	Property: \$380,000 Crops: \$2.58 million

Table X. NORTH CAROLINA DETAILED HURRICANE HISTORY (1993-2012)				
Event	Duration	Location	Severity	Extent of Damages
Hurricane Irene	8/27/2011 – 8/28/2011	Beaufort, Bertie, Bladen, Brunswick, Camden, Carteret, Chowan, Columbus, Craven, Currituck, Dare, Duplin, Edgecombe, Gates, Greene, Halifax, Hertford, Hyde, Johnston, Jones, Lenoir, Martin, Nash, New Hanover, Northampton, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Pitt, Sampson, Tyrrell, Vance, Warren, Washington, Wayne, and Wilson.	Fatalities: 6 Injuries: 0	Property: \$237.2 million Crops: \$38.00 million

Table X. TORNADO HISTORY SUMMARY BY COUNTY

County	Number of events (1950-2011)	Magnitude (Fujita Scale)						Max F Scale	Fatalities	Injuries	Damage
		F0	F1	F2	F3	F4	F5				
Beaufort	22	6	8	8				2	1	25	\$6,834,000
Bertie	21	5	8	4	5			3	18	92	\$2,529,277
Carteret	54	33	16	5				2		8	\$8,510,000
Craven	28	17	7	3	1			3		48	\$8,045,000
Currituck	7	4	3					1		2	\$315,000
Dare	33	17	11	4	1			3	1	19	\$5,196,000
Greene	12	5	3	1	2	1		4	7		\$56,727,000
Pamlico	14	9	2	2	1			3	1	45	\$5,777,000
Pitt	25	12	9	2	1	1		4	9	164	\$29,184,000
Tyrrell	13	4	6	3				2		3	\$1,545,000
Washington	9	4	2	3				2		6	\$950,000

Per the risk and vulnerability maps from the State’s Enhanced Hazard Mitigation Plan (found in Exhibit E), ongoing future risk from natural hazards is relatively high. These maps indicate that, relative to other parts of North Carolina, the project area has relatively higher risks for flooding inundation in the 100 year floodplain, hurricane winds, hurricane-caused storm surge, nor’easter storm surge, and tornadoes.

Insurance Extent

The lack of insurance or underinsurance in eastern North Carolina stems from two issues: 1) a lack of understanding by the residents on why it is important and how to purchase it; and 2) an inability to pay insurance premiums due to lack of resources (i.e. limited income is spent on necessities such as housing and food).

Add NC Commerce Information here.

One Bite Rule Extent and Impact

Add NC Commerce Information here.

As noted in previous section, there are many eastern North Carolina residents who are vulnerable to flooding but have not maintained flood insurance, limiting their eligibility for participation in FEMA mitigation programs, such as the Flood Mitigation Assistance (FMA) program.

Insurance Purchase Factors

Much of the population of the project area can be categorized as low income and impoverished. Day-to-day survival, health insurance, and childcare are prevalent needs throughout the project area. Participating in FEMA's Community Rating System (CRS) can be a boon to the population, but local government's capacity to administrate this relatively complex program is limited. Until CRS as a program becomes more streamlined, it will be challenging for many local governments in the project area to improve their CRS rating and pass the resulting insurance premium reduction benefits to the local population.

Relationship of Vulnerabilities and Unmet Needs

The quantity, quality, and resilience of the current residential and housing stock is an issue for the impacted area. As shown by fieldwork conducted by NCEM in January 2015, even three

years after the impact of Hurricane Irene, there are still homes in need of repair. As part of project scoping for this application, NCEM Hazard Mitigation staff visited Tyrrell County in October 2014, and discovered a pocket of homes not only still needing repair, but who have suffered repeated flooding (including from Hurricane Arthur in 2014). These flood events caused undue social and economic hardship on the neighborhood. A durable and resilient solution for these impacted residents—who are participants in the agricultural, service, and maritime economy—would have broader implications for local governance, as neighborhoods could be revitalized rather than fall into further dilapidation or depopulation.

Unmet repair needs from electrical cooperatives in the project area, particularly Dare County, could be addressed in a way to greatly enhance local resilience and support both infrastructure restoration and economic revitalization following the impact of a future disaster. NCEM has experience with similar efforts in the barrier islands of Brunswick County to bury power lines underground—a solution that exponentially promoted resilience. This will be further developed as this unmet recovery need is explored in further detail as Phase II programming is scoped and an unmet recovery need tie-back area is identified.

Relationship of Vulnerabilities and Recovery and Revitalization

The April 2011 tornadoes and Hurricane Irene had severe impacts for the project area outlined in this application. NC Sound Approach is an innovative effort to support long-term recovery and revitalize local communities through a four-pronged strategy:

1. The provision of **residential and rental housing stock** that supports recovery from DR-1969 and DR-4019, but also provides a resilient design-oriented solution that enhances the well-being of the impacted resident as well as the integrity of neighborhoods and the communities at large.

2. Fostering **resilient infrastructure** solutions that minimize downtime of key services following disaster impacts.
3. Encouraging **resilient environmental approaches** that address lingering issues from DR-4019 that directly impact the fragile estuary ecosystem that is the lifeblood of the local economy and a national and even global treasure.
4. Stimulating **resilient job creation** to not only support the local economies that suffered during the qualifying disasters covered in this application, but also integrate in a sustainable way into the local culture, economy, and environment. Fostering eco-tourism may be a resilient and sustainable approach to capitalizing on the sound and estuary environments while promoting economic growth in a scalable and resilient manner.

These four program areas will not only help DR-1969 and DR-4019 impacted communities to continue their long-term recovery, but they will foster forward-leaning solutions that embrace the unique historic agricultural and maritime communities that are part of the largest estuary ecosystem in the world.

Disproportionate Effects

The risks outlined in this proposal have pronounced disproportionate impacts on many population groups. NCEM conducted recovery and mitigation fieldwork in the aftermath of both DR-1969 and DR-4019 which indicated that low income, African American households especially experienced hardship. Low and moderate income families also experienced significant strain—including those who had been displaced into FEMA Temporary Housing Units following Hurricane Irene. Also, the elderly and special needs populations have been documented as facing disproportionate effects of flooding and wind damage; and family members and community leaders have often been their advocates. Additionally, the growing Hispanic and Vietnamese

populations in the area also face disproportionate affects as there is limited bilingual/bicultural capacity throughout the project area.

Benefit to Access and Functional Needs Populations

Add NC Commerce Information here on protected classes.

The identified risks significantly and disproportionately affect those with accessibility challenges. For example, during NCEM fieldwork in Tyrrell County, NCEM and Tyrrell County officials met with elderly residents who experienced damage and had access issues because of repetitive flooding from DR-4019. Local officials indicated to NCEM that if Hurricane Arthur (which crossed the Sound area on July 3-4, 2014) had been slightly stronger, a crippling Irene-level event would have occurred. Many residents with accessibility challenges would have needed to be evacuated from their previously-damaged, low-lying, and vulnerable structures. The resilient residential program area of the NC Sound Approach envisioned includes an emphasis on retrofitting existing housing stock and/or building new housing stock that is affordable and incorporates universal design elements that would support those with accessibility challenges to live independently.

Other potential solutions will also be designed to benefit those with functional needs. Any solution that is designed as part of Phase II activities will take into account North Carolina's Coastal Resource and Evacuation Shelter (CRES) plan, which includes the transport of special/functional needs individuals to special needs shelters in interior coastal plain and central North Carolina counties.

Importance of Risk Reduction to Community

There is tremendous opportunity to enhance disaster recovery from DR-1969 and DR-4019, catalyze economic vitalization, and foster resiliency to current and future risk. All four program

areas above are framed to tie-back to the tactical solution of the recovery needs “left behind” from these two qualifying disasters, while looking forward to enhancing the resilience and socio-economic well-being of a historic and environmentally unique environment. As an indicator of the “risk” left on the table in the wake of both disasters, nearly 700 impacted residences were submitted to NCEM for potential mitigation, but were unable to be made more resilient due to legacy benefit cost analysis policy and/or funding issues. While mitigation itself does not constitute an unmet recovery need, this figure is an indication of the magnitude of the vulnerability still left behind from both disasters.

Addressing the risk related to this vulnerability is vitally important to the State of North Carolina, the long-term economic recovery of the impacted communities, and the sound and estuary region as a whole. Failure to pursue an innovative approach to recovery and resilience will result in a decreased ability of the region to recover from the shocks of future extreme weather. Stressors such as unemployment and lack of adequate housing stock will continue to erode the well-being and sustainability of the region. The importance of reducing risk in these areas is also prominently featured in the State’s Enhanced Hazard Mitigation Plan.

Existing Conditions

The post-2008 economic downturn caused the high unemployment/underemployment stressor to increase. The impact of the burst of the “housing bubble” is evident in the Hazard Mitigation acquisition projects in the area, where in many cases current fair market value must be weighed carefully against pre-disaster fair market value, and finding a durable solution to many homeowners is challenging. The economic stressors brought about by the housing bubble also forced many families to make difficult choices, in many cases putting off disaster-resilient solutions such as structure elevation, wind shutters, roof tie downs, and purchasing adequate

insurance in favor of addressing short-term financial needs. This reality has made the project area particularly susceptible to future disasters.

As described above, Low and Moderate Income (Census Tract data) was cross-referenced and overlaid against housing-based FEMA Individual Assistance data to arrive at the eligible Most Impacted and Distressed geographic areas for this proposal. These geographic areas are particularly vulnerable, and reflect pockets of great need in the overall project area.

Previous Risk Reduction Activities

Over 250 properties are in the pre-approval, implementation, and closeout stage for mitigation projects (i.e., elevation, acquisition, and demolition). This includes over 150 properties that are currently being mitigated in Pamlico County, which will take considerable risk “off the table” for future disasters. All of these construction projects are targeted for completion by 2016.

In addition, there are three regional Hazard Mitigation Plans in progress that are collectively assessing common risk and vulnerability and proposing mitigation goals and actions at the tactical level. NCEM’s iRISK tool is being utilized to conflate multi-hazard risk at the structure level, and to extrapolate this information to potential future conditions (i.e., Sea Level Rise) to allow local officials (i.e. planners, community leaders, executives, emergency managers, and floodplain administrators), developers, businesses, and even individuals, to assess their current and future risk and make informed decisions.

Barriers to Solutions

From the perspective of providing resilient housing, the FEMA Hazard Mitigation Grant Programs for DR-1969 and DR-4019 were governed by benefit-cost analysis policies that only rendered one out of every five properties to be eligible for mitigation funding. This policy and eligibility requirement has since changed significantly at FEMA, but is not grandfathered to DR-

1969 and DR-4019. In addition, FEMA's Unified Hazard Mitigation Assistance programs are not geared towards private sector resilience—a program area that will be of special focus for Phase II. Finally, the socioeconomic vulnerability of the area is also a barrier to complete a full and expedient recovery. NC Commerce studies here on how impoverished communities have challenges to completing disaster recovery.

Exhibit E: Soundness of Approach

Applicant Name: State of North Carolina

File Name:

Factor 3: Phase 1 Soundness of Approach

Subfactor A: Stakeholder Consultation

Plan for Collaboration, Outreach and Communication

NCEM is conducting extensive outreach on this proposal, both for Phase 1 and its expansion in Phase 2. NCEM has established a web page with a link to relevant NC Sound Approach outreach materials and an e-mail address that will send all stakeholder and public feedback to a common mailbox.

Additional details pending finalization of consultation process

Discussions to Date with Stakeholders

Additional details pending finalization of consultation process

Stakeholders

Additional details pending finalization of consultation process

Approach to Phase 2 Stakeholder Collaboration

Additional details pending finalization of consultation process

Involvement of Advocacy Groups and Vulnerable Populations

Additional details pending finalization of consultation process

NCEM has consulted with the Methodist Men non-governmental organization (NGO) to help inform key threshold data for unmet housing needs in the 11 identified counties. This NGO has direct links to the most vulnerable populations, and they will be a cornerstone of efforts for more tactical development of Phase II programming.

Cumulative Impacts

In discussions with Pamlico, Beaufort, and Tyrrell Counties, unmet recovery housing needs were exposed. In Tyrrell County, there is an Irene-impacted population who is socially vulnerable and has experienced repetitive flooding. In Pamlico County, there are sizable populations still in need

of repair assistance, while in Beaufort County, displaced widows were presented as a particularly at risk population. The depth of unmet recovery needs is helping to inform the social vulnerability of NCEM’s approach—in many cases, this vulnerability is even more severe than originally anticipated.

Indirect Risk and Vulnerabilities

Additional details pending finalization of consultation process

Impact of Collaboration on Proposal

Additional details pending finalization of consultation process

Summary of Consultation Process

Additional details pending finalization of consultation process

Subfactor B: Ideas/Concepts

NC Sound Approach has four program areas that are designed to support long-term recovery in the identified tie-back areas, and foster resilience to future disasters. The four program areas are as follows:

Program Area 1 - Resilient Housing

Support safe, affordable, long-term housing by either promoting the construction of resilient and appropriate housing, or retrofitting existing structures. Address unmet housing needs in the 11 identified counties in the project area by offering local governments and homeowners a menu of construction-based disaster-resilient retrofit, acquisition, and reconstruction options designed to:

a) reduce future disaster losses; and b) increase the economic security of households, communities, and local governments.

Resilience Strategies

- **Acquisition and demolition** – providing a property owner Fair Market Value for the property as well as gap funding, and demolishing the structure, and converting the entire

parcel to a land-use designed to reduce future disaster losses and/or promote economic resilience. The local unit of government would own the property. “Buyout” would refer to holding parcel in open space in perpetuity, while “acquisition” refers to a potential alternative economically-resilient land use.

- **Elevation** – a retrofit designed to raise the First Finished Floor above the 100-year (1% annual) flood height. This construction technique reduces future disaster losses and preserves a residence for a property owner and a local unit of government’s tax base.
- **Mitigation Reconstruction** – Demolition of a structure not suitable for elevation, and rebuild of a safe, sanitary, and space-equivalent dwelling up to local government building code. This mitigation also reduces future disaster losses and preserves a residence for a property owner and a local unit of government’s tax base.
- **Resilient Retrofitting** – Modifications to a damaged structure such as roof and foundation repair, mold remediation, roof tie-downs, potential integration of appropriate residential safe rooms, or renovation with flood-resistant materials are examples of a “resilient retrofitting” program activity. This technique promotes the stability and long-term viability of impacted communities.
- **Provision of Affordable Housing Stock** – Areas of Eastern North Carolina, including Dare County, lost affordable housing stock due to Irene’s impact. This strategy would build resilient, affordable housing to support renters and landlords who provide this important capacity.
- **For options b-d**, green building standards will be incorporated into the resilience project to include water use reduction measures, energy efficient appliances, use of low-emission

building materials, and enhanced insulation. In addition, universal design elements like zero-step main entrance, accessible doorways, accessible HVAC and lighting controls, and adaptable bathrooms will be eligible activities.

While North Carolina has identified 660 structures that were not mitigated under the Stafford Act/HMGP 1969 and 4019 programs, the state is cognizant the local conditions may have changed since 2011. Housing repairs and mitigation may have been accomplished through the National Flood Insurance Program or other avenues. Accordingly, local governments will outreach to Irene-impacted homeowners—with previously-supplied data that was developed during the disaster. North Carolina Emergency Management’s iRISK tool will then be used to analyze the submitted properties for ranking based on: 1) whether a structure is located in a vulnerable, hazard-prone “hot spot”; 2) whether a structure is in an impacted and distressed geographic environment. The ranking criteria will be used to prioritize structures in case funds are awarded by HUD that do not entirely cover all identified unmet housing needs.

Program Area 2 – Resilient Infrastructure

Address unmet permanent infrastructure needs in the 11 identified counties in the Irene impact zone by offering local governments a menu of disaster-resilient retrofit and reconstruction options designed to: a) reduce future disaster losses; and b) increase the economic security of communities and local governments.

Resiliency Strategies

- **Microgrid for Power Resilience:** North Carolina has experienced extended power losses across the state as a result of natural disasters. Creating microgrids for particularly susceptible communities and/or critical facilities could improve power system reliability while reducing greenhouse gas emissions and reducing costs to consumers. Microgrids

can also improve economic conditions in the geographies that they serve, as productivity losses due to power failures can be substantially decreased. This project would create at least one microgrid in one of the 32 municipalities in eastern North Carolina that operate municipal power systems.

- **Residential water/wastewater connections:** This strategy would provide residential hookups (or connections) to water and wastewater infrastructure for persons who have 31-60% of the area median income. The state estimates that this would include 10,000 households and identifies it as a high priority action in the state Consolidated Action Plan
- **Sanitary and storm sewer system improvements:** Measures could include dry or wet floodproofing of buildings, elevating covers, elevating pump stations (and/or pump station equipment and controls), installing generators and/or quick connects, and replacement of pumps with submersible pumps. In addition, measures could include increasing culvert sizes, re-aligning or relocating culverts, and installing flood drains.
- **Potable water systems:** Measures could include elevation of well or water treatment plant controls, equipment or electrical service; protection of raw water intakes, and dry floodproofing of water treatment buildings.
- **Public buildings:** Measures could include elevation, dry floodproofing, roof replacement/strengthening, shutter installation, anchoring or elevation of equipment, impact-resistant glass installation, siding replacement, water/wind-resistant vent installation, and replacement of doors.

Program Area 3 – Resilient Environment

Address unmet environmental degradation needs in the 11 identified counties in the Irene impact zone by working with landowners to clear remaining debris and invest in projects that restore the environment and enhance its ability to absorb shocks and stressors.

Resilience Strategies

- **Green infrastructure** – Use competitive processes to award grants for design and implementation of a range of green infrastructure (e.g., constructed wetlands, bioswales, stormwater greenstreets, permeable paving, and rain gardens) over time to reduce risk and identify how type, scale, and maintenance of these solutions compare to the risk reduction benefit. This project would build on the high resolution, structure level hazard and risk assessment data developed as part of SLRIS to calculate benefits. Additionally, given the identification of where marsh retreat and submergence will occur, this project can target appropriate locations for marsh restoration and other green infrastructure solutions.
- **Debris clearance** – Provide grants or direct assistance for removal of debris from sensitive environmental areas such as wetlands.
- **Coastal and estuarine protection** - Provide grants or direct assistance for coastal protection systems to include beach nourishment, breakwaters, revetments, sills, or bulkheads. This protection could also include a pilot of green options such as living shorelines, vegetated features, tidal marsh, maritime forest, wetlands, and reefs. Explore resilience strategies that support maritime-based small businesses and livelihoods that are extremely important to the local economy. Dredging of sounds to further support small-

scale maritime commerce is a potential resilience strategy. Ecotourism is a possible resilience strategy for coastal and estuary environments.

Program Area 4 – Resilient Jobs

Address unmet economic revitalization needs in the 11 identified counties in the Irene impact zone by offering local small businesses grants and/or low interest loans for repair/mitigation of business facilities.

Resilience Strategies

- **Resilience grants/loans:** The purpose of the grants/loans will be to help purchase or repair needed equipment, renovate facilities that were damaged or destroyed, and to support mitigation efforts to protect the business from future storms. Loans could be forgivable or low-interest. Examples could include projects that increase resiliency to infrastructure within the community—such as wastewater treatment plant enhancements.
- **Small business mentoring and coaching:** This program will provide eligible technical or legal assistance and business coaching to assist businesses in rebuilding their businesses. Consultants and business coaches would be made available to businesses to discuss business development and recovery issues.
- **“Kickstarter” Funding:** Use competitive process to award grants to select number of innovative and effective investment ideas for spurring long-term economic growth. Possible ideas could include attraction of growing companies and/or companies of significant size; attraction of companies that serve the needs of underserved populations, including those with disabilities; or other transformative investments in key corridors.

Co-Benefits, Multiple Objectives, and Integrated Thinking

NC Sound Approach is an integrated and multi-disciplinary approach that supports the unique needs of the communities in the project area. By augmenting the resilient housing stock in the project area, creating resilient infrastructure projects, and promoting resilient jobs and a resilient environment, the benefits will be multi-faceted. This approach embraces a community-wide approach that seeks to keep populations and local governments intact and empowered as they face the stressors and shocks as described above. NC Sound Approach will make the communities not only more resilient to future natural disasters but stronger economically and environmentally.

Impact on Residents and Small Businesses

As described above, two of the NC Sound Approach program areas directly impact residents and small businesses (Resilient Housing and Resilient Economy). The other program elements that will achieve the increased resilience of infrastructure and the environment will also indirectly impact residents and small businesses.

According to North Carolina's Sea Level Rise inundation study, the Sea Level Rise inundation line in the project area corresponds approximately to the 500 year floodplain—the approximate inundation of Hurricane Irene's storm surge. Accordingly, the long-term resilience strategies being framed are designed to meet the recovery needs of the project area, as well as long-term hazards. Per the case study attached in the appendix, NCEM's site visit to Tyrrell County involved interaction with an extremely vulnerable homeowner who is in need of a short- and long-term solution to hurricanes and flood. Likewise, NC Sound's Resilient Jobs program area will leverage potentially compatible and highly lucrative job creation in the project area—such as ecotourism—that will better position enterprise/microenterprise for future long-term hazards.

Impact on Adjacent Areas

NC Sound Approach has multiple benefits for adjacent areas. Greater resilience will mean greater community integrity resilience to future disasters—an asset that could potentially divert beneficial response and recovery resources to other barrier island or coastal areas during major storm events. Greater community cohesion could also result in an in-migration of population from the coastal plains, other regions of the state, and throughout the United States.

A potential negative effect is a potential population increase in the sound-side and estuary communities, which are currently sparse. A more resilient project area will attract future residents, renters, and tourists. Such a shift in population would require future planning regarding emergency management services, infrastructure, and social services for an area that has remained stagnant over the past decade.

Local and Regional Interdependencies

There are many interdependencies among the various sectors in the project area. Weather and climate events can affect the agricultural and maritime sectors, resulting in employment and economic impacts. The lack of housing stock is accompanied by a relative lack of infrastructure (i.e., roads, broadband). The well-being of the estuary ecosystem and barrier islands is the life blood of the project area and creates dependencies across all sectors. The region is a major tourist destination and the resulting influx of travelers impacts the economy across the state. The region is also home to half a dozen important military installations and assets, damage to which could impact the nation's security. Such interdependencies will be of special focus for the academic and research institutions in the project area.

Coordination with Partners

The underlying vulnerabilities (i.e., stressors and shocks) within the project area cannot be fully addressed with this application, although we believe this approach will be an important cornerstone of innovative long-term planning. However, we believe that many unmet recovery needs can be addressed, since these represent a small fraction of remaining recovery issues since the impact of the referenced disasters in 2011. We will work with other local units of government, states, and regional organizations as detailed in the consultation matrix. NCEM has received generally positive feedback, and will cement formal agreements to cooperate in Phase 2, especially around the core issues of housing, infrastructure, the environment, and jobs. Regional councils of government, regional Hazard Mitigation Action Committees (MACs), and Recovery Support Functions are already in place and will be essential to this effort.

Overall Approach to Resilience

At the state level, North Carolina has a robust (nationally-accredited) emergency management program with an Enhanced State Mitigation Plan and a portfolio of approximately \$70 million of resilience/mitigation projects across all phases of the grants management life cycle. NCEM is fostering the development of regional hazard mitigation plans statewide that analyze and propose mitigation actions for a multitude of short- and long-term hazards. All of the most impacted and distressed areas in the target counties are participants in the National Flood Insurance Program as well as Community Rating System. NCEM is accredited by the Emergency Management Accreditation Program (EMAP) that rates the strength of both: 1) Hazard Risk and Identification; 2) Hazard Mitigation. The Enhanced State Mitigation Plan considers the impact of long-term hazards. The Risk Mitigation Section has also produced a Sea Level Rise study that integrates at

the county, community, and structural level into the iRISK system to give local officials, planners, and residents key insights into the impacts of potential future extreme weather.

Exhibit F: Leverage

Applicant Name: State of North Carolina

File Name:

Factor 4: Phase 1 Leverage and Outcomes

Subfactor A: Outcomes

Solution Timeframe

NC Sound Approach is being framed as a program-level activity that will solicit projects from eligible communities in the project area. With each of the four program activities detailed above, it is likely that acquisition/buyout under the housing program area, and beach nourishment under the infrastructure program area will require up-front investment with limited maintenance on the back end. Projects such as buyouts permanently eliminate vulnerability by removing the exposure while projects such as beach nourishment provide long-term reduction. Other activities in the program areas (i.e., structure elevation or microgrid development) may entail more investment throughout. These activities will be clarified throughout the project solicitation component of Phase II.

During the project solicitation phase, weighted scoring will be given to resilient solutions that provide for co-benefits—i.e. ecotourism-based microenterprise activities stimulate the local economy, but also leverage and preserve the uniqueness of the project area’s estuary ecosystem.

Co-Benefits of Implementation

To be added

Environmental Economic Sustainability

Significant environmental coordination will be conducted for Phase II projects. NCEM coordinates with entities including the US Army Corps of Engineers, SHPO, and US Fish and Wildlife service for its current resilience/mitigation projects. NCEM also brings very strong financial stewardship in its Recovery and Risk Management Sections—including high praise for a site visit of DR-1969 and DR-4019. Addressing unemployment in the most distressed and

impacted areas is of extremely high value to this approach. Local contactors can support infrastructure, housing, and environmental programs, and the resilient jobs program area seeks a long-term economic stimulus of the target geography.

Measures of Success for NC Sound Approach

- Resilient Housing – number for resilient structures retrofitted and/or constructed; number of unmet recovery needs addressed; potential future economic damages avoided; net social benefit (qualitative measurement).
- Resilient Infrastructure – number of resiliency projects implemented; anticipated functional downtime avoided in future disasters; net social benefit.
- Resilient Environment – number of resiliency projects implemented; acres of wetlands preserved; net social benefit.
- Resilient jobs – number of resilient jobs anticipated to be created in 10 years; net social benefit.

Subfactor B: Leverage

Local & Regional Partners

To be added

Insurance Collaboration

To be added

Financing Co-benefits

NC Sound Approach will leverage the iRISK tool as well as FEMA and US Army Corps benefit cost analysis to project potential future damages avoided for each project type in each program area as described above. NC Sound Approach would accordingly reduce the drain on the National Flood Insurance Program and reduce homeowner premiums via participation in the

Community Rating System. These approaches would be permanent features that could be calculated as part of a project implementation and closeout benefit cost analysis. An approach to calculate net social benefit and environment benefit via current FEMA Benefit Cost Analysis methodology can also be incorporated to translate the “whole community” approach into a leveraged dollar value in the analysis.

Extent beyond MIDA

The State of North Carolina is heavily invested in the areas affected by the qualifying disasters to build resilience to future disasters. Per Chart 1 below, the State of North Carolina has committed \$6,479,732 to support resilience efforts in the project area by committing a 25% cash match to HGMP grants for vulnerable populations directly tied back to the recovery needs of each disaster. Because this resiliency work will inform regional and state mitigation planning as well future recovery framework efforts, the program’s influence extends beyond the project area to multiple regions and the entire state.

INITIAL DRAFT FOR PUBLIC COMMENT

Subfactor C: Leverage Commitments

FEMA Resilience/Mitiation Commitments in Impacted Area since 2011						
	Funding Stream	Project Type	Funding	Summary of Project	# of Structures	
1 Dare County	DR-1969	Elevation	\$ 2,550,860.00	Elevation of Irene-impacted flood prone structures	17	
	DR-4019	Elevation	\$ 3,067,500.00	Elevation of Irene-impacted flood prone structures	27	
	PDM FY14	Power Redundancy*	\$ 50,000.00	Generator for the vulnerable Collington Fire Dept	1	
Dare	DR-4019	Plan Amendment	\$ 20,000.00	Integration of Dare County into Regional HM Plan	0	
Dare (Town of Nag's Head)	DR-4019	Power Redundancy	\$ 63,864.00	Generator for Nag's Head Fire Dept	1	
Dare (Town of Nag's Head)	DR-4019	Elevation	\$ 127,960.00	Elevation of 1 Residential Structure	1	
2 Currituck County	DR-4019	Elevation	\$ 337,710.00	Elevation of 3 residential structures	3	
Currituck County	DR-4019	Power Redundancy	\$ 206,000.00	Generators for two evacuation shelters	2	
3 Tyrrell	DR-4019	Power Redundancy	\$ 67,000.00	Generator for Emergency Operations Center	1	
4 Washington	DR-4019	Acquisition	\$ 124,814.00	Acquisition of 1 Irene-impacted structure	1	
Washington	PDM FY14	Regional Mitigation Plan*	\$ 86,667.00	Update of Regional Plan to include Bertie County	0	
5 Pitt	DR-1969	Regional Mitigation Plan	\$ 77,500.00	Update of Regional Mitigation Plan	0	
	DR-4019	Acquisition	\$ 225,788.00	Acquisition of 2 Irene-impacted structures	2	
	FMA FY13	Acquisition	\$ 194,220.00	Acquisition of 1 Severe Repetitive Loss Structure	1	
6 Bertie	PDM FY14	Regional Mitigation Plan*	\$ -	Content integrated with Washington County Plan	0	
Bertie (Town of Windsor)	DR-1942	Acquisition	\$ 541,167.00	Acquisition of structures impacted by Hurricane Irene and TS Nicole (2010)	8	
				Generator for tornado-damaged Greene Co Middle School		
7 Greene	DR-1969	Power Redundancy	\$ 38,934.00		1	
	DR-1969	Acquisition	\$ 342,784.00	Acquisition of 3 tornado-destroyed structures	3	
8 Beaufort	DR-1969	Acquisition	\$ 93,600.00	Acquisition of Irene-impacted structure	1	
	DR-1969	Elevation and Acquisition	\$ 716,980.00	Elevation of 5 and acquisition of 2 Irene-impacted structures	7	
	DR-4019	Elevation	\$ 149,063.00	Elevation of 1 Repetitive Loss Structure	1	
	FMA FY13	Elevation*	\$ 639,135.00	Elevation of 4 Repetitive Loss Structures	4	
	FMA FY14	Elevation*	\$ 1,643,532.00	Elevation of 11 Repetitive Loss Structures	11	
9 Pamlico	DR-4019	Acquisition (expedited)	\$ 2,423,364.00	Expedited acquisition of 16 Irene-impacted structures	16	
	DR-4019	Acquisition	\$ 6,032,540.00	Acquisition of 53 Irene-impacted structures	53	
	DR-4019	Elevation	\$ 6,572,220.00	Elevation of 52 Irene-impacted structures	52	
10 Craven	DR-1969	Regional Mitigation Plan	\$ 80,000.00	Regional Hazard Mitigation Plan with Pamlico and Carteret County	0	
	DR-4019	Acquisition	\$ 583,060.00	Acquisition of 2 Irene-impacted structures	2	
	DR-4019	Elevation	\$ 531,220.00	Elevation of 4 Irene-impacted structures	4	
	FMA FY13	Elevation*	\$ 2,327,725.00	Elevation of 11 Severe Repetitive Loss Structures	11	
	FMA FY14	Elevation*	\$ 716,863.00	Elevation of 5 Severe Repetitive Loss Structures	5	
	PDM FY14	Wind Shutters*	\$ 80,173.00	Wind Shutters for 2 vulnerable critical facilities	2	
Craven County (Havelock)	HMGP 4019	Generator	\$ 70,000.00	Generator for Emergency Operations Center	1	
11 Carteret County	HMGP 4019	Elevation	\$ 875,000.00	Elevation of 8 Irene-impacted structures	8	
	FMA FY14	Elevation*	\$ 870,050.00	Elevation of 5 Severe Repetitive Loss Structures	5	
		35 Individual Projects	\$ 32,527,293.00		252	
		Total State Share	\$ 6,479,732.00			
		* Awarded or pending award after NDRC NOFA				

Exhibit G: Long-Term Commitment

Applicant Name: State of North Carolina

File Name:

Factor 5: Phase 1 Regional Coordination and Long-term

Commitment

Lessons Learned

TBD

Legislative Action

TBD

Raising Standards

TBD

Resilience-related Plan Alignments and Updates

TBD

Resilience-related Financing, Credit and Insurance

The State of North Carolina is committed to increasing resilience within all counties, but in particular those with vulnerable populations. The NC Sound Approach proposal encompasses 11 counties that have been identified as the areas that were most impacted and distressed and have qualifying damages resulting from DR-4019 and DR-1969. The chart below summarizes the significant commitment of resources and actions/projects which are currently increasing resiliency in the communities. .

Since 2011, the State has funded 35 individual projects in these counties totaling more than \$32 million in federal, state, and local funds. Since 1995, the State of North Carolina has paid the entire non-federal share for HMGP demonstrating a strong commitment to recovery. This resulted in the state contributing more than \$6.7 million for the HMGP projects funded within these counties.

The outcomes proposed within these 35 projects are to elevate 154 flood prone residential structures; acquire 83 flood prone properties; install generators in seven critical structures; update regional Hazard Mitigation Plans in seven counties and install wind shutters on two vulnerable critical facilities.

Most recently, eight of these projects have been awarded since the publication of the NOFA for NDRC. These projects total over \$6.4 million dollars and the outcomes will include: elevation of 36 residential structures; update of three local Regional Hazard Mitigation Plans; installation of one power generator in a vulnerable local fire department and installation of wind shutters for two critical facilities.

Chart 1: FEMA Resilience Commitments in Project Area since 2011

INITIAL DRAFT FOR PUBLIC COMMENT

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Attachment D: Consultation Summary

Applicant Name: State of North Carolina

File Name:

See

Attachment F Leverage

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	FMA FY14	Elevation*	\$ 716,863.00	Elevation of 5 Severe Repetitive Loss Structures	5	
	PDM FY14	Wind Shutters*	\$ 80,173.00	Wind Shutters for 2 vulnerable critical facilities	2	
Craven County (Havelock)	HMGP 4019	Generator	\$ 70,000.00	Generator for Emergency Operations Center	1	
11 Carteret County	HMGP 4019	Elevation	\$ 875,000.00	Elevation of 8 Irene-impacted structures	8	
	FMA FY14	Elevation*	\$ 870,050.00	Elevation of 5 Severe Repetitive Loss Structures	5	
		35 Individual Projects	\$ 32,527,293.00		252	
		Total State Share	\$ 6,479,732.00			
		* Awarded or pending award after NDRC NOFA				

