



ReBUILD NC

Substantial Action Plan Amendment 1
January 11, 2021

CDBG-MIT Action Plan

State of North Carolina

For CDBG-MIT Funds
(Public Law 115-123, February 9, 2018 and Public Law 116-20, June 6, 2019)



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Appendix A: Response to Public Comments A-1

1.0 Summary of Action Plan Changes – Amendment 1

1.1 Executive Summary

The Executive Summary has been updated to reflect the changes to this Action Plan.

1.2 State Identified MID Areas

To provide for greater alignment with the CDBG-DR Action Plans, seven State-Identified Most Impacted and Distressed (MID) areas have been identified. These counties are Beaufort, Dare, Harnett, Johnston, Lenoir, Pitt, and Sampson. A description of the method used to identify these areas is found in Section 10.4.

1.3 Strategic Buyout Program

Multiple updates to the Strategic Buyout Program (SBP) are considered in this Substantial Amendment. In an effort to streamline administration, allow for more programmatic flexibility, and consolidate funding for the program, CDBG-DR funding for Strategic Buyout is reallocated to CDBG-MIT and CDBG-MIT funds are now the primary funding source for the Strategic Buyout Program.

Certain other services, such as housing counseling, are to be offered primarily with CDBG-DR Hurricane Florence funds however NCORR may elect to fund housing counseling specific to Strategic Buyout in certain circumstances to be finalized at a later date. Section 10.7 describes program revisions including:

- Dividing the program in phases (Phase I will provide funding for the purchase of residential properties located in Disaster Risk Reduction Areas);
- The revision of the valuation structure from offering to purchase property at the pre-storm Fair Market Value to current Fair Market Value; and
- The revision of the incentive structure to work in concert with the new valuation structure.

1.4 Disaster Risk Reduction Area (DRRA) Identification

The method that NCORR used to determine DRRAs has been refined and better explained at Section 10.6.1.

1.5 Resilient Affordable Housing Development

NCORR has reallocated the funds for Resilient Affordable Housing Development into the CDBG-DR Hurricane Florence grant. This change is made to match the commitment to focus CDBG-MIT on buyout and planning activities. The mitigation needs assessment related to the impact of buyout has also been relocated into the CDBG-DR Hurricane Florence Action Plan. Individuals interested in affordable housing are encouraged to review the content of that Action Plan. Changes to the Resilient Affordable Housing Development Program are found in Section 10.8.

1.6 Action Plan Amendment Criteria

The Substantial Action Plan Amendment Criteria at Section 11.0 are updated to align with the CDBG-DR Action Plan Amendment Criteria, including clarification of a 30-day public comment period and a reallocation threshold of \$15 million or more.

1.7 Planning Funds

A brief description of how NCORR intends to use planning funds is added at Section 10.3.1. NCORR will post specific uses of planning funds on its website once planning opportunities are identified for funding.

1.8 Reallocation of Funds

Significant reallocation and reorganization of funds has been made in this Substantial Action Plan Amendment. A detail of the reallocation is found in Section 10.3 and in the Executive Summary.

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2.0 Authority

On February 9, 2018, Public Law 115-123, the “Bipartisan Budget Act of 2018”, made available \$28 billion in Community Development Block Grant disaster recovery (CDBG–DR) funds, and directed HUD to allocate not less than \$12 billion for mitigation activities proportional to the amounts that CDBG–DR grantees received for qualifying disasters in 2015, 2016, and 2017. Of this mitigation allocation, the State of North Carolina has received \$168 million by formula.

North Carolina Session Law 2018-136 established the North Carolina Office of Recovery and Resiliency (NCORR), as the administering agency for CDBG-DR funds. NCORR is an office within the NC Department of Public Safety. As the implementing agency for CDBG-DR funds, NCORR assumes responsibility for the planning, administration, and implementation of CDBG-MIT funds.

Public Law 116-20, the “Additional Supplemental Appropriations for Disaster Relief Act, 2019” was enacted on June 6, 2019. In this law, grantees that received an allocation for mitigation funding provided by Public Law 115–123 in response to Hurricane Matthew may use the CDBG–MIT funds for the same activities, consistent with the requirements of the CDBG–MIT grant, in the most impacted and distressed areas related to Hurricane Florence. Therefore, this Action Plan considers the impact of both Hurricane Matthew and Hurricane Florence.

To fulfill the requirements of this allocation, NCORR must submit an Action Plan for CDBG-MIT activities that identifies mitigation needs. This Action Plan provides a summary of the actions, activities, and resources used to address the State’s priority mitigation needs and goals. It is designed to help the State, local units of government, and other partners assess current and future needs, and will be updated as new information or changing conditions warrant a change in approach.

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3.0 Executive Summary

The State of North Carolina is in the unfortunate position of having to respond to two major disaster declarations in quick succession. Hurricane Matthew made landfall in the Carolinas on October 8, 2016. Less than two years later, Hurricane Florence dealt incredible damage to the recovering state when it made landfall on September 14, 2018. The ongoing recovery from Hurricane Matthew was greatly affected, as many areas impacted by Matthew were also impacted by Florence. The Unmet Recovery Needs Assessments and corresponding Action Plans for the Hurricane Matthew and Hurricane Florence recovery delve into the ongoing recovery effort specific to the CDBG-DR allocations for those disasters. Individuals seeking to familiarize themselves with the recovery efforts from those disasters should begin with those reports to understand the full breadth of the ongoing recovery. Topics relevant to CDBG-MIT funding are included in this Mitigation Needs Assessment and Action Plan, although they oftentimes intersect the storm recovery needs.

In Public Law 115-123, The State of North Carolina was allocated \$168,067,000 in Community Development Block Grant – Mitigation (CDBG-MIT) funds. CDBG-MIT is a new funding approach from HUD intended to relieve the repetitive cycle of disaster relief allocations to often-impacted areas of the country. The Federal Register Notice, 84 FR 45838 (the Notice) outlines the requirements and expectations that HUD places on its grantees specific to CDBG-MIT funds.

This Action Plan and its corresponding amendments is the State of North Carolina’s plan to use the \$168 million allocation in accordance with the Notice. The administering agency, the North Carolina Office of Recovery and Resiliency (NCORR), an office of the North Carolina Department of Public Safety (NCDPS), will be administering the grant on behalf of the State of North Carolina. References to the HUD grantee and to the State as a decision-making entity are construed to mean NCORR in all instances.

The Action Plan consists primarily of the Mitigation Needs Assessment, an analysis of the specific conditions present in the State which present as a weakness in the disaster recovery cycle. These mitigation needs are placed in context with “Community Lifelines”, critical service systems that when damaged present a major obstacle to full recovery. The Mitigation Needs Assessment explains what risks are present in the most impacted and distressed (MID) areas affected by Hurricanes Matthew and Florence, which Community Lifeline(s) face the greatest risks, and further develops a foundation to determine which projects would be most effective in mitigating that risk.

The Mitigation Needs Assessment is followed by a review of the long-term planning and risk mitigation considerations, to ensure that the forward-looking aspect of the CDBG-MIT allocation is not lost on temporary solutions to permanent problems. A review of how CDBG-MIT funds may be leveraged with other funds, how the natural infrastructure plays a role in the mitigation plan, and how construction will be monitored and how costs will be controlled are then reviewed in context with the Assessment.

NCORR's approach to ensure that proposed projects and programs equitably treat protected classes and historically underserved groups is included in Part 10.6. In this part, NCORR reviews the historical context for discriminatory behavior in federally funded programs and assesses the demographic data and unique characteristics of selected buyout areas.

The result of the analysis is that NCORR supports that it has developed buyout areas which are representative of the vulnerable populations of the recovering communities, significantly more diverse than state demographics, more likely to serve LMI and protected groups, and works to counter the systemic issues identified in the historical context review.

After completing the Mitigation Needs Assessment in 2019, NCORR engaged the public and community stakeholders to share a preliminary approach to the use of funds. In three separate public engagements in Robeson County, Edgecombe County, and Craven County, NCORR reviewed the direction the data was pointing and sought feedback on the early approach for the use of funds. After submitting the Action Plan for public comment in early November 2019, NCORR again held public hearings in Wayne County and Carteret County to review the draft plan. Separately, impacted jurisdictions were provided a stakeholder survey and asked for similar feedback about the community's mitigation needs.

In final consideration of the data available from the Mitigation Needs Assessment, ongoing disaster recovery needs, community and stakeholder input, regulatory requirements, and an analysis of its programs and funding sources, NCORR has determined that a buyout program is the most impactful investment in long-term hazard mitigation. A small allocation of CDBG-MIT funds for planning activities will allow for excellent plan design, coordination with local and regional entities in plan development, and sufficient public outreach and engagement to drive a plan responsive to the needs of impacted communities.

With the limits of the CDBG-MIT funds, it is NCORR's belief that fewer programs operated at a high level of expertise and efficiency can do more for long-term mitigation than many programs or activities which receive significantly less funding. A summary of allocations is found below:

CDBG-MIT Allocations

Program	Total	% of Total Allocation	\$ to LMI	% to LMI	\$ to HUD-defined MID areas	% to HUD-defined MID areas
Administrative Costs	\$8,403,350	5%	\$0	0%	\$4,201,675	50%
Planning Costs	\$8,403,350	5%	\$0	0%	\$4,201,675	50%
Strategic Buyout	\$151,260,300	90%	\$84,033,500	55%	\$128,571,255	85%
Resilient Affordable Housing	See Hurricane Florence CDBG-DR Action Plan					

Program	Total	% of Total Allocation	\$ to LMI	% to LMI	\$ to HUD-defined MID areas	% to HUD-defined MID areas
Development Program						
Total	\$168,067,000	100%	\$84,033,500	50%	\$136,974,605	82%

A previous allocation for Resilient Affordable Housing has been reallocated to the Hurricane Florence CDBG-DR Action Plan. The amount of funds available for this activity has increased as a result of that reallocation, and better aligns the affordable housing development with areas recovering from Hurricane Florence or Hurricane Matthew. This frees the CDBG-MIT funds to focus exclusively on planning and Strategic Buyout.

At all times it is NCORR's primary objective to serve both the greatest identified mitigation need as well as addressing the disaster recovery needs of the citizens of the State. With limited available funds and many needs throughout the State, NCORR supports buyout as the primary program for CDBG-MIT funds.

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4.0 Mitigation Needs Assessment

4.1 Background

According to HUD guidance in the Notice, CDBG-MIT funds represent a unique and significant opportunity for grantees to use this assistance in areas impacted by recent disasters to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses. HUD guidance further specifies that CDBG-MIT funds are closely aligned with FEMA funds for a similar purpose, such as the Hazard Mitigation Grant Program (HMGP). To align closely with FEMA guidance and best practices, as well as the CDBG-MIT specific requirements, the State has reviewed the resources required by HUD in the Notice:

- The Federal Emergency Management Agency Local Mitigation Planning Handbook
 - https://www.fema.gov/media-library-data/20130726-1910-25045-9160/fema_local_mitigation_handbook.pdf
- The Department of Homeland Security Office of Infrastructure Protection Fact Sheet
 - <https://www.dhs.gov/sites/default/files/publications/ip-fact-sheet-508.pdf>
- The National Association of Counties, Improving Lifelines: Protecting Critical Infrastructure for Resilient Communities
 - https://www.naco.org/sites/default/files/documents/NACo_ResilientCounties_Lifelines_Nov2014.pdf
- The U.S. Department of Housing and Urban Development CPD Mapping Tool
 - <https://egis.hud.gov/cpdmaps/>

Other resources were supplied by HUD, such as the National Interagency Coordination Center (NICC) for coordinating the mobilization of resources for wildland fire and the U.S. Forest Service’s resources around wildland fire. An analysis of wildfire risk was conducted as a part of the Mitigation Needs Assessment (see Part 2 and subsections, below), and these resources were also reviewed in so far as they were applicable to the most urgent mitigation needs facing the most impacted and distressed (MID) areas.

The \$168 million in CDBG-MIT funds allocated in the Notice after appropriations made in Public Law 115-123 are specifically associated with Hurricane Matthew. However, Section V.A.5.b of the Notice permits the State of North Carolina to use the CDBG–MIT funds for the same activities, consistent with the requirements of the CDBG–MIT grant, in the most impacted and distressed areas related to Hurricane Florence. At the time of the original publication of this Action Plan, HUD had not yet published its identification of the MID areas for Hurricane Florence. However, based on a FEMA and HUD Housing Impact Assessment completed in March 2019, and after consultation with HUD on the MID areas for Florence, NCORR adopted the following areas as Florence MID areas in advance of that plan. Later information from HUD

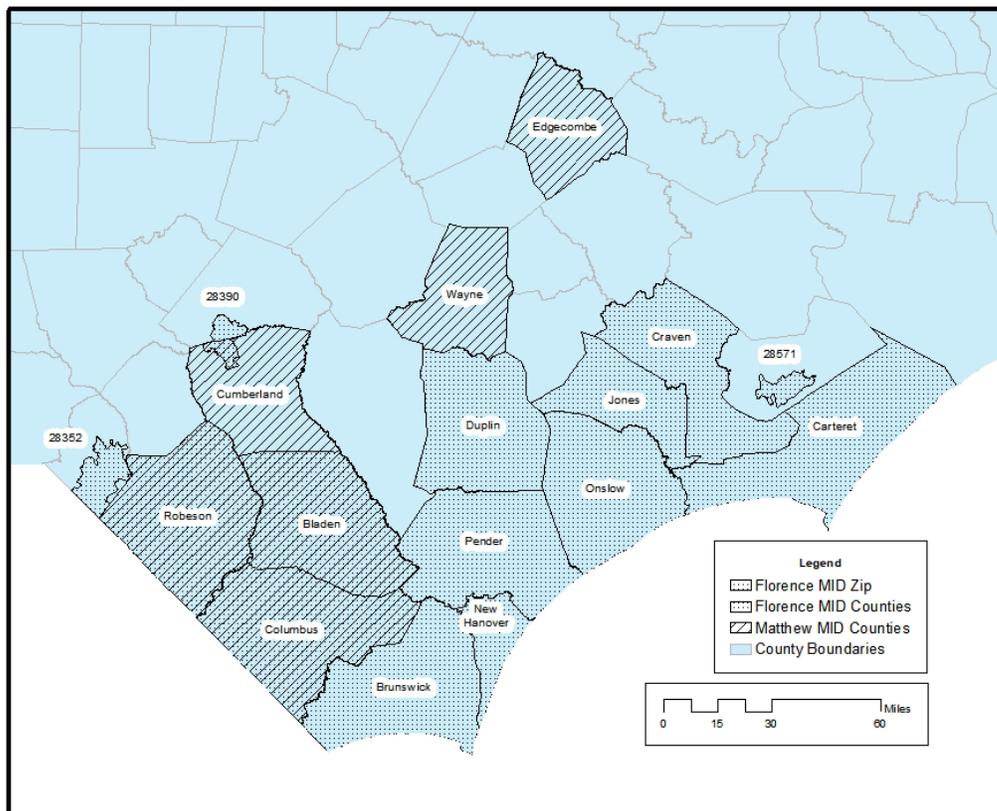
confirmed these areas as Florence MID areas. The list of MID areas are listed and mapped below:

Table 1 - MID areas, Hurricanes Matthew and Florence

Hurricane Matthew (DR-4285)	Hurricane Florence (DR-4393)	
Bladen*	Robeson*	New Hanover
Columbus*	Brunswick	Onslow
Cumberland*	Carteret	Pender
Edgecombe	Columbus*	Bladen (Zip Code 28433)*
Robeson*	Craven	Pamlico (Zip Code 28571)
Wayne	Duplin	Scotland (Zip Code 28352)
	Jones	Cumberland (Zip Code 28390)*

*Indicates a county declared a MID area for both disasters. Note that Zip Code 28390 is partially shared between both disasters.

Figure 1 - Map of MID Areas, Hurricanes Matthew and Florence



Where data was not available at the Zip Code level, the county level data for that zip code (28433 in Bladen County, 28571 in Pamlico County, 28352 in Scotland County, and 28390 in Cumberland County) was used instead.

Although the allocation is specific to hurricane recovery, the Notice requires that the application of CDBG-MIT funding assess many types of risks, based on a risk-based Mitigation Needs Assessment. The foundation of the Mitigation Needs Assessment is the State of North Carolina's Hazard Mitigation Plan (HMP) drafted by North Carolina Emergency Management (NCEM), a branch of the North Carolina Department of Public Safety (NCDPS). The HMP is a federally mandated plan that identifies hazards that could potentially affect North Carolina and identifies actions to reduce the loss of life and property from a disaster across the state. The plan is required to have the following components as mandated in the Disaster Mitigation Act of 2000: Planning Process, Risk Assessment, Mitigation Strategies, Coordination of Local Plans; Plan Maintenance; and Plan Adoption and Assurances. All of the requirements for each section are further defined in the 44 CFR §201.4, the Federal Emergency Management Agency (FEMA) State Plan Review Guide and the FEMA State Plan Review Tool.¹

The State of North Carolina benefits from an Enhanced Hazard Mitigation Plan. An enhanced status is a designation from FEMA given to State or Tribal governments that demonstrate that they have developed a comprehensive mitigation program and can manage increased funding to achieve its mitigation goals. The amount of HMGP funding available to the Grantee is based on the estimated total Federal assistance, subject to the formula that FEMA provides for disaster recovery under Presidential major disaster declarations. The formula provides for up to 15 percent for HMGP for states with Standard Mitigation Plans and up to 20 percent for HMGP to states with an Enhanced Mitigation Plan. Currently North Carolina is one of only 11 States that have a designated Enhanced Plan.²

The Mitigation Needs Assessment will therefore consider the State's Enhanced HMP as it relates to the Most Impacted and Distressed (MID) areas affected by both Hurricane's Matthew and Florence. While the Mitigation Needs Assessment acknowledges the many hazards faced by the people and property in the State of North Carolina, the focus will remain on risks which can be mitigated with the resources available and only in those areas determined by HUD or by the State to be MID areas.

In the Mitigation Needs Assessment, the terms "hazard", "risk", and "mitigation" are commonly used. Often the terms disaster, hazard, and risk are used interchangeably. For the purpose of

¹ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 1-1. <https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

² Federal Emergency Management Agency. *Hazard Mitigation Planning Frequently Asked Questions*. <https://www.fema.gov/hazard-mitigation-planning-frequently-asked-questions>.

this Assessment, a hazard is defined as the potential for harm (such as a disaster) to occur.³ A “natural hazard” is a source of harm or difficulty created by a meteorological, environmental, or geological event.⁴ A hazard is not the disaster itself, but the possibility of the disaster. Risk is the exposure of something of value to a hazard and is a function of probability and the magnitude of the potential loss.⁵

Generally a hazard cannot be removed from the environment – floods and hurricanes will continue to happen regardless of human intervention and planning – however, the risk posed by the hazard is addressed by limiting the exposure of human value by either reducing the probability of loss or the magnitude of the loss. Mitigation in this context therefore refers to any action taken to reduce risk.

NCORR sought the input of all stakeholders in the MID counties in the generation of this assessment. Stakeholders included the representative group of local governments, councils of government, public hearings at venues spread throughout the MID counties, reaching out to local houses of worship and civic groups, as well as vetting each proposed undertaking in this Assessment through the lens of fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies that will be promulgated through the implementation of MIT funded projects.

Climate disasters are becoming the new norm and studies indicate that the poorest one-third of the counties in the United States are the most vulnerable to socioeconomic and safety threats from natural catastrophes and climate change.⁶ Best practices and formative guidance were derived from the Environmental Protection Agency (EPA) *Regional Resilience Toolkit*.⁷

4.2 Method

Guidance issued in the Notice specifies how to approach the Mitigation Needs Assessment. In addition to the mitigation needs identified in the State’s Enhanced HMP, the characteristics and impacts of current and future hazards identified through the recovery of Hurricane Matthew and Hurricane Florence are also a major factor in assessing the mitigation need. However, focusing on past events alone provides an incomplete understanding of the true risk to the State of North Carolina and its people created by hazard conditions.

³ Pearce, Laurence Dominique Renee. *An Integrated Approach for Community Hazard, Impact, Risk and Vulnerability Analysis: HIRV*. Doctoral Dissertation, University of British Columbia, 2000.

⁴ Federal Emergency Management Agency. *Local Mitigation Planning Handbook*. 5-1. https://www.fema.gov/media-library-data/20130726-1910-25045-9160/fema_local_mitigation_handbook.pdf

⁵ Smith, Keith. *Environmental Hazards: Assessing Risk and Reducing Disaster*. London and NY: Routledge, 1996.

⁶ Kresge Foundation. *Rising to the Challenge, Together*. <https://www.governing.com/commentary/col-disasters-disadvantaged-climate-justice.html>.

⁷ Environmental Protection Agency. *Regional Resilience Toolkit*. https://www.epa.gov/sites/production/files/2019-07/documents/regional_resilience_toolkit.pdf

The Mitigation Needs Assessment seeks to combine the institutional knowledge contained in the HMP, lessons learned from previous disaster recovery (specifically Hurricane Matthew and Florence recovery efforts), and the local knowledge from citizens and stakeholders in disaster-impacted areas. These three sources are the primary source of hazard, risk, and mitigation information for the Mitigation Needs Assessment.

For each of the three primary sources contributing to the Mitigation Needs Assessment, the risks are quantitatively assessed according to their potential impacts on seven critical service areas, also known as the Community Lifelines, identified in V.A.2.a.(1). of the Notice:

1. Safety and Security
2. Communications
3. Food, Water, Sheltering
4. Transportation
5. Health and Medical
6. Hazardous Material (Management)
7. Energy (Power and Fuel)

The outcome of the process is the comparison of relative risk to the seven critical service areas by hazard type to inform a mitigation approach using CDBG-MIT funds in the most effective way possible. An important product of this exercise is a risk assessment that assigns values to risks for the purpose informing priorities, developing or comparing courses of action, and informing decision making in the CDBG-MIT context. After assessing the risks to the Community Lifelines, appropriate mitigation approaches are reviewed.

The Mitigation Needs Assessment is a snapshot in time of the current mitigation needs, and subject to change as shifting priorities and risks are discovered by the State. As new risks are identified, or as previously-identified risks are sufficiently mitigated, the State will update the Assessment as needed. Changes to the Mitigation Needs Assessment which result in the addition of a CDBG-MIT defined Covered Project, a change in program benefit or eligibility criteria, the addition or deletion of an activity, or the allocation or reallocation of \$15 million or more will result in a substantial amendment to the Action Plan.

4.3 State Enhanced Hazard Mitigation Plan

The HMP identifies many hazards for the State of North Carolina. The HMP categorizes the identified hazards between natural hazards and technological hazards. Further sub classifications include manmade hazards, public health hazards, and agricultural hazards.

The hazards in the HMP were identified by a working group of subject matter experts (SME) from across state agencies, academia, and the private sector. For the 2018 update of the HMP, previous versions of the list of potential hazards were reviewed and discussed in detail in

coordination with the Emergency Management Accreditation Program (EMAP) working group which is made up of representatives from each branch of NCEM. It was then presented to the Risk Management Coordinating Council as the official list of hazards pending any additional input and/or comments. There was not any additional input or comments received, therefore it was deemed to be the official list to include in the HMP.⁸

Table 2 - HMP Identified Hazards

Natural Hazards	Technological Hazards
Flooding	Hazardous Substances
Hurricanes and Coastal Hazards	Hazardous Materials
Severe Winter Weather	Hazardous Chemicals
Excessive Heat	Oil Spill
Earthquakes	Radiological Emergency - Fixed Nuclear Facilities
Wildfires	Terrorism
Dam Failures	Chemical
Drought	Biological
Tornadoes/Thunderstorms	Radiological
Geological	Nuclear
Landslides/Rock Fall	Explosive
Sinkholes/Coastal Erosion	Cyber
Infectious Disease	Electromagnetic Pulse

These identified hazards are applicable to the entire state. NCORR understands that the hazards present in non-impacted areas of the state, such as earthquakes and geological hazards, pose significant threat to life and property where they are more commonplace. However, with the limited funds available, and consistent with HUD guidance, the analysis of risks in the Mitigation Needs Assessment will primarily focus on the geographic extent of the MID areas for Hurricane Matthew and Florence and even further focus on mitigating the principal hazards present or worsened by the disaster events.

The HMP goes on to catalog each hazard to include a description, extent (as defined by FEMA), location, hazard history, changing future conditions, impact, future probability, and Emergency Operation Plan reference. The Mitigation Needs Assessment will not reiterate all sections of the

⁸ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-2. <https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

HMP for all hazards, but the full Plan is available at <https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

The HMP is informed by 23 regional plans. The MID areas account for 10 of these plans. The breakdown of regional HMPs, their approval dates, expiration dates, and participating MID area are below.

Table 3 - Regional HMP and MID areas

Plan	Plan Approved	Participating MID
Pamlico Sound Regional HMP	6/12/2016	Carteret
		Craven
		Pamlico
Southeastern NC Regional HMP	4/26/2016	Brunswick
		New Hanover
		Pender
Columbus Regional HMP	7/14/2015	Bladen
		Columbus
Neuse River Basin Regional Multi-Jurisdictional HMP	2/25/2016	Jones
		Wayne
Cumberland-Hoke Regional HMP	6/28/2016	Cumberland
Nash-Edgecombe-Wilson Regional HMP	8/13/2015	Edgecombe
Onslow County Multi-Jurisdictional Plan Update	9/2/2015	Onslow
Pee Dee Lumber Regional HMP	3/23/2018	Scotland
Robeson County Multi-Jurisdictional Plan Update	5/11/2017	Robeson
Sampson-Duplin Regional HMP	4/12/2016	Duplin

At the time of the Mitigation Needs Assessment, the regional plans for MID areas were statutorily up to date. However, changing conditions in the State since their publication – in some instances two or more major storms have occurred since publication, including Hurricanes Matthew and Florence – change the understanding that the regional HMP are up to

date with expected risks and hazards present for the MID areas. It is in this context that the regional plans are reviewed for applicability and to fill knowledge gaps in the State HMP.

To first determine the applicability of the hazard to the Mitigation Needs Assessment, the risk is assessed using the probability and severity method reviewed at the end of Section 4.2 above.

4.3.1 Definitions

To align with the HMP, this Mitigation Needs Assessment will adopt the definitions found in the HMP for the disasters specified in Part 4.3 above.

4.3.1.1 Flooding

The HMP defines flooding as a localized hazard that generally results from excessive precipitation. Floods are generally considered to fall in one of two categories: flash floods, which are the product of heavy localized precipitation that occurs within a short period of time at a given location; and general floods, caused by precipitation that occurs during a longer period of time over a particular river basin.

In addition to the two flood categories, there are three types of flooding based on the flood conditions and environment. Riverine flooding is a function of precipitation levels and water runoff volumes within the watershed of the stream or river. Coastal flooding is typically a result of storm surge, wind-driven waves, and heavy rainfall. These conditions are produced by tropical systems during the summer and fall, and nor'easters and other large coastal storms during the winter and spring. Generally it is difficult to discuss coastal flooding separate from coastal hazards, such as hurricanes, and so often these hazards are discussed together. Finally urban flooding occurs where there has been development within stream floodplains or in coastal areas where there are high levels of development. Urban flooding is worsened by the development of impermeable surfaces such as roadways, pavement, and buildings.

Flooding is the most common environmental hazard to affect the United States, due to the widespread geographical distribution of river valleys and coastal areas, and the attraction of human settlements in these areas. Most recent presidential declarations concerning major disaster have been associated with flash floods and general flooding.⁹ Both the Hurricane Matthew and Hurricane Florence allocations are associated with flooding, as well as Hurricanes and Coastal Storms (to be discussed later).

According to the North Carolina Floodplain Mapping Program, the amount of land in the floodplain in North Carolina accounts for about 18.2 percent of the total land area in the state. The North Carolina Floodplain Mapping Program is currently in the process of developing and updating digital flood hazard data for the State's 100 counties.

⁹ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-5.
<https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

4.3.1.2 Hurricanes and Coastal Hazards

Hurricanes are cyclonic storms that originate in tropical ocean waters poleward of about 5 degrees latitude. Hurricanes are heat engines, fueled by the release of latent heat that results from the condensation of warm water. Their formation requires several elements, including: a low-pressure disturbance; sufficiently warm sea surface temperature; rotational force caused by the spinning of the earth; and the absence of wind shear in the lowest 50,000 feet of the atmosphere. Hurricanes can produce an array of hazardous weather conditions, including storm surge, high winds, torrential rain, and tornadoes.

Hurricanes have the greatest potential to inflict damage as they move from the ocean and cross the coastline. The crossing of the center of the storm's eye is called landfall. Because hurricanes derive their strength from warm ocean waters, hurricanes are generally subject to deterioration once they make landfall. The forward momentum of a hurricane can vary from just a few miles per hour to up to 40 mph. This forward motion (combined with a counterclockwise surface flow) makes the hurricane's right-front quadrant the location of its most potentially damaging winds.¹⁰

4.3.1.3 Severe Winter Weather

The winter storms that typically impact North Carolina generally form in the Gulf of Mexico or off the southeast Atlantic Coast. The entire state has a likelihood of experiencing severe winter weather. The threat varies by location and by type of storm. Coastal areas typically face their greatest weather threat from nor'easters and other severe winter coastal storms. These storms can contain strong waves and result in extensive beach erosion and flooding. Freezing rain and ice storms typically occur once every several years at coastal locations and severe snowstorms have been recorded occasionally in coastal areas.¹¹

4.3.1.4 Excessive Heat

Excessive heat is a dangerous and deadly occurrence in North Carolina. According to the National Weather Service, heat is one of the leading weather-related causes of loss of life in the United States.¹² The Centers for Disease Control and Prevention indicates that 618 people in the United States are killed by extreme heat every year.¹³ Also, according to the CDC, that number represents more deaths than hurricanes, lightning, tornadoes, earthquakes and floods combined.¹⁴ The CDC defines extreme heat as "summertime temperatures that are much

¹⁰ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-17.

<https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20A%20Adopted.pdf>.

¹¹ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-34.

<https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20A%20Adopted.pdf>.

¹² National Oceanic and Atmospheric Administration: National Weather Service. *Heat Safety Tips and Resources*.

<http://www.nws.noaa.gov/os/heat/>

¹³ Centers for Disease Control and Prevention. *Natural Disasters and Severe Weather*.

https://www.cdc.gov/disasters/extremeheat/heat_guide.html

¹⁴ Centers for Disease Control and Prevention. *Extreme Heat*. <https://www.weather.gov/images/rah/heat/CDCInfographic.jpg>

hotter and/or humid than average.” The National Weather Service defines a heat wave as “a period of abnormally and uncomfortably hot and unusually humid weather, typically lasting two or more days.”¹⁵

4.3.1.5 Earthquakes

An earthquake is a vibration or shaking of Earth’s surface due to an underground release of energy. They can be caused by various conditions, such as sudden movements along geological faults or volcanic activity. Earthquake magnitudes, or severity, are recorded on the Richter scale with seismographs. Some may be so small that they are virtually unnoticed, while others can destroy entire cities. Seismology, the study of earthquakes, helps scientists understand what areas are more prone to experiencing earthquakes, such as along the Ring of Fire; however, earthquakes are generally unpredictable.

Since 1735, North Carolina has experienced 23 earthquakes, each of which caused at least architectural damage. From historical data, scientists from the U.S. Geological Survey (USGS) and several university research centers have produced maps that project the expected ground motion for various return periods. The last recorded damaging earthquake in which the epicenter was located in North Carolina occurred in the vicinity of the Town of Hendersonville in 1985. The epicenter for the last recorded damaging event that affected the state was in Virginia in 2011.¹⁶

4.3.1.6 Wildfires

A wildfire is an uncontrolled burning of grasslands, brush or woodlands. The potential for wildfire depends upon surface fuel characteristics, recent climate conditions, current meteorological conditions, and fire behavior. Hot, dry summers and dry vegetation increase susceptibility to fire in the fall—a particularly dangerous time of year for wildfire.

Southern forest landscapes have had a long history of wildfire. Wildfires have taken place as a natural process for many thousands of years, playing an important role in the ecological integrity of our natural environment. Human settlement has significantly influenced changes in the spatial and temporal pattern of wildfire occurrence, as well as the risks associated with them for human life and property.¹⁷

4.3.1.7 Dam Failures

Dams store water in reservoirs during times of excess flow, so that water can be released from the reservoir during other times, when natural flows are inadequate to meet the needs of

¹⁵ National Oceanic and Atmospheric Administration: National Weather Service. *Historic Heat Waves in the Carolinas*. <http://www.weather.gov/ilm/heatwaves>

¹⁶ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-50. <https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

¹⁷ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-62. <https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

water users.¹⁸ Dams can pose risks to communities if not designed, operated, and maintained properly. In the event of a dam failure, the energy of the water stored behind even a small dam is capable of causing the loss of life and considerable property damage if there are people located downstream from the dam.¹⁹ Many dam failures have resulted because of an inability to safely pass flood flows. Failures caused by hydrologic conditions can range from sudden (with complete breaching or collapse), to gradual (with progressive erosion and partial breaching). The most common modes of failure associated with hydrologic conditions include overtopping, the erosion of earth spillways, and overstressing the dam or its structural components.²⁰

Like all built structures, dams deteriorate. Lack of maintenance causes dams to be more susceptible to failure. Often, the corrugated piping used in dam construction has a shorter life span than the dam itself, involving expensive replacement to avoid potential dam weakening. In the United States since 2000, more than 600 dam incidents, (including 70 dam failures) were reported to the National Performance of Dams Program, which collects and archives information on dam performance as reported by state and federal regulatory agencies and dam owners. Dam incidents are events (such as large floods, earthquakes or inspections) that alert dam safety engineers to deficiencies that threaten the safety of a dam. Due to limited state staff, many incidents are not reported, and therefore the actual number of incidents is likely to be much higher.

Communities continue to develop along the state's rivers, many in potential dam-failure inundation zones. Further exacerbating the potential risk to citizens is the disrepair of many dams and the lack of sound plans to help guide necessary repairs and warning systems to alert the public in the event of a dam failure.²¹

4.3.1.8 Drought

Drought refers to an extended period of deficient rainfall relative to the statistical mean established for a region. Drought can be defined according to meteorological, hydrological, and agricultural criteria. Meteorological drought uses long-term precipitation data to measure present precipitation levels against departures from normal precipitation levels. Hydrological drought is defined by surface and subsurface water supply deficiencies based on stream flow, lake, reservoir, and ground water levels. Agricultural drought occurs when there is insufficient soil moisture to satisfy the water budget of a specific crop, leading to destroyed or underdeveloped crops with greatly depleted yields.

¹⁸ National Drought Mitigation Center: University of Nebraska. *Storing and Moving Water*.

<http://drought.unl.edu/DroughtforKids/HowCanWeProtectOurselves/StoringandMovingWater.aspx>

¹⁹ Federal Emergency Management Agency. *Dams Sector: Crisis Management Overview Course*.

<https://emilms.fema.gov/ISO870a/DCM01summary.htm>

²⁰ Federal Emergency Management Agency. *Federal Guidelines for Dam Safety: Selecting and Accommodating Inflow Design Floods for Dams*. <https://www.ferc.gov/industries/hydropower/safety/guidelines/fema-94.pdf>

²¹ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-73.

<https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>

A drought is a prolonged period of less than normal precipitation such that the lack of water causes a serious hydrologic imbalance. Common effects of drought include crop failure, water supply shortages, and fish and wildlife mortality. High temperatures, high winds, and low humidity can worsen drought conditions and make areas more susceptible to wildfire. Human demands and actions have the ability to hasten or mitigate drought-related impacts on local communities.²²

4.3.1.9 Tornadoes/Thunderstorms

A tornado is a violently rotating column of air in contact with the ground and extending from the base of a thunderstorm. A condensation funnel does not need to reach to the ground for a tornado to be present; a debris cloud beneath a thunderstorm is all that is needed to confirm the presence of a tornado, even in the total absence of a condensation funnel.

It is spawned by a thunderstorm (or sometimes as a result of a hurricane) and produced when cool air overrides a layer of warm air, forcing the warm air to rise rapidly. The damage from a tornado is a result of the high wind velocity and wind-blown debris.

Thunderstorms can produce a variety of accompanying hazards including wind, hail, and lightning. Although thunderstorms generally affect a small area, they are very dangerous and may cause substantial property damage.²³

4.3.1.10 Geological Hazards

The HMP divides Geological Hazards into several subcategories – Landslides, sinkholes, and coastal erosion. A landslide is a downward movement of earth or rock from, driven by gravity. Landslides can be triggered by natural or man-made circumstances, such as heavy rains, earthquakes, rapid snow melt, erosion, or construction.

A sinkhole is an area of ground that has no natural external surface drainage--when it rains, all of the water stays inside the sinkhole and typically drains into the subsurface. Sinkholes can vary from a few feet to hundreds of acres and from less than 1 to more than 100 feet deep. Some are shaped like shallow bowls or saucers whereas others have vertical walls. Sinkholes are common where the rock below the land surface is limestone, carbonate rock, salt beds, or rocks that can naturally be dissolved by groundwater circulating through them. As the rock dissolves, spaces and caverns develop underground. Sinkholes are dramatic because the land usually stays intact for a while until the underground spaces just get too big. If there is not enough support for the land above the spaces then a sudden collapse of the land surface can occur.

²² North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-77.

<https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

²³ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-88.

<https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

Coastal or beach erosion is the wearing away of the beach and dune sediments due to winds, tidal currents, or wave action. Erosion is typically event-driven and tends to happen during periods of strong winds, high tides and waves, such as a storm; however, continued erosion wears away the coastal profile and can create imbalance on shorelines. An eroding beach may lose feet of sand per year. Erosion clearly affects the environment, but it also is problematic for homes and businesses that are constructed on or near beaches. Severe erosion can cause extreme property loss or damages. Many beaches rely on sandbags to be placed in front of homes and dunes to protect them from falling into the ocean.²⁴

4.3.1.11 Hazardous Substance

The HMP defines a hazardous substance as any element, chemical, substance, compound, mixture, agent, solution or substance that an accidental or deliberate release of may cause disease or harm to human health and the environment. Hazardous substances may have one or more of the following intrinsic properties: explosiveness, flammability, ability to oxidize (or accelerate a fire), human toxicity, or corrosiveness. Hazardous materials are found in many different forms and quantities that can potentially cause property damage, injuries, long-lasting health effects, and death. Many of these materials are used and stored on a daily basis in homes and businesses, and transported through major highways, waterways, pipelines, and railways. Each hazard has a different threshold level and can be naturally occurring, which creates many risks in the event of an emergency.

Hazardous material (HAZMAT) incidents consist of solid, liquid and/or gaseous contaminants that can occur at fixed facilities or mobile sources. Many HAZMAT emergencies result from accidents or negligent behavior, but some may be purposefully designed, such as a terror attack. These incidents can be acute or long-lasting and can cause fires or explosions, potentially affecting vast populations of people and wildlife.²⁵

4.3.1.12 Radiological Emergency – Fixed Nuclear Facility

A nuclear and radiation accident is defined by the International Atomic Energy Agency as “an event that has led to significant consequences to people, the environment or the facility. Often, this type of incident results from damage to the reactor core of a nuclear power plant, which can release radioactivity into the environment. The degree of exposure from nuclear accidents has varied from serious to catastrophic.”²⁶

²⁴ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-105.

<https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

²⁵ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-129.

<https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

²⁶ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-132.

<https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

4.3.1.13 Terrorism

Terrorism is defined in the United States by the Code of Federal Regulations is “the unlawful use of force or violence against persons or property to intimidate or coerce a government, civilian population, or any segment thereof, in furtherance of political or social objectives.”

Terrorist acts may include assassinations, kidnappings, hijackings, bombings, small arms attacks, vehicle ramming attacks, edged weapon attacks, incendiary attacks, cyber-attacks (computer based), and the use of chemical, biological, nuclear and radiological weapons. Historically the main categories of weapons of mass destruction (WMDs) used in terror attacks are Chemical, Biological, Radiological, Nuclear, and Explosive (collectively referred to as CBRNE).²⁷

4.3.1.14 Other Hazards

The HMP includes other hazards, such as cyber hazards, electromagnetic pulses, and infectious diseases. These hazards either indirectly affect the built environment or are not well mitigated using the conventional mitigation techniques used by the HMGP. To greater align with FEMA HMGP, these hazards are not included in the Mitigation Needs Assessment. Greater detail on these hazards remains available in the HMP.

4.3.2 Highly Likely Hazards

The HMP includes maps and analysis of future probability based on past events. The HMP divides hazards into three broad groups of probability – Highly Likely, Likely, and Unlikely to occur. Each of these categories is defined below in context with the MID area. Note that the HMP description of probability is qualitative, primarily based on historical hazard data.

To determine whether the hazard was present in the MID areas, the spatial data included in the HMP was visually reviewed to determine overlap with the impacted areas. In consideration of future changing conditions, the hazard probability is re-assessed based on anticipated changes in climate, sea level rise, and other environmental and social factors. The Mitigation Needs Assessment adopts the three hazard probability categories, but does not necessarily match the categories in the HMP in every instance.

Table 4 - Hazard probability, MID areas

Probability	Hazard
Highly Likely	Flooding
	Hurricanes and Coastal Hazards
	Tornadoes/Thunderstorms
Likely	Hazardous Substances
	Excessive Heat

²⁷ North Carolina Department of Public Safety. 2018 State Hazard Mitigation Plan, 3-148. <https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

Probability	Hazard
	Wildfires
	Drought
Unlikely	Severe Winter Weather
	Earthquakes
	Dam Failures
	Geological Hazards
	Radiological Emergencies
	Terrorism

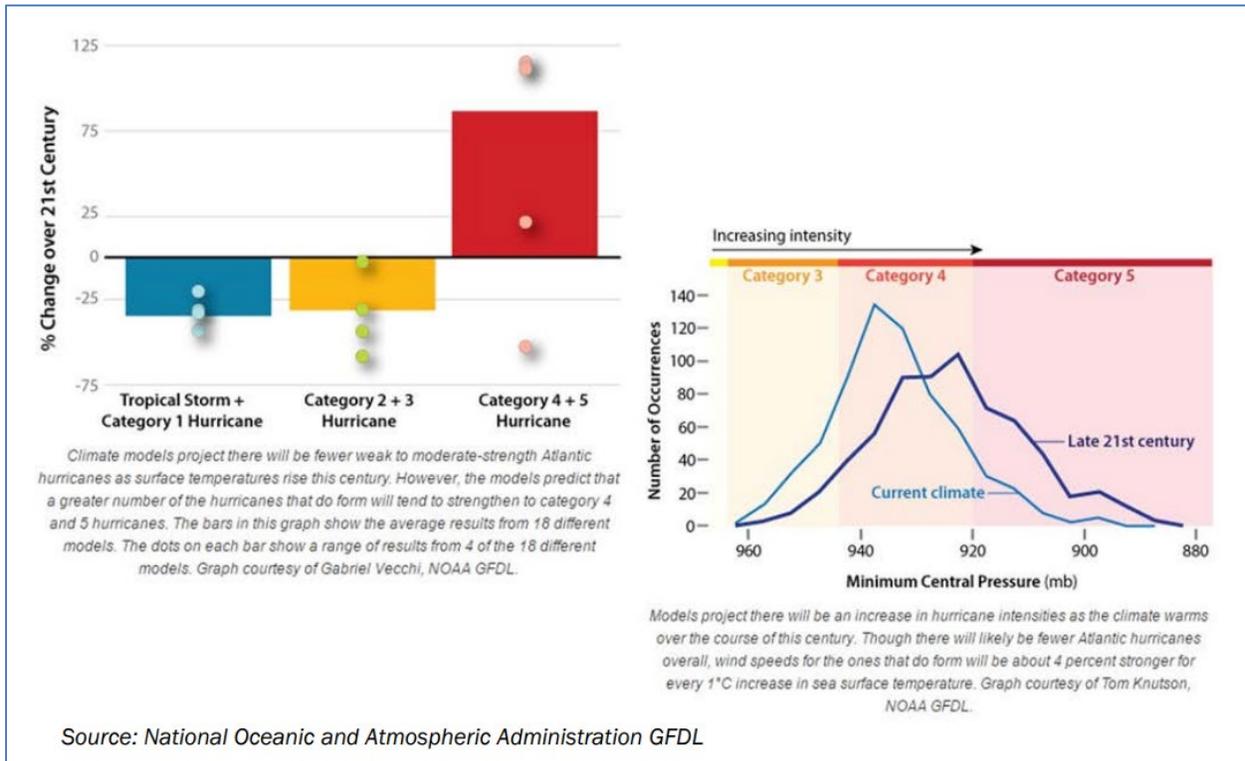
The first group of hazards are those that are determined to be Highly Likely. Hazards that are determined to be Highly Likely are defined in the HMP as having a 66.7 percent to 100 percent chance of disaster occurrence within a given year. The Highly Likely hazards within the MID areas are flooding, hurricanes and coastal hazards, and tornadoes/thunderstorms. The HMP rates flooding and tornadoes/thunderstorms as Highly Likely events, while hurricanes and coastal hazards are described as Likely.

In the Mitigation Needs Assessment, hurricanes and coastal hazards are elevated to Highly Likely for the following reasons. First, at the time of completion of the 2018 HMP, Hurricane Florence had not yet struck North Carolina. With two major storms making landfall in less than two years, and with the coastal impacts of Hurricane Dorian felt during the time of the development of this Mitigation Needs Assessment less than a year after Hurricane Florence, it is evident that coastal hazards warrant additional attention and scrutiny in this Mitigation Needs Assessment.

Additionally, the HMP indicates that changing climate and weather conditions may increase the number and frequency of future hurricane events that impact the State. According to the U.S. Government Accountability Office, national storm losses from changing frequency and intensity of storms are projected to increase anywhere from \$4-6 billion in the near future. National Oceanic and Atmospheric Administration (NOAA) reports support that weather extremes will likely cause more frequent, stronger storms in the future due to rising surface temperatures.²⁸

²⁸ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-32. <https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

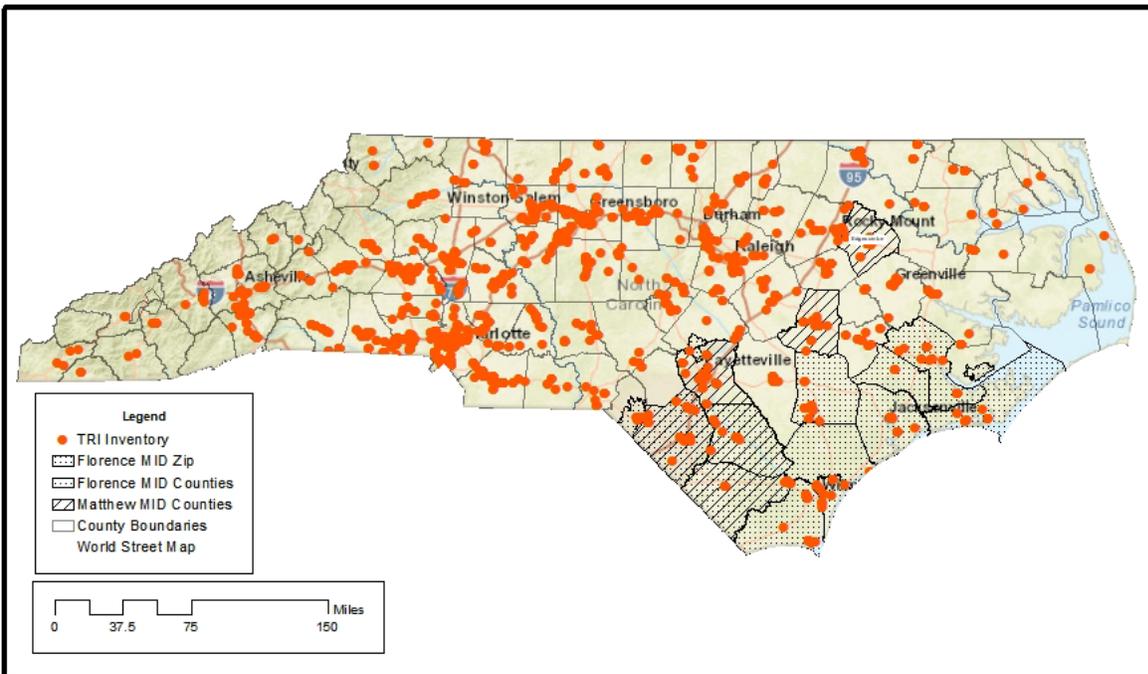
Figure 2 - NOAA Climate Models Projection for Future Hurricanes



4.3.3 Likely Hazards

Likely hazards are those that have a 33.4 percent to 66.6 percent chance of disaster occurrence in a given year. The Likely hazards in the MID areas are hazardous materials, excessive heat, wildfires, and drought.

The probability of a hazardous material related incident statewide is considered Highly Likely. It's important to note that a hazardous material incident may be minor, but the incidence rate is still comparatively high compared to other more serious disasters. Hazardous Materials disasters are more closely tied with infrastructure development such as roads and bridges where shipments of hazardous materials occur. The majority of fixed HAZMAT locations, cataloged in the Toxic Release Inventory (TRI) maintained by the Environmental Protection Agency (EPA), are located in central and western North Carolina, removed from the MID areas. Therefore, the probability associated with a hazardous materials incident in the MID areas is reduced to Likely rather than Highly Likely.

Figure 3 - Concentration of TRI Sites, NC

The next three Likely hazards, excessive heat, wildfire, and drought, are related to climate. The HMP includes excessive heat and drought in the Unlikely hazard category. However, as reviewed earlier, the HMP primarily considers past events. Research from NASA suggests that future droughts and heat waves (periods of abnormally hot weather lasting days to weeks) everywhere are projected to become more intense, while cold waves become less intense. Summer temperatures are projected to continue rising, and a reduction of soil moisture, which exacerbates heat waves, is projected for much of the western and central U.S. in summer. By the end of this century, what have been once-in-20-year extreme heat days (one-day events) are projected to occur every two or three years over most of the nation.²⁹ Therefore, in consideration of changing future conditions, the likelihood of an impact from excessive heat and drought are elevated to Likely.

Wildfires are considered to be Likely in the HMP, and the Mitigation Needs Assessment adopts this classification. This is further corroborated by the number of wildfires during unusual dry periods in the Hurricane Matthew and Florence MID areas. The changing climate conditions leading to increased drought and excessive heat have the same worsening effect on wildfires in the MID areas, which are already more prone to wildfire events.

²⁹ NASA. *Global Climate Change: Vital Signs of the Planet*. <https://climate.nasa.gov/effects/>

Figure 4 - Wildfires in NC, 1998-2017³⁰

County	Wildfires, 1998 - 2017
Bladen*	2
Brunswick*	4
McDowell	2
New Hanover*	2
Pender*	6
Robeson*	2
Rutherford	2
Swain	2
Other (Statewide)	10
* MID Area	

4.3.4 Unlikely Hazards

Many hazards are present statewide that do not manifest regularly in the MID areas. These hazards are determined to be Unlikely for the MID areas, with a chance of a disaster from these hazards between 1 percent and 33.3 percent in a given year. Unlikely hazards include severe winter weather, earthquakes, dam failures, geological hazards, radiological emergencies, and terrorism (including cyber-crime and electromagnetic pulses).

Severe winter weather is categorized by the HMP as a Likely hazard statewide. However, since 1996, many of the MID counties (Brunswick County, Columbus County, Robeson County, New Hanover County, Pender County, and Bladen County) experienced fewer than 10 winter weather events. Severe winter weather is more significant in the western area of the state, such as Avery and Mitchell Counties.³¹ Compounded with the climatological considerations discussed for excessive heat, drought, and wildfire in Part 4.3.3 above, continued severe winter weather events in the MID areas is considered Unlikely.

The propensity for earthquakes is concentrated in the western area of the State. A low risk earthquake hazard exists in the MID areas, and the time horizon for earthquake hazards is extremely long compared to other hazards statewide. In a 50-year time horizon, there is a two percent chance of an earthquake reaching 8-10 percent gravity for a portion of the MID area.

³⁰ NOAA: National Centers for Environmental Information. *Wildfires by County, Total from 1998 to 2017*.

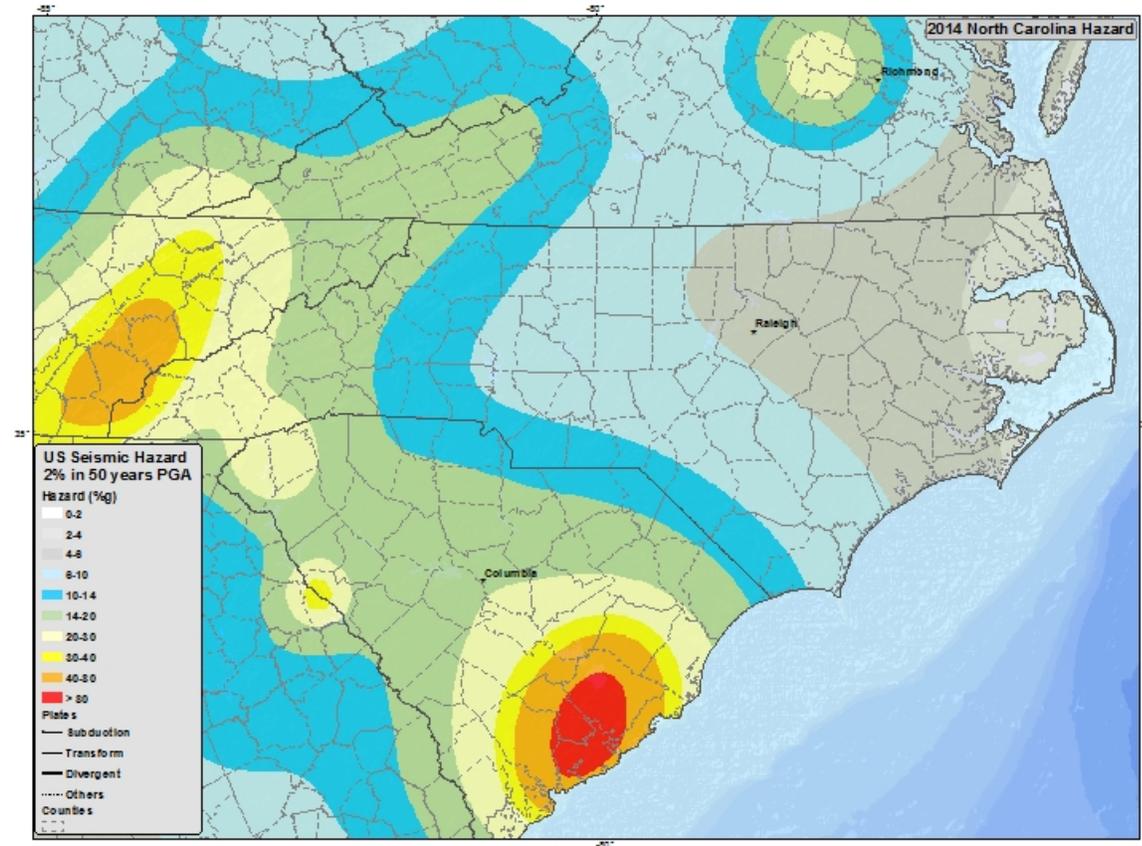
<https://www.ncdc.noaa.gov/sotc/fire/201713>

³¹ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-36.

<https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>

An earthquake of that intensity would have moderate to strong perceived shaking and very light to light damage. Adjacent areas are slightly more risk prone and the more north eastern areas are significantly less risk prone.³²

Figure 5 - Earthquake hazard, statewide



Dam failure is a complex issue facing the aging dams in place throughout North Carolina. There are more than 5,600 dams in North Carolina. 1,445 of those dams are considered high hazard that could present a risk to public safety and property if a dam failure were to occur. High hazard dams are up from 874 in 1998, indicating that dam failure is a worsening issue for the State.³³ Currently, the greatest number of high hazard dams are found outside of the MID areas in Wake, Mecklenburg, Guilford, Forsyth, and Moore Counties.³⁴ A total of 103 high hazard dams are located in the MID areas, accounting for 7.12 percent of all high hazard dams in the State.

³² United States Geologic Survey. *Information by Region – North Carolina. 2014 Seismic Hazard Map.*

<https://earthquake.usgs.gov/earthquakes/byregion/northcarolina-haz.php>

³³ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-75.

<https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

³⁴ North Carolina Department of Environmental Quality: Dam Safety. *N.C. Dam Inventory as of 7/16/18.*

<https://deq.nc.gov/about/divisions/energy-mineral-land-resources/energy-mineral-land-permits/dam-safety>

Table 5 - High Hazard Dams, MID areas

MID Area	# of High Hazard Dams	MID Area	# of High Hazard Dams
Cumberland	54	Edgecombe	2
Wayne	15	New Hanover	2
Duplin	7	Robeson	2
Columbus	5	Carteret	1
Brunswick	4	Craven	1
Bladen	3	Jones	1
Onslow	3	Total	103
Scotland	3	Rest of State	1,342
		Grand Total	1,445

Geological hazards are present statewide, but landslides and sinkholes are predominately located outside of the MID areas. Coastal erosion, however, is worth noting in the MID areas as natural processes are exacerbated by sea level rise, potentially worsening or adding unpredictability to the coast of the State. Although the conditions for coastal erosion may be changing, the timescale for a coastal erosion event remains of such significant length that a disaster occurring from coastal erosion remains highly unlikely. According to the HMP, Carteret and New Hanover counties may be most susceptible to coastal erosion compared to other MID areas.³⁵

The remaining unlikely hazards, radiological emergencies and terrorism, are more closely tied with population than environmental factors. There is only one nuclear facility within the MID area, the Brunswick Nuclear Plant in Southport, North Carolina, on the Cape Fear River. If there were a nuclear emergency, the areas surrounding this plant would be exposed to potentially dangerous radiation levels. However, the State has no history of major radiological emergencies. While the increasing population near the Brunswick Nuclear Plant may increase the *severity* of a radiological emergency, it does not affect the probability of such an emergency.

Terrorism is most tied to population centers. It is difficult to anticipate a terrorist attack, but there is no particular expectation of increased terrorism in the MID areas, and these areas share the same classification as the rest of the state as a highly unlikely disaster.

³⁵ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-111. <https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

4.3.5 Severity

The severity of a potential disaster is the amount of damage dealt to people and property during a potential disaster event. While probability assessments seek to answer “how often”, severity assessments seek to answer “how much.” A Highly Unlikely disaster may cause significant damage, and therefore warrant as much consideration for a mitigation activity as a more frequently occurring, but generally less destructive event.

The assessment of severity divides the hazards identified above into four categories; Very Severe, Severe, Mild, and Unknown Severity or Lacking Quantitative Data. The quantitative breaks in severity are defined below.

- **Very Severe.** Very Severe hazards are those that present serious risk to life and property. Very Severe hazards are those that cause greater than \$500,000 of damage an occurrence on average and/or have great potential to kill or injure.
- **Severe.** Severe hazards are those that present a risk to life and property. Severe hazards are those that cause between \$75,000 and \$499,000 an occurrence and/or have potential to injure and possibly kill.
- **Mild Severity.** Mild hazards are those that generally present a lower risk to life and property. These hazards may cause less than \$75,000 of damage an occurrence and/or present limited risks to life and property.
- **Unknown Severity or Lacking Quantitative Data.** Hazards of unknown severity may not have occurred in the past (although the probability of occurrence is generally known) or are too varying in intensity to accurately predict damage. These hazards are not dismissed outright, but the historical data and other data available in the HMP is not sufficient to quantify the risk to life and property.

Primarily using the HMP as a reference, the severity rating of each hazard reviewed in Parts 4.3.2 through 4.3.4 above is below:

Table 6 - Estimated Hazard Severity

Severity	Hazard
Very Severe	Hurricanes and Coastal Hazards
	Flooding
Severe	Tornadoes/Thunderstorms
	Wildfires
Mild Severity	Severe Winter Weather
	Excessive Heat
	Drought

Severity	Hazard
Unknown Severity or Lacking Quantitative Data	Earthquakes
	Geological Hazards
	Dam Failures
	Hazardous Substances
	Radiological Emergencies
	Terrorism

4.3.6 Previous Events

The most reliable measure of severity is the amount of damage (including fatalities and injuries, if applicable) inflicted by previous disaster events. Often severity is conflated with the *intensity* of the event. Intensity is a measure of the strength of a storm, such as the category rating used for hurricanes, 1 through 5 in the Saffir-Simpson Hurricane Wind Scale. The Mitigation Needs Assessment seeks to reframe severity as impact rather than the natural severity of the disaster. For instance, a Category 1 hurricane may have a greater impact than a Category 5 hurricane, in the appropriate conditions.

The HMP identifies past disasters from 1996 through 2017. Since 2017, the State has faced major disasters including Hurricane Florence, Hurricane Michael, Hurricane Dorian, the floods of February 2020, and Hurricane Isaias which are not included in the calculations for flooding or coastal hazards. It is therefore appropriate to assume that flood and coastal disaster events are underestimated in the HMP quantitative assessment of risk based on past events.

4.3.7 Very Severe Impacts

The most severe disaster expected in the MID areas are hurricanes and coastal hazards and flooding.

Hurricanes and coastal hazards present the most severe impacts expressed in past events for the MID areas. The HMP includes coastal hazards from 1993 for a total of 18 hurricanes or tropical storms with impacts to the State. The inclusion of Hurricane Florence brings this total to 19. In each instance, at least one MID area was the geographic location of the storm.

The total cost of coastal events to North Carolina is catastrophic. The past two major disaster declarations (Hurricane Matthew and Hurricane Florence) combined for nearly \$29 billion in damage statewide.³⁶ The majority of that damage is concentrated in the MID areas identified in this Action Plan. Through 19 storms, the damage has exceeded \$32 billion and accounted for 117 fatalities.

³⁶ NOAA National Centers for Environmental Information (NCEI). *U.S. Billion-Dollar Weather and Climate Disasters (2019)*. <https://www.ncdc.noaa.gov/billions/>

Table 7 - Coastal Hazard Impacts, Since 1993

Event	Year	Fatalities	Property and Crop Damage (2017 dollars)
Emily	1993	0	\$ 85,400,000
Gordon	1994	0	\$ 832,722
Felix	1995	1	\$ 1,619,473
Bertha	1996	1	\$ 490,700,000
Fran	1996	13	\$ 1,927,000,000
Bonnie	1998	1	\$ 498,000,000
Dennis	1999	0	\$ 4,562,900
Floyd	1999	13	\$ 6,600,000,000
Irene	1999	1	\$ 45,923
Isabel	2003	2	\$ 641,000,000
Alex	2004	0	\$ 9,800,000
Charley	2004	3	\$ 29,190,000
Ivan	2004	8	\$ 17,500,000
Ophelia	2005	0	\$ 78,400,000
Earl	2010	0	\$ 3,350,000
Irene	2011	6	\$ 201,400,000
Arthur	2014	0	\$ 698,500
Matthew	2016	28	\$ 4,800,000,000
Florence	2018	40	\$ 17,000,000,000
Total	-	117	\$ 32,389,499,518

Using the table above, the average fatality per event is greater than six and the average expected loss is \$1.7 billion, a staggering amount of damage per occurrence. An analysis of both annualized and per-occurrence average where available indicates that hurricanes and coastal hazards are the most potentially devastating hazard facing the MID area and even Statewide.

For flood hazards, The MID areas experienced a total of 663 flood events and subsequently suffered 18 fatalities, 2 injuries, and over \$448 million in property and crop damage from

flooding.³⁷ Floods in the MID areas tend to be more costly and more fatal than the rest of the State, as the MID areas account for 27 percent of the total cost of flooding statewide and 25 percent of the fatalities, despite accounting for less than 20 percent of all flood events statewide.

Table 8 - Flood Severity, Fatalities and Damage, MID Areas

County	# of events (1996-	Fatalities	Injuries	Property and Crop Damage (2017 dollars)
New Hanover	136	-	2	\$ 5,475,278
Brunswick	75	-	-	\$ 4,950,971
Pender	74	-	-	\$ 1,311,278
Cumberland	50	2	-	\$ 88,434,863
Bladen	41	2	-	\$ 19,927,883
Carteret	39	-	-	\$ 18,416
Edgecombe	35	8	-	\$ 91,659,926
Onslow	35	-	-	\$ 9,687,065
Wayne	32	4	-	\$ 149,949,487
Columbus	30	1	-	\$ 62,234,960
Craven	27	1	-	\$ 1,254,914
Duplin	26	-	-	\$ 1,340,859
Robeson	19	-	-	\$ 4,892,669
Scotland	17	-	-	\$ 3,085,147
Jones	15	-	-	\$ 4,357,391
Pamlico	12	-	-	\$ 11,319
Total in MID	663	18	2	\$ 448,592,426
Remainder of the State	2,700	54	26	\$ 1,214,872,328

The average damage per occurrence for a flood event in the MID areas is \$676,610. The greatest historical damage has been experienced in Wayne, Edgecombe, and Cumberland County.

³⁷ North Carolina Department of Public Safety. *2018 State Hazard Mitigation Plan*, 3-12. <https://files.nc.gov/ncdps/documents/files/State%20of%20North%20Carolina%20Hazard%20Mitigation%20Plan%20Final%20As%20Adopted.pdf>.

The MID areas also have a high concentration of Repetitive Loss (RL) and Severe Repetitive Loss (SRL) property. A Repetitive Loss (RL) property is any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978. A RL property may or may not be currently insured by the NFIP. There are over 122,000 RL properties nationwide. A Severe Repetitive Loss (SRL) Property is a building which has had flood-related damage resulting in a flood insurance claim four or more times, with the amount of each claim exceeding \$5,000 and the cumulative amount is greater than \$20,000, or when two separate flood insurance claims have exceeded the reported value of the property.

Approximately 47 percent of all RL property and 41 percent of all SRL property is located within the MID counties. The counties with the highest concentration of RL and SRL properties are coastal counties such as New Hanover, Carteret, Pamlico, Craven, Brunswick, and Onslow. New Hanover has nearly double the second greatest county's total of RL properties with 1,305 compared to Pamlico County's 733.

Figure 6 - RL/SRL Property in MID Counties

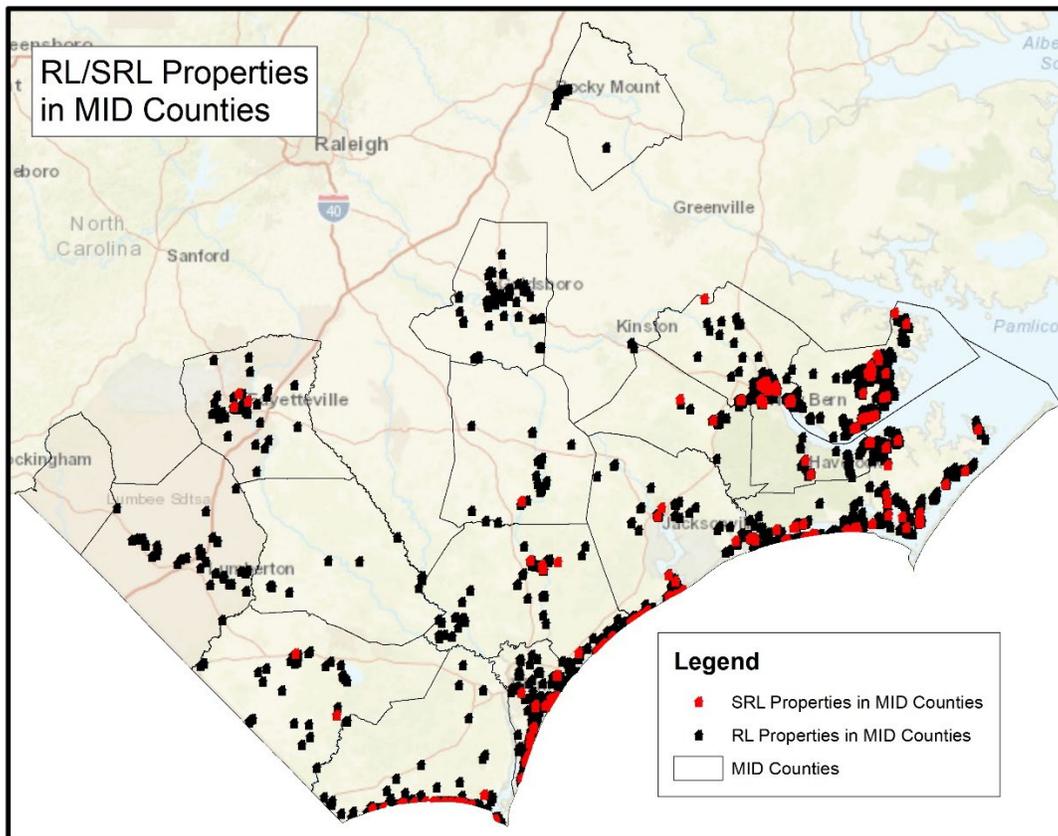


Table 9 - RL/SRL Property in MID Counties, by County

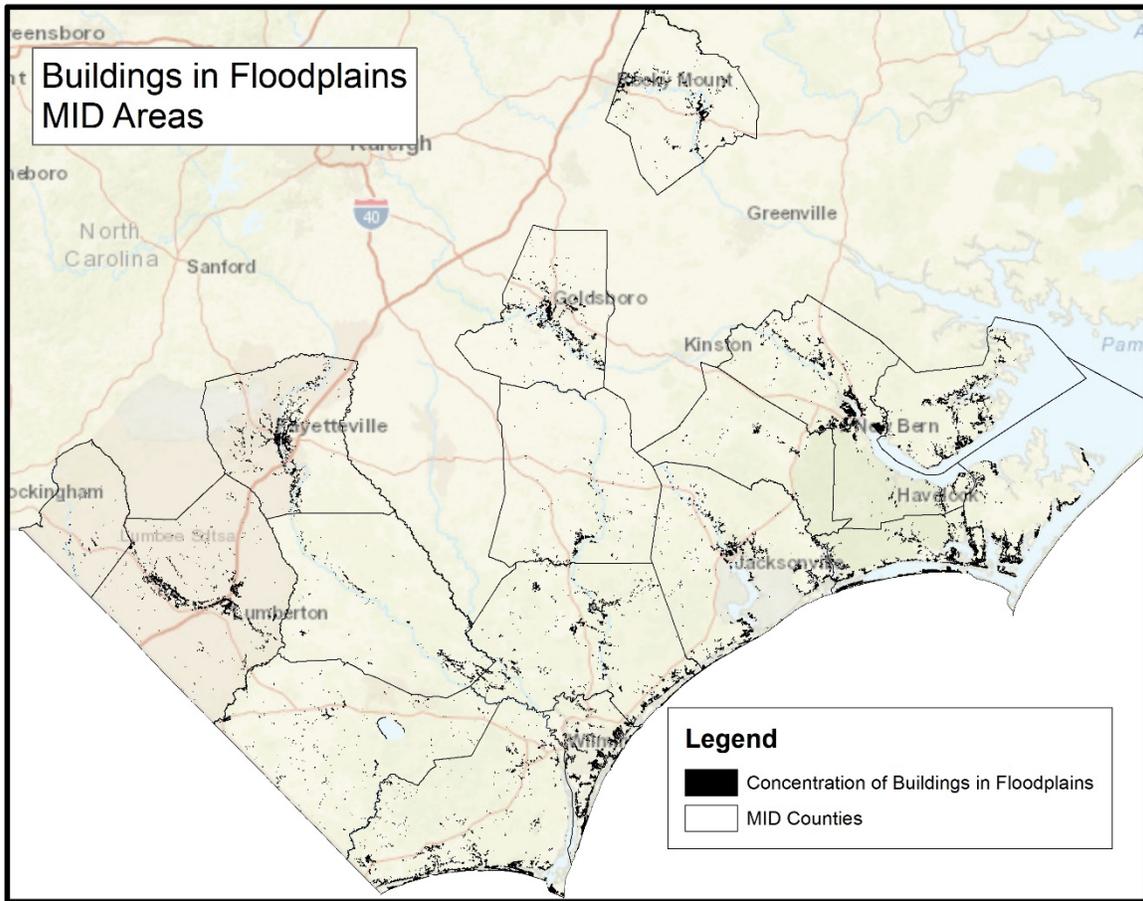
County	RL Property	SRL Property
NEW HANOVER COUNTY	1,305	54
PAMLICO COUNTY	733	25
CARTERET COUNTY	725	45
CRAVEN COUNTY	653	44
ONslow COUNTY	574	27
BRUNSWICK COUNTY	557	21
PENDER COUNTY	420	29
WAYNE COUNTY	61	-
ROBESON COUNTY	53	-
COLUMBUS COUNTY	47	2
CUMBERLAND COUNTY	43	3
DUPLIN COUNTY	29	1
JONES COUNTY	17	2
BLADEN COUNTY	15	-
EDGEcombe COUNTY	15	-
BEAUFORT COUNTY	1	-
Total in MID	5,248	253
Grand Total	11,159	611
Total outside of MID	5,911	358
Percent in MID	47%	41%

The total risk to buildings in floodplains is extreme in the MID areas. According to NCEM data, there are more than 130,000 buildings located within the 100-year or 500-year floodplain within the MID areas. The total value of these structures is over \$40 billion and is considered at risk of flood losses.

Table 10 - Value of buildings in the floodplain, MID areas

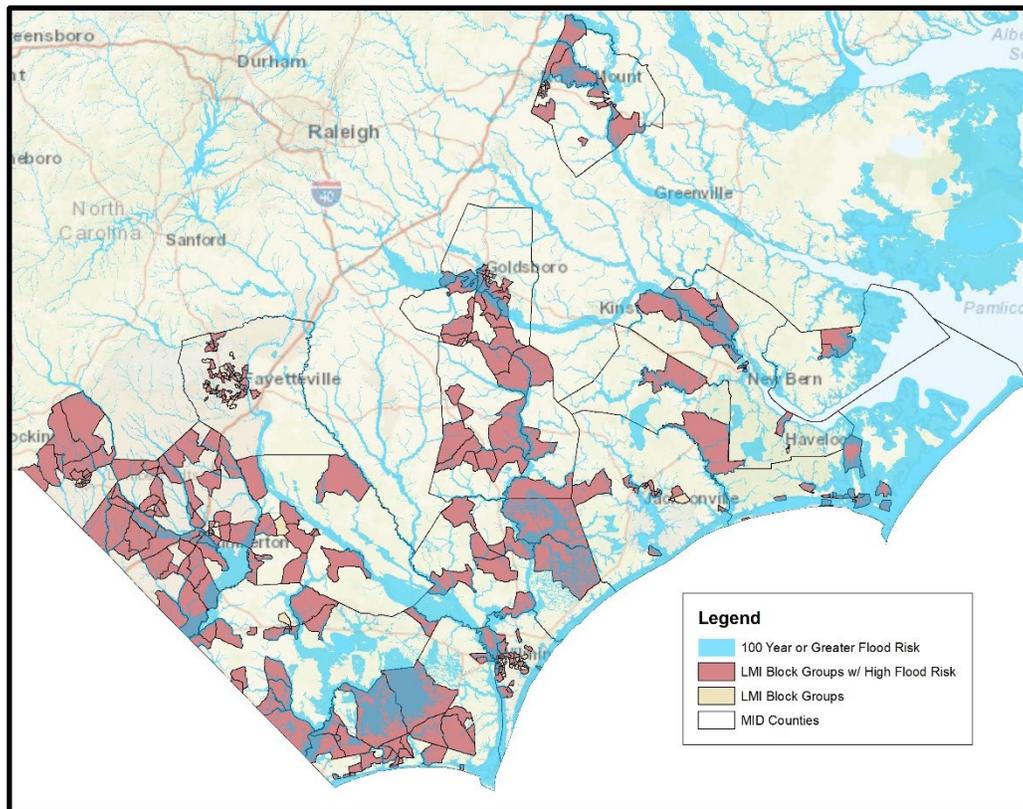
Buildings in Floodplain	Total Value
133,803	\$ 40,972,883,854

Figure 7 - Buildings in Floodplains, MID Areas



In addition to at-risk buildings, a significant amount of the population in the MID areas is located in a block group that is intersected by the 100-year floodplain. Of the 1,055 block groups which comprise or border the MID areas, 362 of those block groups have a low- and moderate-income (LMI) population greater than 51 percent of the total population of the block group. This is known as an LMI block group. Of those 362 LMI block groups, 304 of them contain a portion of the 100-year floodplain.

Figure 8 - LMI Block Groups and the 100-year Floodplain



Although it is not clear how the population of the block groups is organized within the block group in relation to the floodplain, 261,035 individuals live within block groups that are intersected by the 100-year floodplain. Based on the spatial distribution of the floodplains and the LMI population of the MID areas, it is evident that a significant portion of the LMI population is located within the 100-year floodplain. This is corroborated by a December 2017 study performed by the NYU Furman Center, which found that approximately four percent of North Carolina’s total population is found in the 100-year floodplain (431,190 individuals) and that the statewide poverty rate was similar within and without the floodplain (approximately 17 percent).³⁸

4.3.8 Severe Impacts

Two hazard types comprise the Severe category, Tornadoes and Thunderstorms and Wildfires.

For tornadoes, a total of 441 events have been recorded since 1950 in the MID areas, while from 1996 through 2017 a total of 2,580 severe thunderstorms have been recorded. The average expected loss per event, expressed in 2017 dollars for tornadoes and thunderstorms combined, is \$185,448.

³⁸ New York University Furman Center. *Population in the U.S. Floodplains.* https://furmancenter.org/files/Floodplain_PopulationBrief_12DEC2017.pdf

Table 11 - Tornadoes by MID County

County	Events by Fujita Scale (F-Rating), 1950-2017					Total Events	Fatalities	Injuries	Damage
	0	1	2	3	4				
Bladen	8	6	6	1		21	5	8	\$ 485,523
Brunswick	16	8	1			25	-	-	\$ 2,114,000
Carteret	37	23	6			66	-	11	\$ 24,968,233
Columbus	10	9	4	2		25	8	40	\$ 15,999,620
Craven	21	7	3	1		32	-	48	\$ 28,933,635
Cumberland	7	7	4	3	2	23	5	168	\$ 99,079,510
Duplin	9	12	13	2	1	37	-	86	\$ 90,248,666
Edgecombe	1	3	-	3		7	-	8	\$ 2,844,846
Jones	10	2	4	1		17	1	13	\$ 29,474,562
New Hanover	8	10				18	-	7	\$ 3,938,265
Onslow	28	11	4	1		44	3	53	\$ 23,649,127
Pamlico	9	2	2	1		14	1	45	\$ 26,160,194
Pender	17	10	4			31	3	31	\$ 6,321,900
Robeson	16	18	7		3	44	6	334	\$ 22,278,431
Scotland	2	3	1	2	3	11	-	24	\$ 19,342,737
Wayne	13	8	3	1	1	26	4	159	\$ 125,913,490
Total in MID	212	139	62	18	10	441	36	1,035	\$ 521,752,739
Statewide	555	515	232	58	29	1,389	127	2,577	\$ 3,000,368,872
Remainder of the State	343	376	170	40	19	948	91	1,542	\$ 2,478,616,133

Tornadoes are extremely damaging statewide. The damage losses from Tornadoes in MID areas are 17.4 percent of the total statewide losses, despite the MIDs accounting for 31.75 percent of all tornadoes statewide. While the cause is unclear based on the data, it does indicate that MID areas are not as vulnerable to tornado damage as other areas of the State. In contrast, 40 percent of tornado-related injuries occur in MID counties, indicating that the risk to life is greater than the risk to property in a tornado event in the MID areas.

Table 12 - Severe Thunderstorms by MID County

County	Thunderstorm Events (1996-2017)	Fatalities	Injuries	Damage
Bladen	234	-	6	\$ 2,684,680
Brunswick	130	-	1	\$ 809,879
Carteret	139	-	1	\$ 2,141,410
Columbus	214	-	7	\$ 9,609,388
Craven	179	-	2	\$ 367,027
Cumberland	229	-	8	\$ 1,749,515
Duplin	198	-	6	\$ 1,449,497
Edgecombe	118	-	1	\$ 1,494,863
Jones	65	-	3	\$ 145,531
New Hanover	133	-	5	\$ 2,430,684
Onslow	169	-	-	\$ 398,613
Pamlico	35	-	-	\$ 95,863
Pender	125	-	7	\$ 3,584,115
Robeson	309	-	8	\$ 5,483,568
Scotland	96	-	4	\$ 851,930
Wayne	207	1	9	\$ 5,187,599
Total in MID	2,580	1	68	\$ 38,484,162
Statewide	14,845	31	226	\$ 103,170,357
Remainder of the State	12,265	30	158	\$ 64,686,195

Severe thunderstorms are not as pronounced in the MID areas, accounting for only 17.38 percent of storms statewide. However again injuries appear more common in the MID areas from severe storms, as MID areas account for 30 percent of thunderstorm-related injuries. Thunderstorm damage is also disproportionate in the MID counties, with 37.3 percent of statewide damages within the MID areas.

Fifty percent of wildfire incidents in the state occur within the MID counties. Damage as a percent of incidents is approximately in line with the proportion of incidents in the MID areas,

at 56.75 percent of damages caused by wildfire in the MID counties. The average cost of a wildfire incident is \$200,147 upon review of the 16 wildfire events in the MID areas. The outlier for wildfire incidents is Brunswick County, with a total of 4 major events since 1998 with a property and crop damage total of \$2.6 million.

4.3.9 Mild Impacts

Mild hazards are those with minimal past damage or typically pose a lesser threat to life. The mild hazards in the MID areas include Severe Winter Weather and Excessive Heat.

Severe Winter Weather poses little threat to the MID areas, with New Hanover, Craven, Duplin, Scotland, and Jones counties not registering property or crop damage of any kind from winter weather. Only 5.3 percent of all winter weather events in North Carolina occur in the MID areas, accounting for 5.4 percent of total damage from winter weather for the State. Worth noting, and similar to thunderstorms and tornadoes, is that the fatality and injury rate is higher in the MID areas than elsewhere in the state. Despite low damage per occurrence (\$53,732 per occurrence, on average), 34 fatalities and 177 injuries are attributed to winter weather in the MID areas since 1996, approximately 26 percent of the State total.

Table 13 - Severe Winter Weather in the MID Counties

County	Severe Winter Weather events, 1996-2017	Fatalities	Injuries	Property and Crop Damage
New Hanover	6	-	-	\$ -
Brunswick	9	-	-	\$ 201,211
Pender	23	2	-	\$ 2,001,571
Cumberland	33	1	-	\$ 10,283
Bladen	26	-	-	\$ 4,604,380
Carteret	21	4	4	\$ 334,011
Edgecombe	41	-	-	\$ 23,807
Onslow	26	1	35	\$ 222,211
Wayne	31	-	-	\$ 10,283
Columbus	18	-	-	\$ 7,845,330
Craven	27	-	-	\$ -
Duplin	30	1	5	\$ -
Robeson	27	-	-	\$ 5,947,616

County	Severe Winter Weather events, 1996-2017	Fatalities	Injuries	Property and Crop Damage
Scotland	31	-	-	\$ -
Jones	25	-	-	\$ -
Pamlico	21	-	2	\$ 23,596
Total in MID	395	9	46	\$ 21,224,299
Statewide	7,500	34	177	\$ 395,455,789
Remainder of the State	7,105	25	131	\$ 374,231,490

Excessive heat is not associated with direct damage costs, but can be deadly. Thirty four excessive heat events since 1996 have killed 16 people and injured another 15. While 27 percent of excessive heat events have impacted the MID counties, 88 percent of injuries and 31 percent of fatalities statewide have come from the MID areas.

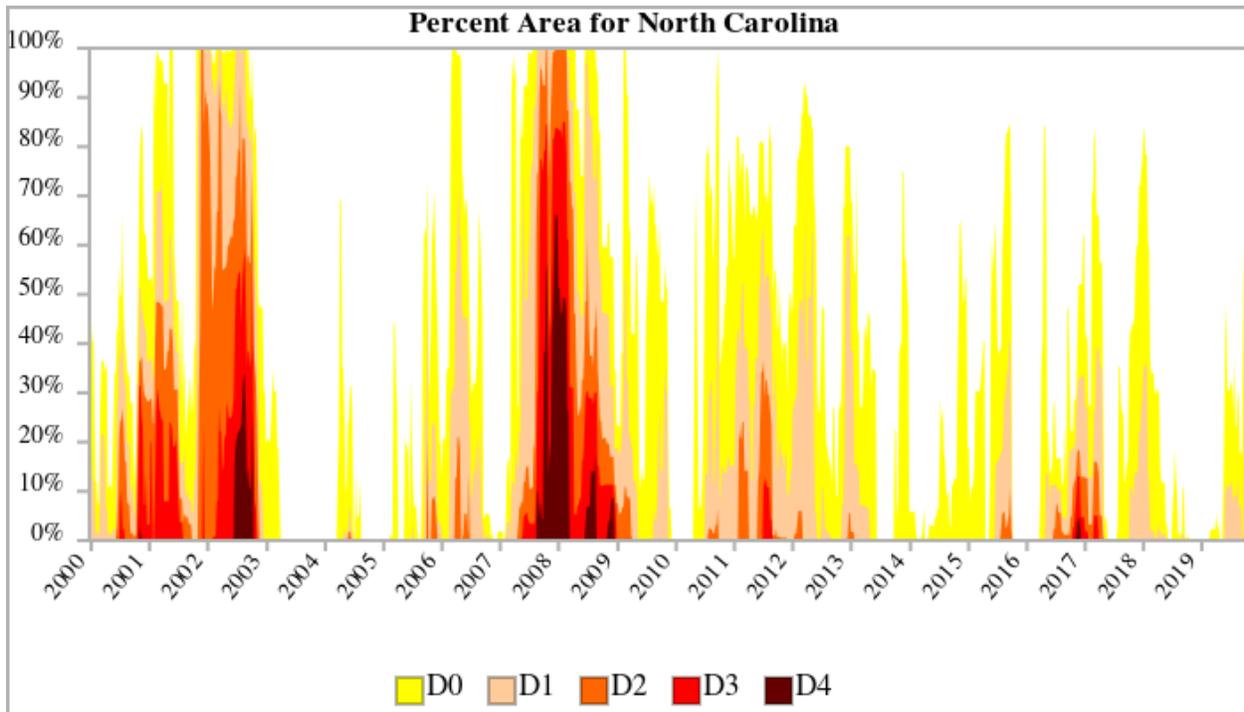
4.3.10 Unknown Severity

Hazards with unknown severity may occur so infrequently to not have a meaningful estimate of average damage caused by an event, may occur over long time horizons and therefore are difficult to directly tie damage to, or are variable in scope and impact by their nature and therefore cannot be accurately estimated. The hazards with unknown severity include drought, hazardous substances, earthquakes, dam failures, geological hazards, radiological emergencies, and terrorism.

Drought does not directly contribute to property damage, but can significantly impact crop production over a long time horizon. Therefore it is difficult to measure specific losses attributed to drought. The United States Drought Monitor began measuring drought by duration in 2000 nationwide. Since then, North Carolina has had multiple droughts, with the longest lasting from January 4, 2000 and ending on December 17, 2002. The most intense drought occurred the week of December 25, 2007 where 66.2 percent of the landmass of North Carolina was affected.³⁹

³⁹ United States Drought Monitor. *National Integrated Drought Information System*.
<https://www.drought.gov/drought/states/north-carolina>

Figure 9: Drought in North Carolina



Longer droughts affect crop production, may worsen the risk of wildfire, and generally reduce quality of life.

Earthquakes occur infrequently within the MID areas and seldom with enough damage potential to create an average damage per occurrence. However, earthquake losses have been annualized in the HMP.

Table 14 - Annualized earthquake losses, MID areas

County	Annualized Losses
Bladen	\$ 178,792
Brunswick	\$ 409,578
Carteret	\$ 70,584
Columbus	\$ 411,353
Craven	\$ 93,615
Cumberland	\$ 1,409,515
Duplin	\$ 257,214
Edgecombe	\$ 61,166

County	Annualized Losses
Jones	\$ 12,803
New Hanover	\$ 831,871
Onslow	\$ 231,484
Pamlico	\$ 8,172
Pender	\$ 98,802
Robeson	\$ 1,153,622
Scotland	\$ 295,103
Wayne	\$ 374,682
Total in MID	\$ 5,898,354
Statewide	\$ 36,593,359
Remainder of the State	\$ 30,695,005

Annualized losses are difficult to use to assess the severity of a single disaster, therefore the severity of earthquakes is not as well defined in this Mitigation Needs Assessment.

Geological hazards vary in severity, and similar to droughts, present hazards over long time horizons with often imperceptible changes, particularly when assessing geological hazards associated with coastal erosion. The threat of sinkholes and coastal erosion, the most pressing geological hazards in the MID areas, is best described by the buildings at risk of loss within coastal erosion zones. The HMP prepared an analysis of buildings within 50 yards of an active sinkhole or within 50 yards of a costal erosion area. The total value of the buildings at risk within 50 yards of an active sinkhole in the MID areas is \$946 million. The majority of those buildings and the majority of the value of all buildings at risk of sinkholes is in New Hanover County, with 1,311 buildings worth \$617 million alone. The total value of buildings at risk of eroding shoreline is \$80 million, generally concentrated in New Hanover, Onslow, and Brunswick counties.

Table 15 - Buildings at risk of sinkholes or coastal erosion in MID areas

County	# of Buildings within 50 yards of a sinkhole	Value of buildings at risk	# of buildings within 50 yards of eroding shoreline	Value of buildings at risk
Brunswick	1,693	\$ 274,060,857	101	\$ 16,954,506
Carteret	-	\$ -	23	\$ 5,855,243
Jones	4	\$ 466,228	-	\$ -
New Hanover	1,223	\$ 617,106,193	39	\$ 30,862,658
Onslow	1,311	\$ 50,397,642	130	\$ 21,965,739
Pender	97	\$ 4,325,222	52	\$ 4,569,816
Total	4,328	\$ 946,356,142	345	\$ 80,207,962

Dam failure is considered in the HMP but annualized losses statewide total only \$197. Therefore, the risk of dam failure is minimal in the MID areas, which also contain relatively few high risk dams. Similarly, hazardous substances, radiological emergencies, and terrorism hazards are not annualized and are not summarized at the county level in the HMP to draw a conclusion about the relative severity of these events. In some instances, such as radiological emergencies, no such hazard has manifested as a disaster event in State history and therefore the severity is considered minimal.

4.3.11 Multi-Hazard Interface

In some instances a disaster occurrence will increase the risk of disaster and worsen an existing hazard. This interaction between hazards is known as the Multi-hazard Interface. The Multi-hazard approach is well known in wildfire-prone wildland-urban interface (WUI) areas which face natural hazards from wildfires, drought, and mudslides caused by flooding which must all be accounted for in a hazard mitigation plan.⁴⁰

While wildfire hazard is generally not as serious as coastal hazards and flooding, it must be acknowledged that addressing some hazards while ignoring others may cause externalities in community vulnerability that could degrade the overall safety of the community. The following hazards may have “ripple effects” on other hazards, and worsen the risk posed by these hazards under disaster conditions.

⁴⁰ American Planning Association. *Multihazard Planning Framework for Communities in the Wildland-Urban Interface*. https://planning-org-uploaded-media.s3.amazonaws.com/publication/download_pdf/WUI-Hazards-Framework.pdf

Table 16 - Multi-Hazard Interface

Disaster Condition	Increased Risk
Hurricanes and Coastal Hazards	Flooding
	Tornadoes/Thunderstorms
	Dam Failures
	Geological Hazards (Coastal Erosion)
	Hazardous Substances
Flooding	Dam Failures
	Geological Hazards (Coastal Erosion)
	Hazardous Substances
Excessive Heat	Drought
	Wildfires
Drought	Wildfires
Wildfires	Hazardous Substances

Hurricanes and Coastal Hazards present the greatest potential for increasing hazard conditions by worsening flood, severe weather, the potential for dam failures, coastal erosion, and potentially causing the release and spread of hazardous substances such as oil. Flooding has similar effects, but is generally more localized and does not carry the same extreme weather externality. Excessive heat, drought, and wildfires are all interconnected systems with potentially cascading effects.

When planning to mitigate risks to hazards, an effective plan will account for potential changes to the environment that could worsen other hazards. To combat these changes the State will strongly favor mitigation measures which address multiple hazards and acknowledge multi-hazard interfaces.

4.3.12 Current and Changing Conditions

A flaw in the HMP approach is that an assessment of hazard and risk rely on historical data and do not directly consider the longer-term implications of a changing climate and sea level rise. These environmental conditions must also be taken in context with changing social conditions. The population of North Carolina has increased by 8.5 percent since 2010, but the population changes within the MID counties has varied from county to county. Worth serious consideration, however, is the trend of increasing population in coastal counties like Brunswick,

Pender, New Hanover, and Onslow, which have increased in population while inland counties like Edgecombe, Bladen, and Jones have seen a decrease in population.

Table 17 - Population change in MID counties

County	Population (2017)	% Change in Population (2010-2017)
Brunswick	126,953	18.17%
Pender	59,090	13.16%
New Hanover	223,483	10.27%
Onslow	187,136	5.27%
Carteret	68,890	3.64%
Cumberland	327,127	2.41%
Wayne	124,150	1.25%
Duplin	58,969	0.79%
Craven	103,445	-0.06%
Robeson*	133,235	-0.70%
Pamlico	12,821	-2.46%
Scotland	35,244	-2.53%
Columbus*	56,505	-2.74%
Jones	9,845	-3.03%
Bladen*	33,741	-4.12%
Edgecombe	53,318	-5.72%

Population changes are important to consider because with increasing population, an increase in disaster losses may also be expected due to more individuals living in hazardous areas – in this context, coastal areas - and more property, such as housing stock and commercial property at risk of destruction. Conversely counties with a decreasing population may face challenges in sufficient planning and reduced access to resources to meet their needs, including a dwindling tax base and a reduction in critical services such as police, fire, and rescue. Effective mitigation planning takes these factors into account as well as the nature of the hazard while selecting the best course of action to mitigate risks specific to the community.

In addition to population changes, social vulnerability is an important factor in assessing hazard vulnerability. The Center for Disease Control (CDC) defines social vulnerability as the resilience

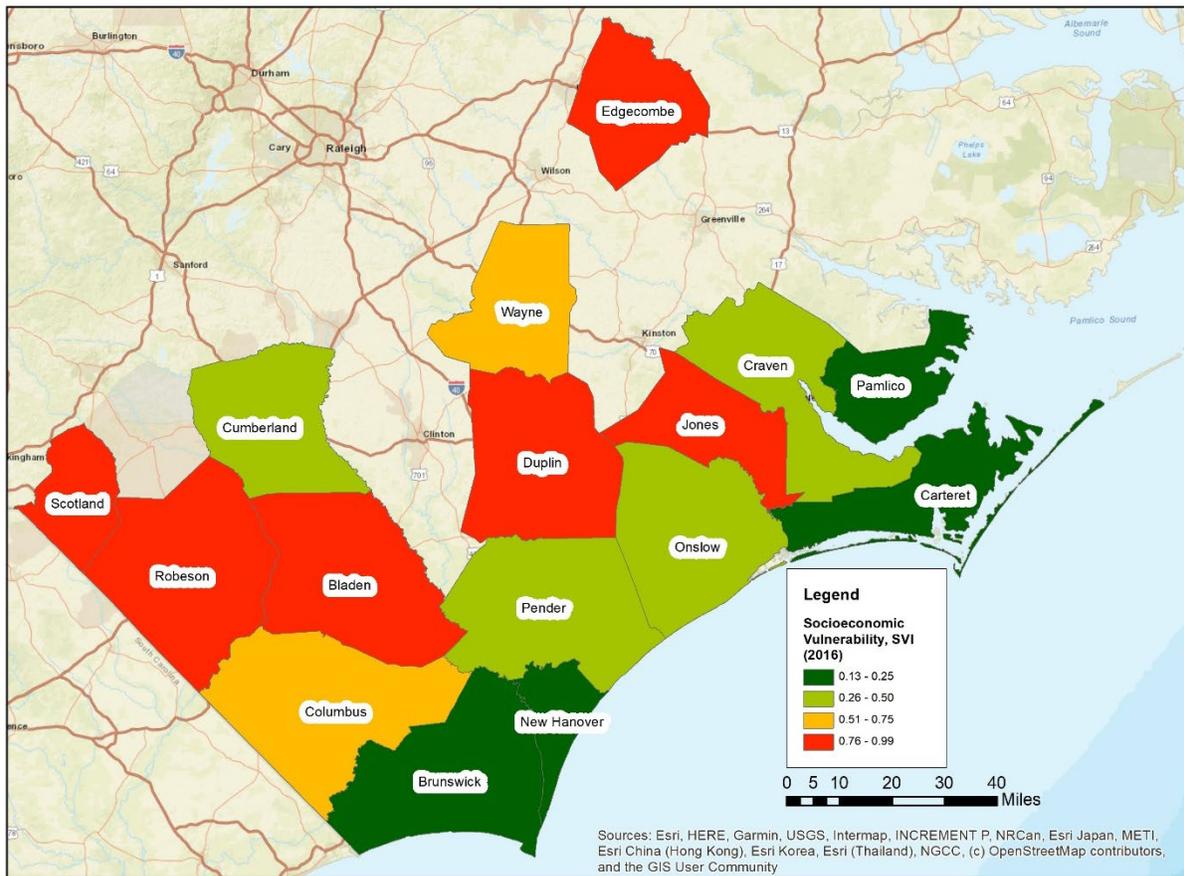
of communities when confronted by external stresses on human health, stresses such as natural or human-caused disasters, or disease outbreaks. CDC's Social Vulnerability Index uses 15 U.S. census variables at tract level to help local officials identify communities that may need support in preparing for hazards; or recovering from disaster. The Geospatial Research, Analysis, and Services Program (GRASP) created and maintains CDC's Social Vulnerability Index (SVI).⁴¹

One of these SVI indices is a measure of socioeconomic status. The socioeconomic SVI is driven by census data on poverty level, employment, total income, and education level. The SVI is set on a scale from 0 to 1, with numbers closer to 1 indicating reduced resiliency and therefore greater susceptibility to hazard.

A significant portion of the MID areas have a high SVI. Spatially, a "belt" of high SVI counties are north and west of the coastal areas, with coastal counties such as Brunswick, New Hanover, Carteret, and Pamlico having the strongest SVI in the MID areas. In selecting appropriate mitigation measures, the SVI – and other vulnerability information – must be considered.

⁴¹ Agency for Toxic Substances and Disease Registry, Center for Disease Control. *CDC's Social Vulnerability Index (SVI)*. <https://svi.cdc.gov/>.

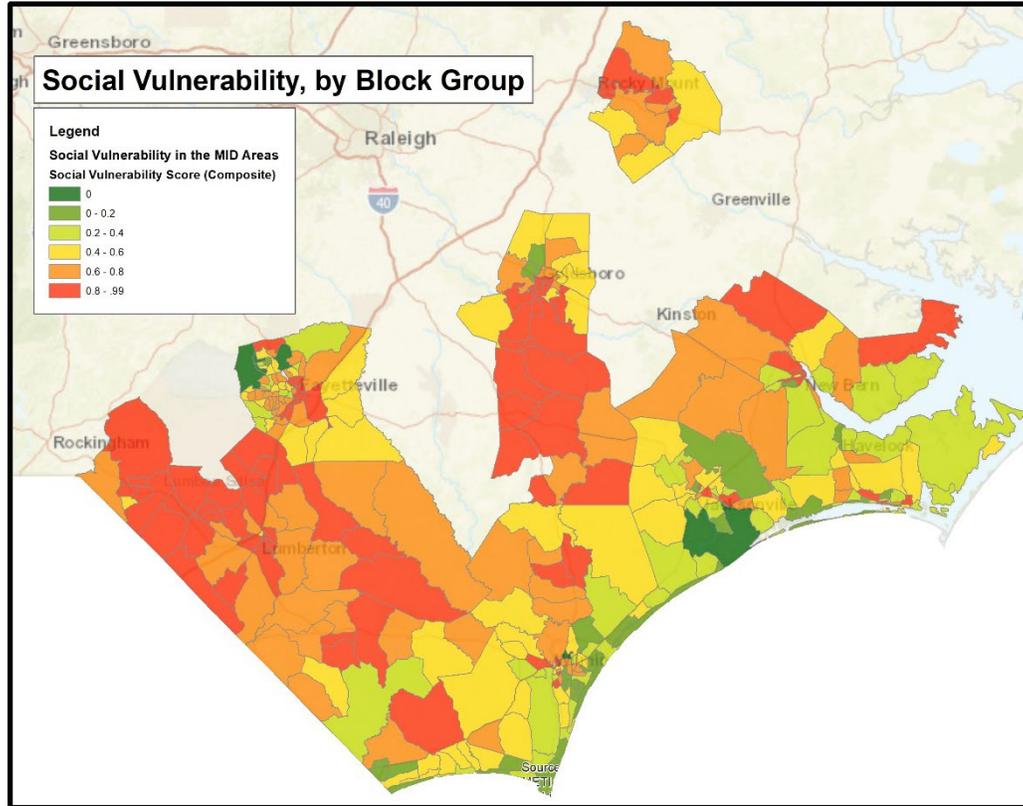
Figure 10 - Socioeconomic Social Vulnerability Index, MID areas



A closer look at the geographic patterns of social vulnerability reveal specific pockets of vulnerability in certain counties. Northwest Robeson County, Southeast Scotland County, central Bladen County, and West Duplin County emerge as serious social vulnerability areas. An area of social vulnerability is evident in West and central Edgecombe County as well. Finally, north Pamlico County also faces significant social vulnerability issues.

A review of the block group patterns and social vulnerability indicate a significant shift in vulnerability from eastern, coastal North Carolina which are relatively less vulnerable to a more vulnerable population found inland. These vulnerabilities also appear in the current CDBG-DR applicant pool for recovery services provided by NCORR, which aligns strongly with the geographic distribution of vulnerable areas.

Figure 11 - Social Vulnerability by Block Group



4.3.13 Environmental Justice

The EPA published the Regional Resilience Toolkit⁷, a guide for integrating environmental justice and building regional resilience in State and local government planning. The toolkit includes a five-step process for resilience planning with stakeholders. Included in the toolkit is a working definition of environmental justice. Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Inclusion, equity, and authentic engagement require the active and comprehensive participation of these audiences. NCORR commits to the inclusion of these groups in its planning process, project selection process, and ultimate execution.

1. **Engage.** Engage stakeholders and build trust.
2. **Assess.** Conduct a vulnerability assessment, including problem statements, hazard scenarios, and maps.
3. **Act.** Prioritize feasible, impactful strategies with stakeholder buy in and develop a long-term plan.
4. **Fund.** Engage funders, decision makers, and make a case for the funding of specific projects.

5. **Measure.** Return to the process and make the plan a living document, complete with metrics, timelines, and performance criteria.

The Mitigation Needs Assessment and Mitigation Action Plan satisfactorily executed steps 1 through 3 above, with clear engagement of stakeholders, assessment of risks, and clear items for action included in the plan. NCORR's continuing commitment to the Plan requires that specific projects are funded in accordance with step 4, and returning to the plan in step 5 to ensure that the process has been faithful to the original objectives – and if not, that the plan is corrected with stakeholder input to better address recovery and resilience topics.

NCORR's adaptation of the EPA toolkit is described at Section 13.0 and subsections. NCORR will continue the engagement of all people in its administration of the CDBG-MIT grant.

4.4 Threat to Community Lifelines

In November 2014, the National Association of Counties (NACo) published "Improving Lifelines: Protecting Critical Infrastructure for Resilient Counties." NACo defines lifelines as programs and services provided to the public, including the infrastructure systems vital to counties to operate, which are vital to the county and sometimes extend to an entire region. These lifelines ensure the public health, safety, and economic security. Lifelines differ from "life support" systems, which include emergency services and public health.⁴²

There are four main factors that define lifelines:

- They provide necessary services and goods that support nearly every home, business and county agency,
- Lifelines deliver services that are commonplace in everyday life, but disruption of the service has the potential to develop life-threatening situations,
- They involve complex physical and electronic networks that are interconnected within and across multiple sectors, and
- A disruption of one lifeline has the potential to effect or disrupt other lifelines in a cascading effect.

The four major lifelines as defined by NACo are energy, water, transportation, and communications.

In February 2019, FEMA released the Community Lifelines Implementation Toolkit which further hones in on seven Community Lifelines; 1) safety and security, 2) communications, 3)

⁴² National Association of Counties. *Improving Lifelines: Protecting Critical Infrastructure for Resilient Counties*. https://www.naco.org/sites/default/files/documents/NACo_ResilientCounties_Lifelines_Nov2014.pdf

food, water, sheltering, 4) transportation, 5) health and medical, 6) hazardous materials management, and 7) energy.⁴³

In the Implementation Toolkit, the focus is on activating lifelines for support during incident response. The Notice instead challenges the State to consider the Community Lifelines as an element of mitigation and resilience planning. The components of the Community Lifelines are indicated below:

Table 18 - Community Lifeline Components

Community Lifelines	Component	Community Lifelines	Component
Safety and Security	Law Enforcement/Security	Energy	Power (Grid)
	Search and Rescue		Temporary Power
	Fire Services		Fuel
	Government Service	Communications	Infrastructure
	Responder Safety		Alerts, Warnings, Messages
	Imminent Hazard Mitigation		911 and Dispatch
Food, Water, Sheltering	Evacuations		Responder Communications
	Food/Potable Water		Financial Services
	Shelter		Transportation
	Durable Goods	Mass Transit	
	Water Infrastructure	Railway	
	Agriculture	Aviation	
Health and Medical	Medical Care	Maritime	
	Patient Movement	Pipeline	
	Public Health	Hazardous Material	Facilities
	Fatality Management		Hazardous Debris, Pollutants, Contaminants
	Health Care Supply Chain		

The Mitigation Needs Assessment seeks to quantitatively assess the significant potential impacts and risks of hazards affecting the Community Lifelines. It is the expressed intent of HUD

⁴³ FEMA. *Community Lifelines Implementation Toolkit*. https://www.fema.gov/media-library-data/1550596598262-99b1671f270c18c934294a449bcca3ce/Tab1b.CommunityLifelinesResponseToolkit_508.pdf.

that CDBG-MIT funded activities that ensure that these critical areas are made more resilient and are able to reliably function during future disasters, can reduce the risk of loss of life, injury, and property damage and accelerate recovery following a disaster.

To quantitatively assess the damage previously dealt to each lifeline, FEMA Public Assistance (PA) project costs and FEMA Individual Assistance (IA) FEMA Verified Loss (FVL) for both Hurricanes Matthew and Florence were reviewed in the MID areas. The damage was categorized according to the impacted Community Lifeline. The result is a total damage breakdown using these funding sources as a proxy for damage across each lifeline. FEMA Hazard Mitigation Grant Program (HMGP) projects for residential mitigation (elevation, reconstruction, and acquisition) and infrastructure were not included, as HMGP projects largely intersect the purpose and nature of CDBG-MIT funds in the sense that they seek to reduce future losses.

The approach is to identify the most heavily impacted Community Lifelines and focus CDBG-MIT funds on those lifelines to provide long-lasting or permanent interventions to break the cycle of repeated Federal investment to serve the same vulnerable lifelines.

Table 19 - Damage to Lifelines, FEMA PA and IA in MID Areas

Event	Damage Verification Source	Safety and Security	Food, Water, Sheltering	Health and Medical	Energy
Hurricane Matthew	Public Assistance	\$56,068,699	\$40,151,959	\$1,000,402	\$6,164,177
	Individual Assistance		\$47,978,514		
Hurricane Florence	Public Assistance	\$118,211,811	\$698,147	\$1,106,425	\$4,247,591
	Individual Assistance		\$188,408,439		
Total		\$174,280,510	\$277,237,059	\$2,106,827	\$10,411,768

Event	Damage Verification Source	Communications	Transportation	Hazardous Materials Management	Total
Hurricane Matthew	Public Assistance	\$313,580	\$111,721,533	\$39,594	\$215,459,943
	Individual Assistance				\$47,978,514
Hurricane Florence	Public Assistance	\$4,472	\$479,128	\$125,691	\$124,873,264
	Individual Assistance				\$188,408,439
Total		\$318,052	\$112,200,661	\$165,284	\$576,720,160

To better inform the analysis, and to pinpoint needs across each lifeline, a deeper analysis is warranted.

4.4.1 Safety and Security

The Safety and Security lifeline is focused on immediate damage prevention, law enforcement, fire services, rescue operations, and government services. The FEMA PA Category B projects, “Emergency Protective Measures,” is a suitable measure of the immediate pre-disaster needs of impacted communities. These emergency measures and public services account for approximately 30 percent of the FEMA documented damage to lifelines.

Continued public services and the reduction of downtime in critical needs is a significant focus of mitigation funds.

4.4.2 Food, Water, Sheltering

Food, Water, and Sheltering are critical needs post-disaster and the primary focus of some FEMA PA projects related to water infrastructure such as water and sewer as well as FEMA IA documented damage. The FEMA IA estimate is based on applicants with FEMA Verified Loss (FVL) greater than \$0 to real property in the MID areas. Based on the assessment of damage to each lifeline, the Food, Water, Sheltering lifeline accounted for the greatest extent of damages with 48 percent of FEMA documented damages to lifelines.

The State endeavors to primarily focus the use of CDBG-MIT funds to address the threat to the Food, Water, and Sheltering Community Lifeline through buyout initiatives. Other resources are available to address facets of the complimentary Community Lifelines, but the CDBG National Objectives and existing program structure established for CDBG-DR funds provides an existing framework to best address this lifeline.

4.4.3 Health and Medical

Health and Medical lifelines include medical care, fatality management, and the health care supply chain. Primarily, CDBG-MIT funds can fortify the Health and Medical lifeline by easing patient movement and providing for public health improvements through the implementation of a variety of programs or projects. There are few FEMA PA projects directly associated with the Health and Medical lifeline, however the Health and Medical lifeline is greatly benefited by the auxiliary benefits through improvements in infrastructure.

4.4.4 Energy

The Energy lifeline is comprised of power delivery, both permanent and temporary, and the supply of fuel. Many FEMA PA projects are associated with the installation of generators for temporary power and the hardening of power grids.

In “Improving Lifelines,” power delivery is one of the major lifelines considered and there are multiple opportunities presented for counties, such as smart grids, emergency backup power, and updated building codes which may be provided by other funding sources.

4.4.5 Communications

The Communications lifeline closely aligns with a State priority to improve access to high-speed internet Statewide. On March 14, 2019 Governor Roy Cooper signed Executive Order No. 91, “Establishing the Task Force on Connecting North Carolina, Promoting Expansion of Access to High-Speed Internet and Removing Barriers to Broadband Infrastructure Installation.”

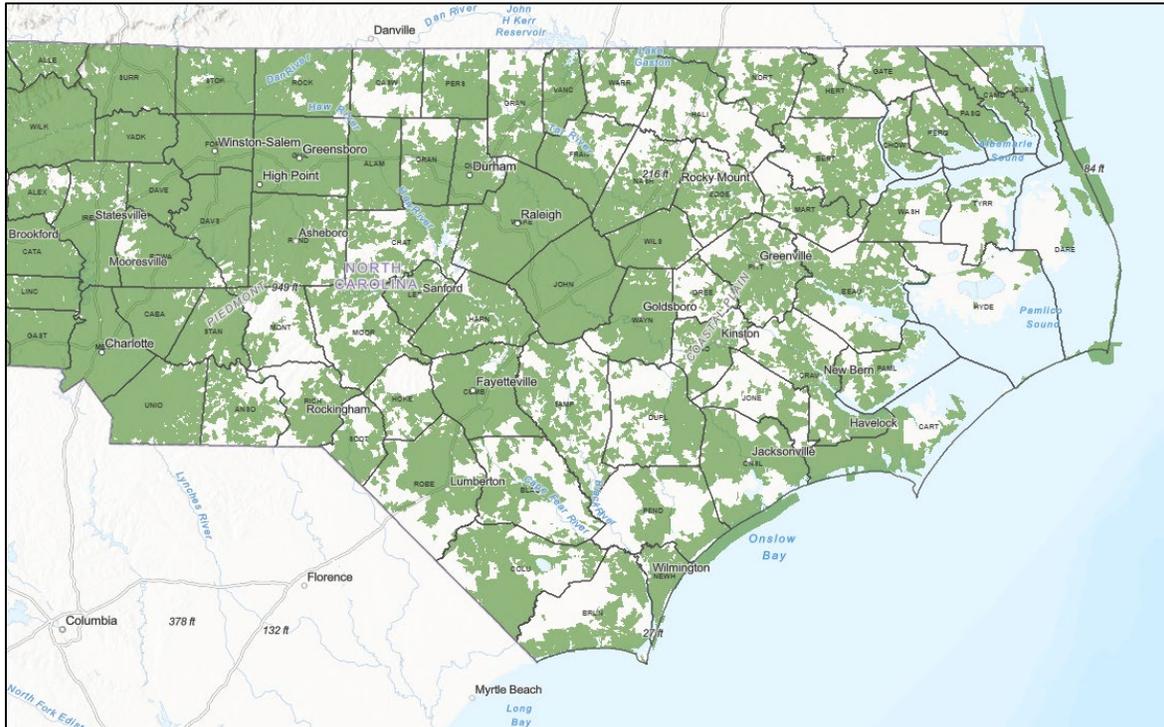
The Communications lifeline is critical in every phase of disaster. Communications in pre-disaster help educate and inform vulnerable individuals about their risk and also helps them prepare for disaster. During disaster, timely communication can directly save lives and property. Post-disaster, communications are necessary to simplify accessing recovery resources and staying in touch with vital information throughout the recovery process.

The relative damage and repair to communications infrastructure is limited in the FEMA PA projects pool. This may be an indicator that there is little communications infrastructure existing in the MID areas. The map below demonstrates the lack of broadband infrastructure in MID counties, including Robeson, Columbus, Brunswick, Pender, Duplin, Edgecombe, Onslow, Jones, Craven, and Pamlico. Generally, southeast North Carolina has insufficient broadband access.⁴⁴

While CDBG-MIT funds are not available to improve broadband access at this time, a future allocation may be leveraged to increase broadband access. All new construction will feature broadband connectivity, as described in Part 8.1 below.

⁴⁴ NCDIT Broadband Infrastructure Office. *Broadband Service Areas*.
<https://nconemap.maps.arcgis.com/apps/webappviewer/index.html?id=01dbafeaa16247e59555d9f445be15f6>

Figure 12: Broadband Service Areas Greater than or Equal to 25mbs Download, 3 mbps Upload



4.4.6 Transportation

The Transportation lifeline has the some of the greatest potential for intersect between other lifelines. For instance, improved infrastructure helps the safety and security lifeline by providing access to rescue during a disaster event. A significant amount of FEMA PA funds have been dedicated to restoring damaged transportation infrastructure. Nearly 20 percent of FEMA PA funds address a transportation infrastructure need.

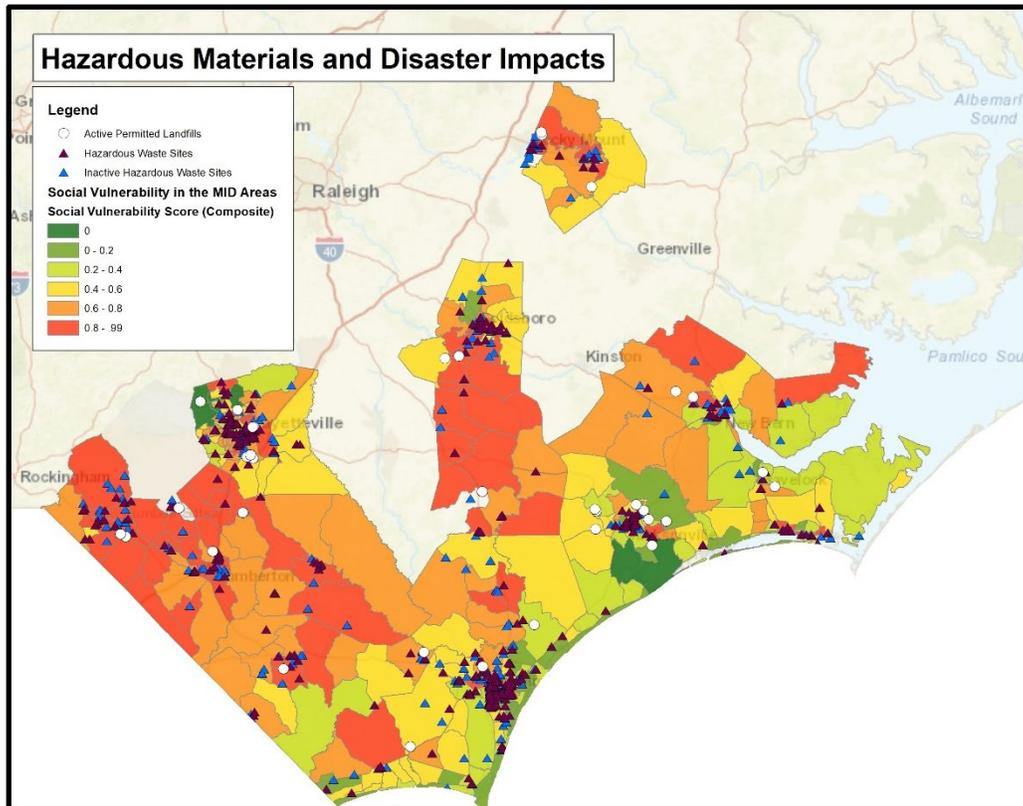
4.4.7 Hazardous Materials Management

Hazardous Materials management intersects with many other Community Lifelines, specifically Transportation, Safety and Security, and Food, Water, and Sheltering. Previous analysis of the risk of hazardous materials exposure in the MID areas has been conducted in this Assessment to ensure that a hazardous materials scenario is not overlooked. One way hazardous materials management is provided for is through funding hazardous materials abatement, such as lead and asbestos removal, during rehabilitation or reconstruction of damaged property through CDBG-DR funded programs. Generally, CDBG-MIT funds will indirectly augment the Hazardous Materials Management lifeline.

Hazardous materials may pose greater threat to vulnerable, minority, and low-income communities, as historically hazardous waste sites have been located adjacent to communities with these characteristics. NCORR has assessed the location of hazardous waste sites in comparison to vulnerable communities. The data assessment includes active and inactive

hazardous waste contamination sites as well as active permitted landfills. The location of these areas was mapped and compared to the social vulnerability index (SVI) score for the most impacted area. More information on SVI is found in Part 4.3.12 above.

Figure 13 - Hazardous Materials Location and Vulnerable Areas



Certain areas appear at greater risk of a hazardous materials management lifeline exposure, such as Scotland County, Edgecombe County, and parts of Cumberland and Robeson County where the SVI score is relatively high and there are significant concentrations of hazardous materials. Other areas had significant hazardous materials exposure risk but were relatively higher on the SVI scale, and therefore may have the tools and resources to address hazardous materials management issues as they arise. Hazardous materials management is extremely localized, often taking place in the literal backyard of the impacted and recovering population. Therefore, interventions in this lifeline are often more site dependent and will need to be delivered with significant care for the impacted individuals unique circumstances.

In consideration of the increased risk of high SVI areas with hazardous materials concerns, NCORR considers the unique needs of these communities, including the need for community education on hazards and risk, making sure opportunities for these vulnerable communities to be heard are presented throughout the planning and implementation process, and continuing to develop plans and data collection exercises that continue to contribute to equitable treatment for vulnerable communities.

Primarily focused on buyout, NCORR will assess the potential impacts and seek to discourage relocating buyout applicants in areas of increased risk.

4.5 Risk Assessment

The risk assessment summarizes the vulnerability of the MID areas in context with the Community Lifelines. The Local Mitigation Handbook recommends implementing problem statements to quickly summarize the risks to the impacted community.⁴⁵ These problem statements are intended to break down the major issues into a sentence or short paragraph. After a review of the hazards, risks, and Community Lifeline vulnerability, the following problem statements have been defined for the MID areas:

- Hurricanes, coastal hazards, and flood hazards are the greatest risk to the MID areas and account for the largest amount of damage and loss of life in the MID areas.
- Hurricanes, coastal hazards, flood hazards, and other weather-related natural hazards are expected to increase in probability and severity due to changes in climate and sea level rise.
- Losses to the Food, Water, and Sheltering Community Lifeline are the most critical mitigation need based on an analysis of FEMA-documented damage.
- Mitigating losses to the Safety and Security, Transportation, and Energy Community Lifelines are the next most pressing needs, in descending order.

These problem statements inform the cardinal direction of the CDBG-MIT funded activities and drive the nature of the public and stakeholder engagement.

The Risk Assessment drives toward solutions that primarily address impacts from coastal hazards and flooding. However, the work done to categorize all hazards is foundational to the understanding of the area. NCORR will work toward considering all risks in program and project implementation, so that other risks in impacted communities are not ignored or worsened by a course of action intended to limit losses from coastal hazards and floods. Additionally, the work done on this risk assessment may be useful in using CDBG funding sources to address non-flood and non-coastal hazard risks in the future.

⁴⁵ Federal Emergency Management Agency. *Local Mitigation Planning Handbook*. 5-19. https://www.fema.gov/media-library-data/20130726-1910-25045-9160/fema_local_mitigation_handbook.pdf

Table 20 - Hazards by Threat to Community Lifelines

Hazard	Safety and Security	Food, Water, Sheltering	Health and Medical	Energy
Flooding	Extreme Threat	Extreme Threat	Extreme Threat	Extreme Threat
Hurricanes and Coastal Hazards	Extreme Threat	Extreme Threat	Extreme Threat	Extreme Threat
Tornadoes/Thunderstorms	High Threat	High Threat	High Threat	High Threat
Hazardous Substances	High Threat	High Threat	High Threat	Moderate Threat
Excessive Heat	Moderate Threat	Moderate Threat	High Threat	Low Threat
Wildfires	Moderate Threat	Moderate Threat	Moderate Threat	Low Threat
Drought	Moderate Threat	High Threat	High Threat	Low Threat
Severe Winter Weather	Low Threat	Low Threat	Low Threat	Low Threat
Earthquakes	Low Threat	Low Threat	Low Threat	Low Threat
Dam Failures	Low Threat	Low Threat	Low Threat	Low Threat
Geological Hazards	Low Threat	Moderate Threat	Low Threat	Low Threat
Radiological Emergencies	Very Low Threat	Very Low Threat	Very Low Threat	Very Low Threat
Terrorism	Very Low Threat	Very Low Threat	Very Low Threat	Very Low Threat
Hazard	Communications	Transportation	Hazardous Material Management	Combined Threat
Flooding	Extreme Threat	Extreme Threat	Extreme Threat	Extreme Threat
Hurricanes and Coastal Hazards	Extreme Threat	Extreme Threat	Extreme Threat	Extreme Threat
Tornadoes/Thunderstorms	High Threat	Moderate Threat	Moderate Threat	High Threat
Hazardous Substances	Moderate Threat	Moderate Threat	High Threat	High Threat
Excessive Heat	Low Threat	Low Threat	Low Threat	Moderate Threat
Wildfires	Low Threat	Low Threat	Moderate Threat	Moderate Threat
Drought	Low Threat	Low Threat	Low Threat	Moderate Threat
Severe Winter Weather	Low Threat	Low Threat	Low Threat	Low Threat
Earthquakes	Low Threat	Low Threat	Low Threat	Low Threat
Dam Failures	Low Threat	Low Threat	Low Threat	Low Threat
Geological Hazards	Low Threat	Moderate Threat	Low Threat	Low Threat
Radiological Emergencies	Very Low Threat	Very Low Threat	Very Low Threat	Very Low Threat
Terrorism	Very Low Threat	Very Low Threat	Very Low Threat	Very Low Threat

4.6 CDBG-DR Considerations

The primary focus of CDBG-MIT funding is a forward looking, risk-based approach to implementing projects designed to reduce future losses from disaster. Conversely, CDBG-DR is a responsive funding source intended to repair, restore, and rehabilitate communities after a disaster.

During program design for CDBG-MIT, it became apparent that lessons learned and data gathered implementing CDBG-DR programs would be a major consideration for CDBG-MIT programming. In this instance, the unmet housing recovery need for Hurricane Matthew and Hurricane Florence informs a major priority for CDBG-MIT.

4.6.1 Buyout

A spatial analysis of areas with high concentrations of homeowners interested in HMGP acquisition, repetitive loss and severe repetitive loss property, and/or areas with homeowners likely to meet the Low/Mod Housing (LMH) and Low/Mod Housing Incentive (LMHI) indicates that more than 2,200 owner-occupied properties are strong candidates for buyout activity in both Hurricane Matthew and Hurricane Florence MID areas. As buyout areas are finalized, they will be located on the <https://rebuild.nc.gov/buyout> website. Community stakeholder and resident engagement continues to develop to inform the final buyout program demand.

Table 21 - Identified Buyout Need Summary

MID Area	Approximate residential property located in buyout zones	Approximate Buyout Need
Matthew	1,571	\$ 146,576,900
Florence	705	\$ 114,136,400
Total	2,276	\$ 260,713,300

This estimate does not consider the buyout of vacant land, small rental property, multi-family residential property, or commercial property, which could greatly increase the funds required to execute the buyout objective.

4.6.2 Buyout Process and Philosophy

NCORR seeks to be as transparent as possible in sharing information on the selection of areas for concentrated, strategic buyout. Buyout zones, or Disaster Risk Reduction Areas (DRRAs), are developed using spatial (map) data from multiple sources, including NCDPS, NCEM, NCDEQ, impacted counties and cities, and U.S. Census data. Buyout areas are determined using the following methodology.

First, NCORR conducted a review of and gathered spatial data for county-level flood zones, low- and moderate-income ReBuild NC CDBG-DR applicants, repetitive loss properties, and Hazard Mitigation Grant Program acquisitions and applications for acquisition. After that analysis, NCORR identified spatial concentrations, or “hot spots”, for these data factors. Where 100-year floodplain data was not available, but other factors were present such as repetitive loss or HMGP acquisition interest, U.S. Geological Survey (USGS) flood inundation data for Hurricane Matthew and Hurricane Florence were added to see where else storm impacts may have occurred outside of the floodplain.

In identified hot spots, street-level satellite imagery was used to identify neighborhood features that would make a potential buyout program difficult to administer or unlikely to have community buy-in. These features include nearby schools, active commercial corridors, “main street” features, hospitals, and other community amenities.

In the remaining areas, parcel level data was reviewed to determine the zoning and ownership characteristics of the parcels, and to match parcels with repetitive loss, HMGP acquisition applicants, and other data. Finally, where possible, NCORR focused on census blocks where the population was more than 51 percent LMI. These LMI areas provide the greatest potential for meeting the LMI national objective (described in greater detail in Section 10.6 below) and create a buyout program that is intended to be equitable to LMI individuals and households, and provide LMI individuals a greater level of assistance and more options for both their property mitigation and storm recovery.

DRRA maps are shared with the local municipalities and final maps, once confirmed, will be provided which broadly indicate where DRRA are located. Once an agreement is reached with the local government and the program has met with the community, the maps are posted on the Strategic Buyout Program (SBP) website at <https://rebuild.nc.gov/buyout>.

To identify the use of CDBG-MIT funds at the lowest level practicable, and to foster greater transparency in the buyout process, the following areas have been identified with buyout needs. These buyout locations are subject to change.

Table 22 - Anticipated Buyout Need by Original Finalized DRRA

County	Area	Buyout Need *(Parcel Level)
Columbus	Whiteville	70
Cumberland	Fayetteville	28
Edgecombe	Tarboro, Pinetops, Princeville	390

County	Area	Buyout Need *(Parcel Level)
Robeson	Lumberton	225
Wayne	Goldsboro, Seven Springs	316
Total		1,029

NCORR is also in the process of identifying additional DRRAs for its buyout program. Planning efforts are underway to identify buyout zones in Pender, Brunswick, Pamlico, New Hanover, Johnston, Lenoir, Pitt, Robeson, Beaufort, Cumberland, Columbus, Bladen, Nash, Onslow, Harnett, Craven, Jones and other storm-impacted counties. NCORR is coordinating with county and city stakeholders and decision makers to identify additional buyout zones. Program staff are continuing to meet with representatives of these impacted areas to determine the feasibility of potential buyout areas, therefore these buyout locations are subject to change as those conversations continue.

The NCORR philosophy on buyout is that no other mitigation approach definitively and permanently removes a vulnerable property – and vulnerable individual or family – from harm’s way. While infrastructure projects are effective, no infrastructure project provides the guarantee of safety and security that buyout provides. Further, demand for buyout in vulnerable areas has grown, and NCORR intends to give interested owners every option to safely relocate.

NCORR had considered establishing a minimum rate of participation in order for the Buyout Program to move forward in each DRRAs. NCORR concedes that a Buyout Program will be more effective in terms of permanent mitigation when a participation rate is over 50 percent. However, NCORR believes that if this threshold is not met, this strategy could lead to further uncertainty and hesitation in participation in future program offerings from NCORR. Further, experience has shown that Buyout participation rates tend to increase over time. NCORR understands that deciding whether to participate in a Buyout Program is a major life decision for most citizens who may have deep ties to the storm-impacted community. NCORR plans to make the application and decision making process as trouble-free as possible, without introducing the element of uncertainty that a minimum participation rate would introduce.

Funding buyout addresses a major recovery need, strengthens every Community Lifeline directly or indirectly, and aligns with the State priority to acquire vulnerable property (detailed in Part 4.7 below). Therefore buyout activities constitutes the primary programmatic allocation.

NCORR commits to furthering environmental justice by including the local municipalities in the planning process, along with the potential buyout applicants at critical steps in the execution of the program. First, NCORR performed the analysis of vulnerable areas. Second, these assumptions were presented to local stakeholders and decision makers to ensure that these

assumptions aligned with the community need and best interest of the community. Third, this process was presented to the specific population targeted for potential buyout. As feedback at every step of the process is heard, the plan is adjusted as needed to account for the needs of NCORR's valuable stakeholders.

4.6.3 Housing Development

The original Action Plan included an assessment of the affordable housing need created by the buyout effort. This analysis is now found in the Hurricane Florence CDBG-DR Action Plan in support of the increased affordable housing allocation in that plan. Individuals interested in affordable housing initiatives developed by NCORR should read the Hurricane Florence CDBG-DR Action Plan at <https://rebuild.nc.gov/action-plans>.

4.7 Assessing Priorities

In Section 5 of the HMP, the State outlines 27 actions to reduce risk. The selection of projects and proposed programs in this Action Plan aligns the HMP action priority list with selected projects. While the CDBG-MIT framework is not ideal to serve every action item, there is significant overlap between state priorities, the assessment of the data for community needs, and the CDBG eligible activities.

The HMP action items that most align with CDBG-MIT activities include:

- **NC-2.** Acquire, elevate, provide structural retrofits, and otherwise leverage resources to protect or mitigate risk to people and personal property such as residences and businesses.
- **NC-3.** Training local governments, state agencies, and other organizations on emergency management and mitigation.
- **NC-5.** Standardize technology between partners and determine software compatibility.
- **NC-6.** Work with local communities to promote changes in local policies, regulations, and activities such as land use, building codes, regional planning, improving storm drainage systems, and supporting the Community Rating System (CRS).
- **NC-14.** Provide useful data, studies, and other products that can help local communities better understand their risks.
- **NC-18.** Assist counties and stakeholders in developing their fuel plans for back-up fuel.
- **NC-25.** Engage with the North Carolina Housing Finance Agency to identify available funding that could be used for mitigation and discuss opportunities to collaborate.

NCORR recognizes that additional State priorities exist in the HMP, but to focus on the MID area risk reduction needs, these specific priorities are considered to be most strongly associated with CDBG-MIT funded interventions. For each CDBG-MIT activity defined below, the direct connection to the HMP action item is indicated.

4.7.1 North Carolina Consolidated Plan

The State of North Carolina is currently executing its HUD funding in accordance with its 2016 – 2020 Consolidated Plan. Requirements for consolidated plans are published at 24 CFR Part 91. Several agencies contribute to the Consolidated Plan, including the North Carolina Department of Commerce (DOC) for the administration of CDBG funds; The North Carolina Department of Health and Human Services (DHHS) for the administration of Housing Opportunities for Persons with AIDS (HOPWA) funds and Emergency Solutions Grants (ESG); and The North Carolina Housing Finance Agency (NCHFA) for the administration of HOME Investment Partnership funds and Housing Trust Funds (HTF).

While the Notice indicates that the CDBG-MIT Action Plan does not require complete consistency with the Consolidated Plan for a temporary period of time, NCORR has reviewed the Consolidated Plan to ensure that the objectives, goals, programs, and projects included within this Action Plan do not conflict with Consolidated Plan objectives and support Consolidated Plan outcomes within the scope of the CDBG-MIT framework. The Consolidated Plan includes three basic goals:

1. To provide decent and affordable housing.
2. To provide a suitable living environment.
3. To expand economic opportunity.

These goals align with the goals of the CDBG-MIT Action Plan and with NCORR as an organization. The Consolidated Plan also provides a commitment from the State on its commitment to comply with fair housing (including affirmatively furthering fair housing), equal opportunity, and accessibility requirements. NCORR shares and adopts the commitments made in the Consolidated Plan in the operation of its CDBG programs, and the commitments made in this Action Plan are not to be construed as a replacement or substitution for those commitments. The Mitigation Needs Assessment, planning opportunities, and other CDBG-MIT funded projects and programs will make meaningful contributions to the next iteration of the State's Consolidated Plan. As the Consolidated Plan is prepared for updates for its next iteration, NCORR commits to coordinating with the various contributing state organizations administering other HUD funds and supporting an update to the Analysis of Impediments to Fair Housing Choice or accepted Assessment of Fair Housing (AFH) in the upcoming Consolidated Plan update.

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5.0 Long-Term Planning and Risk Mitigation Considerations

The limited funds available in the CDBG-MIT allocation provided to the State bounds the ability to fund a major planning activity. With the limited funds available, NCORR supports driving toward clear, actionable mitigation activities which are supported by a data-driven analysis of the mitigation need. An allocation of funds is available to fund local and regional planning events as well as to fund Action Plan development and good community outreach to inform future projects and programs. However, NCORR will revisit planning needs as projects and programs develop to ensure that activities undertaken with CDBG-MIT funds engage local, regional, State, and Federal partners to produce a data-driven, comprehensive analysis of the mitigation approaches funded in this Action Plan. This part of the Action Plan reviews the state of broad planning initiatives across the State, favoring actionable elements of building codes, land use, and flood risk protection.

5.1 Executive Order 80

On October 29, 2018, Governor Roy Cooper signed Executive Order No. 80, “North Carolina’s Commitment to Address Climate Change and Transition to a Clean Energy Economy.” E.O. 80 requires the following actions specific to NCORR activities:⁴⁶

- **E.O. 80, Part two.** Requires that cabinet agencies shall evaluate the impacts of climate change on their programs and operations and integrate climate change mitigation and adaptation practices into their programs and operations.
- **E.O. 80, Part nine.** Requires that cabinet agencies shall integrate climate adaptation and resiliency planning into their policies, programs, and operations:
 - To support communities and sectors of the economy that are vulnerable to the effects of climate change; and
 - To enhance the agencies’ ability to protect human life and health, property, natural and built infrastructure, cultural resources, and other public and private assets of value to North Carolinians.

As NCDPS is a cabinet agency and NCORR is an office operating within NCDPS, the requirements of E.O. 80 apply to NCORR activities. To comply with E.O. 80, the unmet needs analysis must evaluate changes in need based on the requirement to anticipate and respond to climate change in disaster impacted areas. This analysis will inform the Action Plan so that proposed programs contained therein are responsive to this executive order.

⁴⁶ Executive Order No. 80. *North Carolina’s Commitment to Address Climate Change and Transition to a Clean Energy Economy.* <https://governor.nc.gov/documents/executive-order-no-80-north-carolinas-commitment-address-climate-change-and-transition>.

To better conform to E.O. 80, a portion of the planning allocation may be used to determine how best to comply with E.O. 80 and how to further the goals of E.O. 80, including agency coordination on E.O. 80 objectives.

5.2 Building Code Standards

In 2018, the North Carolina Department of Insurance's (NCDOI) Engineering and Codes Division developed the 2018 State Building Codes. Those Building Codes include:

- 2018 North Carolina State Administrative Code and Policies
- 2018 North Carolina State General Building Code
- 2018 North Carolina State Existing Building Code
- 2018 North Carolina State Residential Code
- 2018 North Carolina State Mechanical Code
- 2018 North Carolina State Plumbing Code
- 2018 North Carolina State Fuel Gas Code
- 2018 North Carolina State Fire Prevention Code
- 2018 North Carolina State Energy Conservation Code

The North Carolina Building Codes are updated approximately every four years and the current codes were adopted January 2019. Current building codes do consider floodplain construction requirements. Conservations and planning to update building codes happen in advance of the planned update length, and NCORR may have an opportunity at that time to coordinate with NCDOI on building code updates to meet the intent of the Notice to develop building codes and standards such as those in American Society of Civil Engineers' ASCE-24 "Flood Resistant Design" guidance.

5.2.1 Vertical Flood Elevation Protection

The Elevation Requirements set in North Carolina State building codes at R322.2.1 "Elevation Requirements" currently require elevation to above the base flood elevation (BFE) within the 100-year floodplain.⁴⁷ Earlier iterations of the building code required an additional foot above the base flood elevation within the 100-year floodplain (commonly referred to as a "freeboard" requirement).

In its current CDBG-DR implementation, NCORR requires that new or substantially improved residential structures are elevated two feet or more above the BFE or high-water mark (if outside the floodplain). This standard also applies to new construction performed in shaded or unshaded X Zones according to Flood Insurance Rate Maps (FIRMs). For new construction using

⁴⁷ International Code Council. *2018 North Carolina State Building Code: Residential Code*.
https://codes.iccsafe.org/content/NCRC2018/chapter-3-building-planning#NCRC2018_Pt03_Ch03_SecR322

CDBG-MIT funds, NCORR will remain consistent with this requirement and depending on the facts of the construction may require additional freeboard or other mitigation techniques to ensure that new construction is sufficiently protected.

5.3 Land Use and Zoning Policies

Land use and zoning practices, including adopting zoning regulation and amending zoning text or maps is as legislative policy choice entrusted to local elected officials. Plans provide a context to consider the long-term impact of individual land use decisions. Planning provides for public participation, coordination of programs and decisions, and the opportunity to set forth the basic policy choices that underlie a rational program of land use regulation. Although not mandated to do so, most populous North Carolina cities and counties have adopted plans.⁴⁸

The University of North Carolina's School of Government identifies several plans typically adopted by the State's local governments:

- **Comprehensive Plans.** Traditionally used by local governments as their principal planning tool, and includes land use, housing, transportation, community facilities, recreation, infrastructure, hazards, and other key community needs over a long time horizon. Elements of a Comprehensive Plan may also include:
 - **Land Use Plans.** Often included in the Comprehensive Plan but sometimes separately maintained, land use plans set land development priorities and future land use for the community.
 - **Neighborhood or Area Plans.** These plans are similar to the overall Comprehensive Plan, but apply only to a neighborhood, area, township, or other smaller designation and outlines specific goals and opportunities in those identified areas.
 - **Specialized Plans.** Specialized plans include plans for historic district preservation, transportation or mobility plans, hazard mitigation plans, and other plans specific to a special need or purpose for the area.
- **Functional Plans.** Functional Plans look at how government functions, such as transportation, water and sewer services, or parks and recreation, will be carried out in the future.
- **Strategic Plans.** These plans focus on a few key issues, have a shorter time frame (such as two to five years), identify specific implementation responsibility and time line, and have a regular follow-up on the results. These plans often have strong participation from community groups and leaders.

These plans present opportunities for local areas to incorporate natural hazard mitigation through the adoption of sound land use and zoning practices consistent with known threats to

⁴⁸ University of North Carolina School of Government. *Planning and Zoning Law Bulletin Plan-Consistency Statements*. 5. https://www.sog.unc.edu/sites/www.sog.unc.edu/files/reports/20180809_PZLB27_2018-11-30_0.pdf

the community. A 2018 survey of local governments conducted by the University of North Carolina found that an increasing number of cities and counties, particularly the more-populous cities and counties, have adopted a comprehensive plan. While 70 percent of all responding jurisdictions report having adopted a comprehensive plan, over 90 percent of the cities with populations over ten thousand have adopted a plan (compared with 70 percent in 1998 and 75 percent in 2008).

Plan-adoption rates decrease for cities with smaller populations: 79 percent for cities with populations between one thousand and ten thousand, and only 26 percent for cities with populations under one thousand. Of the responding counties, 78 percent report having adopted a comprehensive plan.⁴⁹

However, adopted plans are not always updated regularly. The same 2018 survey found that about half of the adopted plans have been updated within the past five years, about a quarter were last updated within the past six to ten years, and a quarter were last updated more than ten years ago. These percentages are about the same for cities and counties and across all population sizes.

Table 23 - Comprehensive Plan Adoption, State of North Carolina 2018

Jurisdiction Population	Total Respondents	% Adopting Comprehensive Plan
Municipalities		
Less than 1,000	74	26%
1,000 - 10,000	119	79%
11,000 - 24,000	38	92%
Greater than 25,000	31	94%
Municipality Total	262	68%
Counties		
Less than 25,000	20	80%
Greater than 25,000	58	78%
County Total	78	78%
Total Responses	340	70%

⁴⁹ University of North Carolina School of Government. *Planning and Zoning Law Bulletin Plan-Consistency Statements*. 6. https://www.sog.unc.edu/sites/www.sog.unc.edu/files/reports/20180809_PZLB27_2018-11-30_0.pdf

Table 24 - Plan update Frequency, State of North Carolina 2018

Jurisdiction Population	Total Respondents	Last Plan Update		
		< 5 Years Ago	6 - 10 Years Ago	> 10 Years Ago
Municipalities				
Less than 1,000	19	53%	32%	16%
1,000 - 10,000	92	49%	26%	25%
11,000 - 24,000	34	41%	50%	9%
Greater than 25,000	30	40%	30%	27%
Municipality Total	175	46%	32%	21%
Counties				
Less than 25,000	16	44%	25%	31%
Greater than 25,000	45	51%	27%	22%
County Total	61	49%	26%	25%
Total Responses	236	47%	31%	22%

Even a plan updated five years ago, a reasonable timeframe between plan revisions, is missing key information about the impacts of Hurricanes Matthew and Florence. These storms dramatically reshaped the planning landscape in impacted areas and may have fundamentally shifted community development priorities.

NCORR has planning funds available to assist in the development of some of these objectives, based on the specific needs identified through stakeholder engagement and support provided by the Resiliency Team.

5.4 Flood Mitigation Efforts

As the CDBG-MIT allocation is directly tied to the impacts of flooding from Hurricane Matthew, additional consideration is paid to flood mitigation efforts. Already considered are the vertical flood elevation height requirements discussed in Part 5.2.1 above. NCORR commits to ensuring responsible floodplain and wetland management based on the history of flood mitigation efforts and the frequency and intensity of precipitation events.

5.4.1 High Wind

In addition to this vertical height requirement, NCORR will take into consideration high wind considerations for new or rehabilitated buildings. There are many informational resources available to safeguard against high wind conditions, including *FEMA 543: Risk Management Series Design Guide for Improving Critical Facility Safety from Flooding and High Winds*. FEMA 543 recommends incorporating hazard mitigation measures into all stages and at all levels of critical facility planning and design, for both new construction and the reconstruction and rehabilitation of existing facilities.⁵⁰ While the guidelines in FEMA 543 are applicable to critical facilities, they may also be applied to new construction of other buildings and infrastructure. In all instances, NCORR will defer to engineering and design experts to ensure that high wind hazards are addressed.

NCORR shall also consider resources and lessons learned from other states in the implementation of their recovery programs. The State of Florida has adopted the *Hurricane Michael FEMA Recovery Advisory (RA) 2 Best Practices for Minimizing Wind and Water Infiltration Damage*⁵¹ as a guiding principle in its recovery programs. This advisory describes specific issues observed in newer residential buildings after Hurricane Michael. The buildings observed were built after the adoption of the first edition of the Florida Building Code (FBC) (March 2002). The advisory provides key points for consideration during rebuilding and mitigation activities. The references cited in the advisory contain additional best practices and guidance for issues commonly observed after storm events. While NCORR does not anticipate executing new construction with its allocation of CDBG-MIT funds, NCORR shall apply the guidance in this document where feasible in the development of new construction funded with CDBG-MIT funds.

5.4.2 Sea Level Rise

In addressing flood mitigation, it is essential to the long-term planning process to also consider the effects of sea level rise on the coastal communities of the State. According to National Oceanic and Atmospheric Administration (NOAA) data, the sea level off of the coast of North Carolina has risen 11 inches higher than its 1950 level.⁵² Sea level rise is of increasing concern to vulnerable coastal areas of the State because sea level rise has been accelerating over the past 10 years and is now rising an average of one inch every two years. These measurements

⁵⁰ Federal Emergency Management Agency. *Risk Management Series Design Guide for Improving Critical Facility Safety from Flooding and High Winds*. https://www.fema.gov/media-library-data/20130726-1557-20490-1542/fema543_complete.pdf

⁵¹ Federal Emergency Management Agency. *Best Practices for Minimizing Wind and Water Infiltration Damage*.

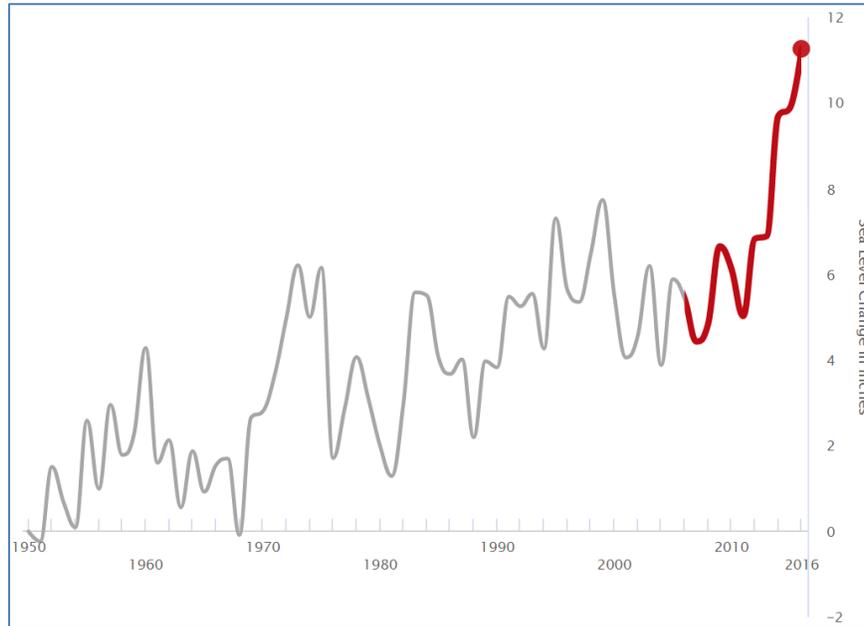
https://www.fema.gov/media-library-data/1560174739479-8856110e0c3fa30e750370dc5129348a/MichaelRA2_060719_508_FINALforposting.pdf

⁵² National Oceanic and Atmospheric Administration. *Tides and Currents Data, Wilmington, NC*.

<https://tidesandcurrents.noaa.gov/waterlevels.html?id=8658120&units=standard&bdate=19500101&edate=20171231&timezone=GMT&datum=MSL&interval=m&action=data>

are conducted with sound methodology and have become increasingly accurate, leading to the conclusion that sea level rise is a significant threat to coastal areas of the State.⁵³

Figure 14 - Sea Level Rise in inches, Wilmington, NC⁵⁴



NCORR commits to using the best available data to determine whether structures would be at risk of sea level rise and avoid construction or rehabilitation of structures which may be subject to increased risk due to sea level rise and coastal erosion.

5.5 Local and Regional Planning Coordination

The following entities have been engaged in the development of CDBG-MIT activities and are expected to continue to play a role in CDBG-MIT implementation:

- **North Carolina Department of Public Safety (NCDPS).** As an office within NCDPS, NCORR has the full support of NCDPS.
- **North Carolina Emergency Management (NCEM).** The State Hazard Mitigation Officer (SHMO), Steve McGugan, previously met with NCORR staff to discuss HMGP activities and how CDBG funds can best complement NCEM objectives.
- **North Carolina Department of Transportation (NCDOT).** NCDOT staff have met with NCORR staff to discuss major infrastructure plans which may affect NCORR decision making and long-term mitigation planning.

⁵³ National Oceanic and Atmospheric Administration. *FAQ – Tide Predictions and Data*. <https://tidesandcurrents.noaa.gov/faq2.html>

⁵⁴ SeaLevelRise.org. *States: North Carolina*. <https://sealevelrise.org/states/north-carolina/>

- **North Carolina Department of Environmental Quality (NCDEQ).** The NCDEQ, along with its Division of Coastal Management (NCDCM) have coordinated with NCORR staff on coastal management and coastal climate resilience initiatives. Specific initiatives, funding opportunities, and programs have been identified by NCDCM for CDBG-MIT consideration. NCORR will identify opportunities to continue coordination with NCDEQ, including the NC Dam Safety Program, to assess regional or localized hazards from dam safety and help inform the full risk of new development in areas subject to hazards posed by dams.

5.6 Flood Insurance Coverage

To the greatest extent possible, NCORR will coordinate planning and projects funded with CDBG-MIT funds to increase the affordability of flood and hazard insurance.

NCORR will encourage the purchase of flood insurance outside of the SFHA to the extent practical. NCORR also provides educational literature to citizens and Buyout participants about the benefits of flood insurance and the risks of flooding during local meetings and at application. These materials will highlight the facts about flooding risks, including the risk that can occur outside of Special Flood Hazard Areas.

Section 582 of the National Flood Insurance Reform Act of 1994, as amended, (42 U.S.C. 5154a) prohibits flood disaster assistance in certain circumstances. In general, it provides that no Federal disaster relief assistance made available in a flood disaster area may be used to make a payment (including any loan assistance payment) to a person for “repair, replacement, or restoration” for damage to any personal, residential, or commercial property if that person at any time has received Federal flood disaster assistance that was conditioned on the person first having obtained flood insurance under applicable Federal law and the person has subsequently failed to obtain and maintain flood insurance as required under applicable Federal law on such property. This means that CDBG-MIT assistance may not be provided for the repair, replacement, or restoration of a property to a person who has failed to meet this requirement.

Section 582 also imposes a responsibility on NCORR and its subrecipients to inform property owners receiving assistance that triggers the flood insurance purchase requirement that they have a statutory responsibility to notify any transferee of the requirement to obtain and maintain flood insurance in writing and to maintain such written notification in the documents evidencing the transfer of the property, and that the transferring owner may be liable if he or she fails to do so. These requirements are enumerated at <http://uscode.house.gov/view.xhtml?req=granuleid:U.S.C.-prelim-title42-section5154a&num=0&edition=prelim>.

NCORR will detail a process for checking flood insurance compliance for CDBG-MIT grant fund recipients in its policies and procedures to ensure compliance with this requirement.

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6.0 Mitigation Projects and Leverage

NCORR commits to advancing mitigation programs and activities that advance long term resilience to current and future hazards. NCORR also aligns its CDBG-MIT programs or projects with other planned federal, state, regional, or local capital improvements, where feasible.

Each proposed mitigation program or project must define how:

1. It will advance long-term resilience.
2. Align with other planned capital improvements.
3. Promote community-level and regional planning for current and future disaster recovery efforts and additional mitigation investment.

North Carolina maintains an Enhanced Statewide Hazard Mitigation Plan published in February 2018 as well as county Hazard Mitigation Plans updated every five years. Following Hurricane Matthew, North Carolina invested in more detailed planning creating a [Hurricane Matthew Resilient Redevelopment Plan \(RRPs\)](#) for each of the 50 disaster declared counties. The RRP address the County's needs for achieving holistic recovery and redevelopment by analyzing the risks to its assets, identified needs and opportunities, determines the potential costs and benefits of projects, and prioritizes the projects. A majority of those plans listed multiple housing options in their top five priorities – specifically acquisition, buyout, elevation, and relocation to prevent future loss and increased access to affordable housing outside of the SFHA. The needs assessments following Hurricane Florence demonstrated a similar need.

The State of North Carolina has effectively applied multiple funding sources to achieve the State HMP, local HMP, and RRP priorities. Any additional analysis, risk assessment data, or any mitigation activity will be incorporated into future revisions of these plans so that community leaders may return to the HMP and RRP as primary sources of mitigation planning.

NCORR has worked with the State Hazard Mitigation Officer (SHMO) and the National Flood Insurance Program (NFIP) coordinator to identify Disaster Response Recovery Areas (DRRAs) or Buyout Zones that leverage CDBG-DR grant funds with extensive data provided by FEMA-funded HMGP acquisition projects, NFIP claims, and repetitive loss/severe repetitive loss property data. The DRRAs incorporates over 800 properties from the approved HMGP buyout and elevation list, the repetitive and severe repetitive loss lists, and the over 2200 applicants that HMGP could not fund both in and out of floodplains and flood ways. NCORR negotiated the DRRAs with local authorities often adding to the size of areas based on local expertise and needs. Finally, NCORR held Town Hall type meetings with the residents of the DRRAs before opening the applicant intake process. In some areas, NCORR has also worked with local authorities to develop Priority Development Areas (PDA) in accordance with the RRP with a goal of relocating homeowners in the same zip code, where possible.

Other sources of funds primarily of interest to long-term mitigation are funds received for FEMA Public Assistance (PA), FEMA Hazard Mitigation Grant Program (HMGP), Small Business Administration (SBA) Disaster Loans, Department of Transportation (DOT) funds, and U.S. Army Corps of Engineers (USACE) funds.

The current list of ongoing USACE projects does not indicate that there is significant priority overlap with CDBG-MIT activities.⁵⁵ If new USACE projects are introduced, NCORR will establish whether they would be a vehicle for leverage of CDBG-MIT funds. Given the limited CDBG-MIT funds available to the State, it is difficult to meaningfully interface with the major infrastructure projects that the USACE typically undertakes.

The North Carolina Department of Transportation (NCDOT) has been a communicative partner in mitigation planning. NCDOT has shared information on potential future projects to lend context to multiple mitigation approaches, including potential buyout areas and Disaster Risk Reduction Areas (DRRAs). As these projects have not been approved for construction and are in the early planning stages, they do not yet present a leverage opportunity for CDBG-MIT programs. As NCDOT projects develop, NCORR will reassess the viability of a leverage opportunity with NCDOT projects.

Where feasible, CDBG-MIT funds will be combined SBA funds to provide additional funds for mitigation activities. Similar to its CDBG-DR activities, NCORR will have policies and processes in place to ensure that CDBG-MIT is not duplicated with other assistance for the same purpose.

⁵⁵ United States Army Corps of Engineers. *American Recovery and Reinvestment Act of 2009 Civil Works Construction*. <https://www.usace.army.mil/Portals/2/docs/recovery/ComprehensiveConstruction.pdf>.

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7.0 Natural Infrastructure

Beyond the specific methods needed to assess and compare grey infrastructure against natural infrastructure options relative to their utility to mitigate risk, a framework is required that would provide guidance to North Carolina on how to consider natural infrastructure solutions in its envisioned CDBG-MIT projects. NCORR is focused on how municipalities are advancing adaptation to climate change through the management of natural infrastructure assets that provide municipal and ecosystem services. Such focus provides effective solutions for minimizing coastal flooding, erosion, and runoff, as do man-made systems that mimic natural processes—known as natural infrastructure. Across North Carolina, aging water infrastructure is creating challenges for water management. Combined sewer systems are pumping toxins into estuaries, bays, lakes and other water bodies and overflowing during extreme precipitation events into urban and residential areas. At the same time, coastal communities are being heavily damaged from extreme storm events and sea level rise. Experts agree that natural infrastructure such as healthy wetlands can provide many of the same benefits of traditional man-made infrastructure at a much lower investment and maintenance cost. Natural infrastructure approaches include forest, floodplain and wetland protection, watershed restoration, wetland restoration, permeable pavement and driveways; green roofs; and natural areas incorporated into city designs, and conservation easements. A natural infrastructure approach represents a successful and cost efficient way to protect riverine and coastal communities. While there is much to be done in the way of design and restoration in coastal communities, this plan, due the preponderance of MID counties and communities and their locations, will focus on upstream rather than coastal natural infrastructure.

Ordinances and codes are the regulatory mechanisms available to local governments for land use and natural resource management. Though local governments in North Carolina have no preexisting grants of power, the General Assembly has made both general grants of power to cities and counties and specific grants of power to regulate other activities under certain special circumstances. Cities and counties are generally allowed to “by ordinance define, regulate, prohibit, or abate acts, omissions, or conditions detrimental to the health, safety, or welfare of its citizens and the peace and dignity of the county; and may define and abate nuisances.” Other grants of authority are made to address specific issues, including the environmental impacts of development, and are found in other statutes.

Many of the resources discussed here are written as separate ordinances but could also be modified to work in a unified ordinance framework. Some of the ordinances are written as overlay ordinances, which are used to establish additional development requirements in specific areas of a community, such as environmentally sensitive areas. The additional requirements are superimposed over, or “overlay”, the base regulations already in place.

Many local governments in North Carolina are already required to adopt stormwater regulatory programs due to the urbanizing nature of the community or its location near sensitive resources (e.g., impaired waters, coastal locations). As part of these regulatory programs, NCDEQ collaborated with the University of North Carolina School of Government to develop several model stormwater ordinances that local governments can look to for guidance.

The Phase II Stormwater Model Ordinance was developed to meet requirements under the federal Clean Water Act for cities and towns that operate municipal separate storm sewer systems (MS4s) located in urbanized areas and serving a population of fewer than 100,000. The language includes performance standards that address quality, as well as the magnitude and rate of runoff.

The Model Tree Protection Ordinance provides communities with guidance for retaining trees. Tree protection ordinances can mitigate some of the impact of development while also ensuring community benefits, such as increased property values, stormwater runoff management, cooling, and air quality. The model ordinance sets out a framework for local governments and stakeholders to follow in deciding how to protect trees in their communities.

This Action Plan proposes Buyout programming. As such, multiple opportunities exist to capitalize on natural infrastructure amelioration and restoration. For Buyout undertakings, this would include conversion of buyout zone housing into seasonal floodplains that have had structures demolished and are landscaped riparian buffer zones containing marginal native species returned to units of government/local government for permanent deed restrictions preventing re-development. These seasonal floodplains will serve to impound and filter both storm and floodwaters.

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8.0 Construction Standards

Although NCORR does not propose new construction or rehabilitation activities with CDBG-MIT funds, NCORR acknowledges the emphasis in the Notice to institute green building design. Should NCORR amend its Action Plan in the future to include these activities, it will adhere to the following requirements specifically when executing new construction and will follow best practices such as those provided by the U.S. Department of Energy's Guidelines for Home Energy Professionals—Professional Certifications and Standard Work Specifications.

For all construction, the project scope will incorporate Green Building materials to the extent feasible according to specific project scope. Materials must meet established industry-recognized standard that have achieved certification under at least one of the following programs:

- ENERGY STAR (Certified Homes or Multifamily High-Rise).
- Enterprise Green Communities.
- LEED (New Construction, Homes, Midrise, Existing Buildings Operations and Maintenance, or Neighborhood Development).
- ICC-700 National Green Building Standard, (v) EPA Indoor AirPlus (ENERGY STAR a prerequisite).
- Any other equivalent comprehensive green building program.

NCORR will implement and monitor construction results to ensure the safety of residents and the quality of homes assisted through the program. New housing created must reduce the risk of loss of life and property from future disasters and yield community development benefits. All new housing created in whole or in part with CDGB-MIT funds will comply with current HUD Housing Quality Standards (HQS), and must emphasize quality, durability, energy efficiency, sustainability, and mold resistance. NCORR will consult [FEMA P-798, Natural Hazards and Sustainability for Residential Buildings](#), to align green building practices with the increased sustainability and resiliency required in CDBG-MIT programming.

Proposed construction projects will be evaluated to determine adequate compliance with modern and resilient building codes and mitigation of hazard risk, including sea level rise, high winds, storm surge, and flooding as described in the Mitigation Needs Assessment. Further, new construction funded through CDBG-MIT must be consistent with the principles of the Mitigation Needs Assessment.

New housing developed with CDBG-MIT funds will comply with accessibility standards as set at 24 CFR Part 40. NCORR will utilize the [UFAS Accessibility Checklist](#) as a minimum standard for structures with five or more units to assist in the compliance of Section 504 of the Rehabilitation Act. The checklist will be used when reviewing the design of all newly

constructed residential structures (other than privately owned residential structures). The Fair Housing Act (including the seven basic design and construction requirements set in the Fair Housing Act)⁵⁶ also applies to buildings with four or more units. Titles II and III of the Americans with Disabilities Act also applies to public housing.

Contractor compliance will be maintained through the review and approval of monthly project performance reports, financial status reports, and documented requests for reimbursement throughout the contract period.

NCORR will also require Section 3 plans from both subrecipients and contractors, when applicable, and monitor for compliance with Section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701u), and implementing regulations at 24 CFR part 135.

The State will utilize the HUD-provided contract reporting template (for PL 113-2) for upload to the Disaster Recovery Grant Reporting (DRGR) on a quarterly basis:

<https://www.hudexchange.info/resource/3898/public-law-113-2-contract-reporting-template/>.

8.1 Broadband

Any substantial rehabilitation, as defined by 24 CFR 5.100, or new construction of a building with more than four rental units must include installation of broadband infrastructure, except where it is documented that:

1. The location of the new construction or substantial rehabilitation makes installation of broadband infrastructure infeasible, or
2. The cost of installing broadband infrastructure would result in a fundamental alteration in the nature of its program or activity or in an undue financial burden, or
3. The structure of the housing to be substantially rehabilitated makes installation of broadband infrastructure infeasible.

8.2 Cost Verification

At all times, construction costs must remain reasonable and consistent with market costs at the time and place of construction. NCORR uses the service of a third-party construction management firm to assist in determining that construction costs are reasonable and necessary.

If infrastructure projects are implemented in a future change to the Action Plan, NCORR will establish specific cost controls for infrastructure.

⁵⁶ Fair Housing Accessibility First. *Fair Housing Requirements*. <https://www.fairhousingfirst.org/fairhousing/requirements.html>

NCORR will review projects and test for compliance with financial standards and procedures including procurement practices and adherence to cost reasonableness for all operating costs and grant-funded activities. All program expenditures will be evaluated to ensure they are:

- Necessary and reasonable.
- Allocable according to the CDBG contract.
- Authorized or not prohibited under state/local laws and regulations.
- Conform to limitations or exclusions (laws, terms, conditions of award, etc.).
- Consistent with policies, regulations and procedures.
- Adequately documented.
- Compliant with all Cross Cutting Federal Requirement including Uniform Administrative Requirements at 2 CFR 200.

8.2.1 Timely Expenditure of Funds

NCORR has adopted procedures to ensure the timely expenditure of funds, track expenditures in each month, monitor expenditures of recipients, reprogram funds in a timely manner, and project expenditures over time. Subrecipients must be able to report expenditures for each approved activity. A record of the account balances is maintained for each approved activity that accounts for expenses accrued as well as obligations that have been incurred but not yet been paid out. As part of those controls, the system of record (Salesforce) includes the submission of Requests for Payment to track expenditures against pre-established activity budgets as well as for retention of records related to expenditures. Monthly expenditures are recorded in Salesforce as well as through the reporting mechanisms established by the Reporting and Business Systems team. The Reporting and Business Systems team also ensures that actual and projected expenditures of funds are reported in the Disaster Recover Grant Reporting system (DRGR) quarterly performance report (QPR). The use of these systems will ensure that contracts and bills are paid timely.

To further monitor and ensure timeliness of expenditures, subrecipients will be required to attend training to assist in defining clear roles and responsibilities and the expectations for timely performance under all Subrecipient Agreements (SRA). NCORR establishes strict timelines and milestones within each of the SRA agreements entered into with subrecipients, contractors, consultants and recipients of funds. These requirements and milestones will be specifically outlined in each agreement and will be designed to be specific to categories of funding. All grantees are required to expend all funds within a certain timeframe as outlined in the Public Law and Federal Register Notices that govern the obligation of funds.

At times, it may be necessary for NCORR to reprogram grant funds. Funds may need to be reprogrammed for many reasons, including but not limited to:

- The Activity did not expend all funds awarded.
 - The grant time period expired.
 - Projects or programs were completed under budget and funds were remaining.
- A grant agreement expired, with no amendment necessary.
- A projected award is unable to be contracted.
- A project is determined to be ineligible.
- Slow or untimely project start date.
- An additional mitigation need is identified.

NCORR will review the use of funds quarterly as a part of the quarterly expenditure reports and may use those reports as a foundation to approach reallocation. Alternatively, changes in program design which necessitate a substantial Action Plan amendment may present an opportunity for NCORR to expediently reprogram funds. Through the grant cycle, subrecipients and contractors may request additional funds. These requests for funds will be evaluated as they are received. If the facts and circumstances of the request warrant additional funds, and additional funds are available, NCORR may reprogram funds at that time. Any funds reprogrammed which exceed the threshold criteria for a substantial Action Plan amendment will be formalized through the substantial Action Plan amendment process.

NCORR does not anticipate the creation of program income in the expenditure of CDBG-MIT funds. If program income is generated through the course of CDBG-MIT administration, the Action Plan will be updated to reflect a plan for managing program income.

8.3 Operation and Maintenance Plans

Currently, NCORR does not plan to fund infrastructure projects, new construction, or rehabilitation with its CDBG-MIT funds. In the event that future Action Plan amendments include these activities, CDBG-MIT funds may not be applied to the operation and maintenance of those activities, and instead NCORR will require these projects to include a plan for operation and maintenance. NCORR will coordinate with subrecipients administering housing projects as well as any developers providing housing projects to demonstrate a plan for the operation and maintenance of the facility for no less than the prescribed affordability period for the project, and in accordance with the complexity of the project. Other factors may affect the operation and maintenance plan requirements project by project, including the experience of the developer and/or subrecipient, the amount of CDBG-MIT funds contributing to the project, and the number of units to be created.

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9.0 Minimizing Displacement and Ensuring Accessibility

NCORR is continuing to make every effort to minimize temporary and permanent displacement of persons due to the delivery of the HUD's CDBG-DR and CDBG-MIT programs it administers. NCORR has agreed to follow the plan described in the NCORR Residential Anti-Displacement and Relocation Assistance Plan, available at <https://files.nc.gov/rebuildnc/Final-URA-and-TRA-SOP-with-Appendices-1-28-19.pdf>, Appendix 38. NCORR has and will continue to minimize adverse impacts on persons of low-and-moderate income resulting from acquisition, rehabilitation, and/or demolition activities assisted with funds provided under Title 1 of the Housing and Community Development (HCD) of 1974, as amended, as described in 24CFR 570.606 (b-g).

Further, NCORR, continues to provide comprehensive training to its subgrantees and subrecipients to adopt the State's Residential Anti-Displacement and Relocation Assistance plan or develop and adopt their own plan regarding any activity assisted with funding from the CDBG-MIT grant. NCORR will provide guidance and approval to its sub-recipients that develop their own plan. Subrecipients that develop their own plans, must subsequently adhere to and comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, (42 U.S.C. 4601 et seq.) ["URA"], for any household, regardless of income which is involuntarily and permanent displaced.

The Uniform Relocation Assistance and Real Property Acquisition Act (URA), is a federal law that establishes minimum standards for federally funded programs and projects that require the acquisition of real property (real estate) or displace persons from their homes, businesses, or farms. The URA's protections and assistance apply to the acquisition, rehabilitation, or demolition of real property for federal or federally funded projects.

- 49 CFR Part 24 is the government-wide regulation that implements the URA.
- HUD Handbook 1378 provides HUD policy and guidance on implementing the URA and 49 CFR Part 24 for HUD funded programs and projects.

As part of condition of compliance with programs subject to URA, NCORR will:

- Provide uniform, fair and equitable treatment of person whose real property is acquired or who are displaced in connection with federally funded projects as well.
- To ensure relocation assistance is provided to displaced persons to lessen the emotional and financial impact of displacement
- To ensure that no individual or family is displaced unless decent, safe and sanitary (DSS) housing is available with the displaced person's financial means

- To help improve the housing conditions of displaced persons living in substandard housing
- To encourage and expedite acquisition by agreement and without coercion.

In practice, when a tenant is displaced by a CDBG-MIT activity, relocation case managers are assigned to both owners and tenants work with applicants to coordinate activities and communicate updates in real time concerning when to expect to move out of their residences, assist the displaced individuals with securing temporary housing arrangements, and all other aspects of moving belongings. One of the case manager's primary goals is to minimize the time that the tenant/owner will be impacted by coordinating the construction calendar in real time and during construction, keeping the displaced individual updated on the construction progress and communicating an expected timeline for construction completion and eventual move in.

To ensure accessibility for applicants, NCORR has adopted a Section 504/Americans with Disabilities Act (ADA) policy which ensures the full right to reasonable accommodations by all program participants. Under this policy, case managers shall assess the specific needs of each program beneficiary and determine if a 504/ADA modification is required based on the family composition members. All public facilities that are federally assisted shall also exceed the minimum threshold for 504/ADA compliance. Multifamily and other housing development programs will also be required to have a certain set-aside of fully compliant 504/ADA units of varying sizes to accommodate eligible applicants. Along with single family programs, the multifamily rental programs will be required to have an architect's/engineer's signature on a form stating that the designed unit meets 504/ADA compliance. Failure to deliver the appropriately constructed ADA/504 compliant unit(s) will result in the construction firm not being paid and in breach of contract until the deficiencies are corrected.

As was evidenced in the first rounds of public hearings in Robeson, Edgecombe, and Craven Counties on October 14 through October 16, 2019 for the input for this Mitigation Action Plan, each facility hosting the public hearing was fully accessible and presentations were made simultaneously for individuals with hearing impairment (accommodations included sign language interpretation as well as text projected onto a screen). The transcription was translated into Spanish in real-time and printed materials were also translated into Spanish, which according to NCORR's accepted Language Accessibility Program (LAP), is the largest non-English spoken language in North Carolina. North Carolina qualifies as a safe harbor state in that over 5% of its population speaks another primary language outside of English in the home. The adopted LAP is cognizant of these demographics and offers print material in Spanish and will provide other language translation services as needed.

9.1 Voluntary Acquisition

NCORR's Buyout Program is voluntary and NCORR will not utilize the power of eminent domain. While NCORR has no direct authority to perform eminent domain, it could request the Division of Administration to execute eminent domain on its behalf. Although NCORR does not intend to use the State's eminent domain authority, NCORR is indicating how it meets the four-part criteria under 49 CFR 24.101(b)(1) (i-iv):

- (i) No specific site or property needs to be acquired, although the Agency may limit its search for alternative sites to a general geographic area. Where an Agency wishes to purchase more than one site within a general geographic area on this basis, all owners are to be treated similarly. (See appendix A, [§ 24.101\(b\)\(1\)\(i\).](#))

NCORR will be implementing its Strategic Buyout Program within DRRAs identified as being areas at risk for future storm damage. No specific sites or properties are being identified for purchase under the Strategic Buyout Program. The Program will offer to acquire property in DRRAs from eligible owners based on the appraised current Fair Market Value (CMV). The Initial Offer, based on the CMV, will be offered to all eligible applicants; therefore, applicants are being treated equally.

- (ii) The property to be acquired is not part of an intended, planned, or designated project area where all or substantially all of the property within the area is to be acquired within specific time limits.

The Strategic Buyout Program is not part of a designated plan or development project and therefore is not part of a project area. Further, there is no specific time limit for the purchase of properties under the Strategic Buyout Program.

- (iii) The Agency will not acquire the property if negotiations fail to result in an amicable agreement, and the owner is so informed in writing.

All offers to purchase Buyout participant properties will be made in writing and be based on a current Fair Market Value appraisal of the property. Because the Strategic Buyout Program is voluntary, property owners will be informed in writing that they may reject NCORR's Initial Offer to buy the property or voluntarily withdraw from the Program any time prior to closing. If an owner rejects the Initial Offer or withdraws from the Program, NCORR will not pursue the purchase of the property further.

- (iv) The Agency will inform the owner in writing of what it believes to be the market value of the property. (See appendix A, [§ 24.101\(b\)\(1\)\(iv\) and \(2\)\(ii\)](#).) “

NCORR will provide all participants to the Buyout Program with an appraisal indicating the current Fair Market Value of their property upon which any offer amount to buy the property will be made.

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10.0 Activities and Allocation of Funds

The most significant consideration in developing CDBG-MIT activities and the allocation of funds is the Mitigation Needs Assessment. This assessment, found above, is comprised of an analysis of the State Hazard Mitigation Plan as well as data from the ongoing CDBG-DR funded State recovery. Mitigation activities are also funded in context with threats to Community Lifelines.

Throughout the implementation of the grant, NCORR certifies that it will conduct and carry out the grant in conformity with title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d) and the Fair Housing Act (42 U.S.C. 3601–3619) and implementing regulations, and that it will affirmatively further fair housing. Activities will further comply with environmental requirements at 24 CFR Part 58. Activities concerning lead-based paint will comply with the requirements of 24 CFR part 35, subparts A, B, J, K, and R. NCORR certifies that it will comply with applicable laws in the management and implementation of grant funds, both State and Federal.

10.1 Crosscutting Terms Defined

HUD and other federal crosscutting requirements and standards are applicable to activities proposed in this Action Plan. These requirements and standards and some common definitions of these items are included below.

- **Accessibility and Accessibility Standards.** The Uniform Accessibility Standards Act (UFAS) requires that buildings and facilities designed, constructed, or altered with federal funds be accessible and these standards were developed to define what “accessible” means. UFAS is one of the standards which federal grantee shall use to comply along with Title II of the Americans with Disabilities Act.
- **Affirmatively Furthering Fair Housing (AFFH).** AFFH is a legal requirement that NCORR further the requirements of the Fair Housing Act. The obligation to affirmatively further fair housing has been in the Fair Housing Act since 1968 (for further information see Title VIII of the Civil Rights Act of 1968, 42 U.S.C. 3608 and Executive Order 12892).
- **Areas of Opportunity.** The federal government defines high opportunity areas as either an area designated by the Department of Housing and Urban Development (HUD) as a Difficult Development Area (DDA) during any year covered by the Duty to Serve Plan or in the year prior to the Plan’s effective date, whose poverty rate is lower than the rate specified by FHFA in Evaluation Guidance—those tracts with poverty rates below 10 percent (for metropolitan DDAs) and below 15 percent (for non-metropolitan DDAs); or an area designated by a state or local Qualified Allocation Plan (QAP) as a high opportunity area and which meets a definition identified as eligible for Duty to Serve credit in the Evaluation Guidance for the issuance of Low Income Housing Tax Credits.
- **Community Participation.** The primary goal is to provide citizens where CDBG-funded activities will take place an opportunity to participate in an advisory role in the planning,

implementation, and assessment of proposed programs and projects. NCORR commits to hearing from all impacted individuals regardless of race, color, national origin, income, or any other potential social disparity. The MIT requirements include the formation of an active citizen advisory committee during the duration of the MIT grant implementation to provide input.

- **Effective Communication.** Communication methods include the provision of appropriate auxiliary aids and services, such as interpreters, computer-assisted real time transcription (CART), captioned videos with audible video description, visual alarm devices, a talking thermostat, accessible electronic communications and websites, documents in alternative formats (e.g., Braille, large print), or assistance in reading or completing a form, etc.
- **Environmental Justice.** Environmental justice means ensuring that the environment and human health are protected fairly for all people regardless of race, color, national origin, or income. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations" (2/94) requires certain federal agencies, including HUD, to consider how federally assisted projects may have disproportionately high and adverse human health or environmental effects on minority and low-income populations.
- **Fair Housing and Equal Opportunity.** NCORR commits to working toward eliminating housing discrimination, promote economic opportunity, and achieve diverse, inclusive communities by leading the nation in the enforcement, administration, development, and public understanding of federal fair housing policies and laws. The laws implemented and enforced by FHEO include the Fair Housing Act, Title VI of the Civil Rights Act of 1964, Section 109 of the Housing and Community Development Act of 1974, Section 504 of the Rehabilitation Act of 1973, Titles II and III of the Americans with Disabilities Act of 1990, The Architectural Barriers Act of 1968, and The Age Discrimination Act of 1975
- **Limited English Proficiency.** Under Title VI of the Civil Rights Act of 1964 and in accordance with Supreme Court precedent in *Lau v. Nichols*, recipients of federal financial assistance are required to take reasonable steps to ensure meaningful access to their programs and activities by limited English proficient (LEP) persons. In accordance with Executive Order 13166, the meaningful access requirement of the Title VI regulations and the four-factor analysis set forth in the Department of Justice (DOJ) LEP Guidance apply to the programs and activities of federal agencies, including HUD. In addition, EO 13166 directs each federal agency that provides financial assistance to non-federal entities to publish guidance on how their recipients can provide meaningful access to LEP individuals and thus comply with Title VI regulations forbidding funding recipients from restricting an individual in any way in the enjoyment of any advantage or privilege enjoyed by others receiving any service, financial aid, or other benefit under the program. The Fair Housing Act prohibits national origin discrimination in both private and federally-assisted housing. For example, a housing provider may not impose

less favorable terms or conditions on a group of residents of a certain national origin by taking advantage of their limited ability to read, write, speak or understand English.

- **Minority Low-income areas and Populations.** A low-income population is defined as a group of individuals living in geographic proximity to one another, or a geographically dispersed or transient (migrant) group of individuals that have household incomes at or below poverty level. Individuals who are members of the following population groups are considered minorities: American Indian or Alaskan Native, Asian or Pacific Islander, Black (not of Hispanic origin), or Hispanic. A low income or minority population can be identified where either: Low income or minority individuals constitute more than 50% of the population of the project area; or the percentage of low income or minority individuals in an affected area is twice that as the county or state as a whole (for example: 30% of the project area is low-income but only 15 percent of the county is low income). Several methods can be used to determine if there are low income or minority populations present in your project area. The most common and defensible method is to review data provided by the US Census Bureau. This data may be obtained from the [American Factfinder](#) portion of Census Bureau website. The website maintains data for a variety of different areas, including: the entire country, a state, county, census tract, block group, and block. For most projects, data from the census tract or block group level are the most relevant.
- **Protected Classes.** The seven classes protected under the Federal Fair Housing Act are color, disability, familial status, (i.e. having children under 18 in a household, including pregnant women), national origin, race, religion, and sex. Discrimination is also forbidden based on age (those 40 years of age or older) or genetic information.
- **Reasonable Accommodation.** Reasonable Accommodation is a change, exception, or adjustment to a rule, policy, practice, or service that may be necessary for a person with disabilities to have an equal opportunity to use and enjoy a dwelling, including public and common use spaces, or to fulfill their program obligations. Please note that the ADA often refers to these types of accommodations as “modifications.” Any change in the way things are customarily done that enables a person with disabilities to enjoy housing opportunities or to meet program requirements is a reasonable accommodation. In other words, reasonable accommodations eliminate barriers that prevent persons with disabilities from fully participating in housing opportunities, including both private housing and in federally-assisted programs or activities. Housing providers may not require persons with disabilities to pay extra fees or deposits or place any other special conditions or requirements as a condition of receiving a reasonable accommodation.

10.2 Connection between Mitigation Activities and Identified Risks

In review of the Mitigation Needs Assessment and threats to Community Lifelines, funding a substantial buyout program is of primary importance for the State of North Carolina. Buyout programs remove vulnerable people and property from harm’s way, greatly reducing the expectation of future investment in the recovery of those people and property. Additionally

buyout relieves strain on every Community Lifeline. Finally, buyout is in alignment with a major priority of the State’s Hazard Mitigation Plan.

In accordance with the Notice, the Action Plan must identify how the proposed use of funds: 1) meet the definition of mitigation activities; 2) address the current and future risks as identified in the Mitigation Needs Assessment; 3) will be CDBG-eligible activities under title I of the Housing and Community Development Act (HCDA) or otherwise eligible pursuant to a waiver or alternative requirement; and 4) will meet a national objective. Therefore, for each identified for CDBG-MIT funding identified in this Section, NCORR will specify the connection to:

1. The State Enhanced Hazard Mitigation Plan “Action Item”.
2. The Community Lifeline weakness addressed through the mitigation activity.
3. The CDBG-eligible activity as set forth in Title I of the Housing and Community Development Act (HCDA) or through specific waiver provided by HUD.
4. The HUD National Objective criteria satisfied through activity execution.

For each allocation, the reference to the State Enhanced Mitigation Plan Action Item will be the numbered priority stated in the HMP. A detailed list of Action Items is included in Part 4.7 above. The CDBG-eligible activity is presented as the subsection of the Housing and Community Development Act, or specific waiver. The HUD National Objective criteria include the following:

- **LMI (Low- and moderate-income).** Activities which benefit low- and moderate-income individuals, such as providing an area benefit to an LMI area, establishing benefits to limited clientele, or housing LMI individuals and households.
- **LMH (Low/Mod Housing).** Set by HUD in 80 FR 72102, the **Low/Mod Housing** national objective is met when the buyout program combines the acquisition of properties with another direct benefit—Low- and Moderate-Income housing activity, such as down payment assistance, for example—that results in occupancy and otherwise meets the applicable LMH national objective criteria.
- **LMB (Low/Mod Buyout).** Set by HUD in 82 FR 36825 to allow for meeting a National Objective when CDBG-MIT funds are used for a buyout award to acquire housing owned by a qualifying LMI household, where the award amount (including optional relocation assistance) is greater than the post-disaster (current) fair market value of that property.
- **LMHI (Low/Mod Housing Incentive).** Set by HUD in 82 FR 36825 to allow for meeting a National Objective when CDBG-MIT funds are used for a housing incentive award, tied to the voluntary buyout or other voluntary acquisition of housing owned by a qualifying LMI household, for which the housing incentive is for the purpose of moving outside of the affected floodplain or to a lower-risk area; or when the housing incentive is for the purpose of providing or improving residential structures that, upon completion, will be occupied by an LMI household.

- **UNM (Urgent Need Mitigation).** Set by HUD in the Notice to allow for certain mitigation activities. To meet the UNM National Objective, NCORR must document that the activity addresses the current and future risks as identified in the Mitigation Needs Assessment of most impacted and distressed areas and will result in a measurable and verifiable reduction in the risk of loss of life and property.

Some CDBG-MIT activities align with the unmet recovery need and have some functional overlap with CDBG-DR activities. Activities where a CDBG-MIT activity is used in combination with CDBG-DR funds already allocated will be indicated in the activity description.

This Action Plan does not modify any Federal standards or other legal requirements. Any effort by the State of North Carolina or its agents to modify such standards or other legal requirements must be preceded by the ordinary procedures to request a waiver from the appropriate Federal authority. As Public Law 115-123 provided “The Secretary of Housing and Urban Development may waive, or specify alternative requirements for, any provision of any statute or regulation that the Secretary administers in connection with the obligation by the Secretary or the use by the recipient of these funds (except for requirements related to fair housing, nondiscrimination, labor standards, and the environment), if the Secretary finds that good cause exists for the waiver or alternative requirement and such waiver or alternative requirement would not be inconsistent with the overall purpose of Title I of the Housing and Community Development Act of 1974.” Notice of proposed waivers must be accompanied by evidence of public comment including, but not limited to, review and input by low-income and minority residents, businesses, and other institutions.

10.3 Allocations and Programming

The total CDBG-MIT allocation set forth in PL 115-123 is \$168,067,000. NCORR will set aside five percent of these funds (\$8,403,350) for administrative costs associated with the mitigation activities described below. Another five percent of the funds will be set aside for planning related activities, such as Action Plan development, public outreach, and coordination on future planning with local and regional coordinating entities. The remaining \$151,260,300 will be allocated to Strategic Buyout.

Following the Mitigation Needs Assessment, lessons learned from CDBG-DR, and from community and stakeholder input, 90 percent of CDBG-MIT funds will be allocated to Strategic Buyout.

10.3.1 Planning Funds

Five percent of CDBG-MIT funds are allocated to planning activities. In the original Action Plan, NCORR did not fully describe how these funds would be used. Since that time, NCORR has begun coordination with the State Disaster Recovery Task Force’s Recovery Support Function (RSF) subcommittees – starting with the Environmental Preservation Recovery Support Function – to identify potential planning opportunities.

NCORR may consider the use of planning funds based on recommendations proposed by the RSF groups and may also consider planning opportunities identified through coordinating state agencies, such as the DOT, DEQ, and NCEM. Planning needs were also identified in the creation of the Action Plan and planning priorities are also outlined in the State Hazard Mitigation Plan. The Action Plan will not be amended every time a planning activity is pursued. Instead, NCORR will provide details on ongoing planning activities on its website at <https://rebuild.nc.gov>.

10.4 MID Areas and State-Identified MID Areas

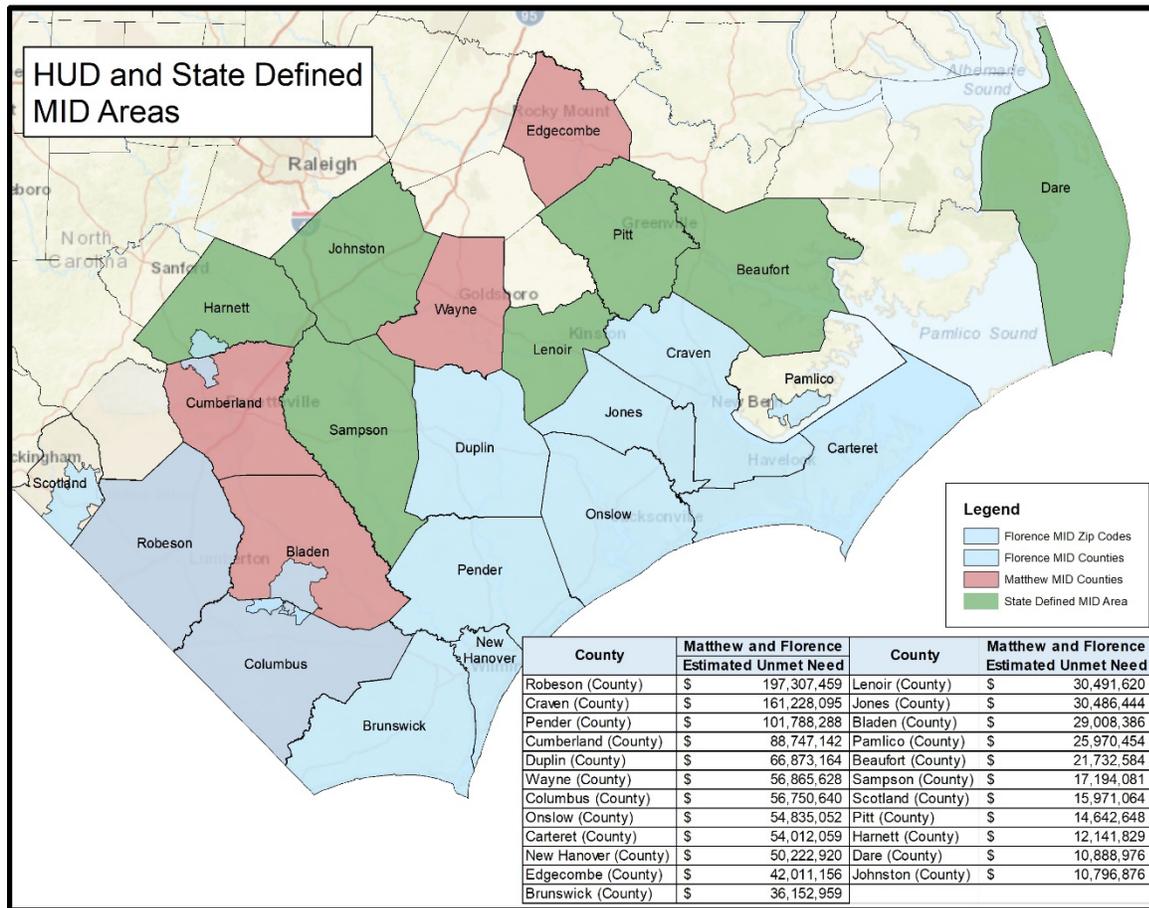
The allocation of funds to MID areas reflects the MID determinations made by HUD for Hurricane Florence, published in 85 FR 4681. Therefore, the MID areas are the Hurricane Matthew-established MID areas (Bladen, Columbus, Cumberland, Edgecombe, Robeson, and Wayne Counties) and the additional Hurricane Florence MID areas (Brunswick, Carteret, Craven, Duplin, Jones, New Hanover, Onslow, Pender, Scotland, and Pamlico Counties).⁵⁷ The remaining 50 percent of the “non-MID” allocation is reserved for state-identified areas that are most impacted and distressed which also received a Presidentially-declared disaster designation for Hurricane Matthew or Florence.

In consideration of the unique recovery and mitigation needs created by the large area of the State that was impacted by both Hurricane Matthew and Hurricane Florence, NCORR conducted an analysis of damage to areas that were impacted by both storms. In adherence with the allocation methodology outlined in Appendix A for both 82 FR 5591 for Hurricane Matthew and 85 FR 4681 for Hurricane Florence, NCORR calculated an estimated unmet need for both events combined. This analysis used the Major-Low, Major-High, and Severe damage categories for both events and multiplied those damage categories by the repair estimation factors included in Appendix A for each respective notice. The threshold to be considered a State-identified MID is greater than \$10 million in combined losses at the county level for both storm events.

The result is the addition of seven counties which are considered the State-identified MID areas. These counties are Beaufort, Dare, Harnett, Johnston, Lenoir, Pitt, and Sampson.

⁵⁷ 85 FR 4681 indicates that Zip Codes 28352, 28390, 28433, and 28571 are MID areas. According to that FR, if HUD designates a ZIP Code as a most impacted and distressed area for purposes of allocating funds, NCORR may expand program operations to the whole county as a most impacted and distressed area. NCORR is exercising this option and considers funds spent in Scotland, Cumberland, Bladen, and Pamlico to meet the MID requirement.

Figure 15 - State-Identified Most Impacted and Distressed Areas



These state-identified areas are for recovery and mitigation planning purposes and for a deeper understanding of the hardest hit dual impacted areas of the State. Disaster Risk Reduction Areas (defined in Section 10.7.1 below) may be located in HUD-identified or State-identified MID. While expenditures in these state-identified MID areas do not meet the 50 percent expenditure requirement set by HUD, they do satisfy the requirement from HUD which states that grants under the 2018 and 2019 Appropriations Acts in response to Hurricane Florence may be used interchangeably and without limitation for the same activities in the most impacted and distressed areas related to Hurricane Matthew.

As additional information becomes available, NCORR may support additional MID classification for Hurricane Florence impacted areas and update the allocations and the Mitigation Needs Assessment accordingly. Changes to add support for a new MID area would be included in a substantial amendment to the Action Plan.

Table 25 - CDBG-MIT Allocations

Program	Total	% of Total Allocation	\$ to LMI	% to LMI	\$ to HUD-defined MID areas	% to HUD-defined MID areas
Administrative Costs	\$8,403,350	5%	\$0	0%	\$4,201,675	50%
Planning Costs	\$8,403,350	5%	\$0	0%	\$4,201,675	50%
Strategic Buyout	\$151,260,300	90%	\$84,033,500	56%	\$128,571,255	85%
Resilient Affordable Housing Development Program	See Hurricane Florence CDBG-DR Action Plan					
Total	\$168,067,000	100%	\$84,033,500	50%	\$136,974,605	82%

10.5 Method of Distribution and Delivery

In previous CDBG implementation and delivery, NCORR has consistently prioritized providing funds to communities that experienced the most significant damage from Hurricanes Matthew and Florence. NCORR continues to provide assistance to each impacted county, with a primary focus on those that were most impacted and distressed.

Previous allocations allowed for counties to enter into a subrecipient agreement (SRA) with NCORR to administer aspects of the grant. In consideration of NCORR's increased capacity, knowledge, and expertise since CDBG-DR funds were allocated, NCORR will administer the Strategic Buyout Program, utilizing Cooperative Agreements to convey acquired land to counties or other entities for the purpose of operations and maintenance of the acquired parcel(s). CDBG-MIT funds will not be subgranted for operations and maintenance.

If SRA's are later determined to be beneficial to NCORR for the expedient and proficient use of CDBG-MIT funds, the method of distributing funds to the subrecipient will be set forth in the SRA. New and updated SRAs will also include:

- The threshold of the grant award and the amount to be subgranted.
- The use of the CDBG-MIT funds by responsible organization, activity, and geographic area.
- The CDBG eligibility criteria and national objective, as well as any additional criteria for the subrecipient's use of funds.

The selection of subrecipients will weigh the following factors, in order of importance:

- Subrecipient alignment with CDBG-MIT objectives and priorities.
- Subrecipient capacity.
- Project/Program feasibility.
- Project/program cost and/or leverage.

Specific terms may be implemented to SRAs depending on the selection criteria reviewed above. Sub-criteria may expand upon these selection criteria in order to fully understand the nature of the proposed project.

10.6 Vulnerable Populations

A major priority of NCORR is the fair and equitable treatment of the vulnerable populations which are historically neglected during disaster recovery and in the consideration of long-term risk resilience and mitigation measures. The Notice also requires NCORR to assess how the use of CDBG-MIT funds may affect members of protected classes under fair housing and civil rights laws, racially and ethnically concentrated areas, as well as concentrated areas of poverty.

Organizationally, NCORR has sought staff and resources to ensure that vulnerable populations receive equitable and fair treatment. NCORR has a dedicated Resiliency Team, charged with assisting the State Disaster Recovery Taskforce's Housing Recovery Support Function (RSF), a task force that advises NCORR on housing recovery, and which includes several organizations dedicated to serving poor and marginalized households. Key NCORR staff members have also participated in the Racial Equity Institute's Groundwater Approach Training, a nationally-recognized program for helping individuals and organizations who want to proactively understand and address racism, both in their organization and in the community.

10.6.1 LMI Priority

NCORR is committed to serving the LMI population of the impacted areas of the State. By waiver in the Notice, the requirement to expend 70 percent of CDBG funds on activities that benefit low- and moderate-income persons is replaced by a requirement to expend 50 percent of funds on LMI activities. This waiver does not change the need to prioritize the protection of LMI individuals and families.

To the extent that it is feasible, buyout activities will prioritize LMI individuals and households – although following HUD guidance on executing buyouts strategically, exceptions may be made as a means of acquiring contiguous parcels. To the maximum extent practicable, NCORR will attempt to avoid circumstances in which parcels that could not be acquired through a buyout remain alongside parcels that have been acquired through the grantee's buyout program. This may require executing buyouts that do not serve an LMI individual or household.

NCORR identified buyout areas (DRRAs) in consideration of the expected concentration of LMI-qualifying participants in the program.

NCORR applies the following criteria when designating a DRRA. These criteria were established to promote the state's objective to increase mitigation efforts while serving the LMI population:

- 1. Need to Mitigate Against Future Storm-Related Damage.** DRRAs are selected based on data that indicated that these areas are likely to experience subsequent and repeated storm damage, including flooding. An area located within a FEMA-designated floodway or in zone A, AE, AO, AH, A1 - A30, A99, AR, V, VE or V1 - V30 on an existing or preliminary Flood Insurance Rate Map (FIRM) and/or the existence of flood inundation data (such as satellite imagery or photography), indicates vulnerability to subsequent flooding. While current DRRAs are predominantly located in floodplain areas, HUD regulations also allow for the establishment of DRRAs in areas that are at risk of future storm damage, such as flooding, even if such areas are not located within a floodplain, as shown on a FIRM. The properties within the DRRAs located outside of the floodplain are included to mitigate the risk of future storm damage, and ensure neighborhood, area or block integrity.
- 2. LMI Prioritization.** In addition, the Program prioritizes those at-risk areas populated by LMI households. Therefore, all DRRAs will have a population of no less than 40% LMI based on the census data from the American Community Survey (ACS), unless:
 - The DRRA is within a census block group that is not lower than 30% LMI, but is adjacent to a block group which is 51% LMI or greater; and/or
 - The DRRA is proposed by the local community, in which case it may not be lower than 30% LMI based on data by census block group OR information provided by the local community supports that it is greater than 30% LMI, contrary to census data.

The Program will monitor expenditures to ensure that they remain in compliance with HUD's LMI threshold requirements and will adjust policy accordingly if the threshold is not being met. This LMI threshold is a starting point for serving lower-income areas and individual determinations are still made project by project. NCORR remains committed to using a majority of its funds to the benefit of LMI individuals and to focus on the unique needs of vulnerable populations as reviewed in Section 10.6.

- 3. Additional Criteria.** Additional criteria may be applied when designating a DRRA including the existence of one or more of the following factors: risk of repetitive storm damage; locations where there is or will be other government disaster recovery investment and/or where a prevalence of data indicates the need for mitigation assistance; identification of areas by local governments based on local knowledge and data regarding flooding, calls for assistance due to flooding, and other local

considerations when such areas are also generally consistent with the factors listed above, and after review and approval by NCORR.

10.6.2 Assessment of Vulnerable Populations

Of significant concern is long term resiliency and mitigation which may serve vulnerable populations, such as minorities and low-income individuals and households who have historically been discriminated and marginalized by housing policies, lack of public investment, forced into outer, more rural areas due to lack of affordable housing units. Vulnerable populations are also areas that have high concentrations of poverty and minorities, transitional housing, permanent supportive housing, permanent housing serving individuals and families (including subpopulations) that are homeless and at-risk of homelessness, persons with accessibility issues, including transportation and access to healthcare and services that have been cut off due to poor infrastructure such as roads, those persons with Limited English Proficiency and public transportation, and public housing development areas.

NCORR reviewed four data sources to evaluate the needs for vulnerable populations and considered the data from these sources in the selection of its proposed buyout areas. These resources will continue to be used in the development of ideal locations for affordable housing development with CDBG-DR funds.

- Federal Financial Institutions Evaluation Council's (FFIEC) Census and Demographic Data.
- University of North Carolina's Center for Civil Rights – The State of Exclusion Report.
- The North Carolina Justice Center, Budget and Tax Center Brief.
- CDC Social Vulnerability Indices.

10.6.3 Historical Context

Historically, the least fortunate bear the greatest social, economic, health and environmental costs. Low-income people and people of color are more likely to live in or near a floodplain⁵⁸, in industrial areas that spread pollution when threatened by hazards⁵⁹, and in neighborhoods with substandard infrastructure⁶⁰. Low-income individuals are more likely to live in rental housing, may not be able to afford flood or homeowner's insurance, and often hold jobs that make unexpected absences from work due to disaster a serious challenge. For these reasons and

⁵⁸ Mervosh, Sarah. *Unsafe to Stay, Unable to Go: Half a Million Face Flooding Risk in Government Homes*. New York Times. <https://www.nytimes.com/2019/04/11/us/houston-flooding.html>.

⁵⁹ Pyzyk, Katie. *Study: Low-income neighborhoods disproportionately feel environmental burdens*. SmartCitiesDive. <https://www.smartcitiesdive.com/news/study-low-income-neighborhoods-disproportionately-feel-environmental-burde/543498/>

⁶⁰ Huang, Chye-Ching and Roderick Taylor. *Any Federal Infrastructure Package Should Boost Investment in Low-Income Communities*. Center on Budget and Policy Priorities. <https://www.cbpp.org/research/federal-budget/any-federal-infrastructure-package-should-boost-investment-in-low-income>

many others, vulnerable populations are less likely to be able to insulate themselves from the harm caused by disaster events.

Since 2000, the number of concentrated poverty neighborhoods, as well as the number of North Carolinians living in those neighborhoods, has nearly tripled. In 2000, there were 37 neighborhoods in North Carolina where the poverty rate was 40 percent or higher, with 84,493 people (1.1 percent of total population) living in those communities. In 2016, there were more than 348,000 (3.6 percent of the total population) North Carolinians living in 109 concentrated poverty neighborhoods. Both Hurricanes Matthew and Florence further exacerbated this problem.

Table 26 - Census Tracts by Poverty Rate, State of North Carolina

Year	0-19.9% Poverty Rate	20-39.9% Poverty Rate	40% or More Poverty Rate	TOTAL
2000	1,255	262	37	1,554
% of Total	80.8%	16.9%	2.4%	-
2012-16	1,384	669	109	2,162
% of Total	64.0%	30.9%	5.0%	-

The buyout program will be developed to ensure that these more vulnerable groups are served. In a review of its programming options, NCORR selected buyout as the most significant and meaningful way to create long-term resiliency. However, the past implementation of these programs (specifically property acquisition programs funded through other means) have had a negative effect of discrimination on the population to be served, leading to inequity in post-disaster recovery and long-term negative impacts on impacted neighborhoods.

A May 2016 study published in the International Journal of Environmental Research and Public Health reviewed the long-term effects of property acquisition from a 2008 flood disaster recovery effort. The result of the study indicated that inequalities in the allocation of federal recovery funds may have contributed to the lower recovery rates of latino and elderly populations⁶¹. Similarly, FEMA-funded property acquisition in the HMGP has come under scrutiny for favoring wealthy, white homeowners over renters and minority groups. According to 2019 reporting performed by National Public Radio (NPR) reviewed 40,000 property buyouts

⁶¹ Muñoz, Cristina and Eric Tate. *Unequal Recovery? Federal Resource Distribution after a Midwest Flood Disaster*. International Journal of Environmental Research and Public Health. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4881132/>

funded by FEMA and state and local governments and found that most of them were in neighborhoods that were more than 85 percent white and non-hispanic⁶².

These inequalities are examples at a national level, but the conditions in the State of North Carolina are somewhat different. North Carolina's buyouts have disproportionately occurred in low-income, segregated, Black communities. There has been little financial incentive provided to participants to relocate to safer areas or replace their existing housing. With relatively fewer resources to begin with, these populations were not equipped to recover. It is critical to NCORR to avoid these disparities and develop a buyout program which is equitable, fair, and representative of the people living in the most vulnerable communities in the State.

10.6.4 Addressing the Needs of Vulnerable Populations

CDBG-MIT funding in general and NCORR as an organization specifically have tools to combat these disparities in the administration of its grant funding. Unlike federal funds provided from sources other than HUD, CDBG-MIT funds require a specific allocation for the benefit of low- and moderate-income individuals. To the greatest extent possible, NCORR focused its efforts on areas that are likely to contain these individuals in the identification of its buyout areas.

NCORR does not intend to repair or rehabilitate existing housing with MIT funds, and will instead create new housing opportunities outside of the floodplain, in areas of reduced risk through CDBG-DR funded activities. An analysis of the housing need in these areas, will be conducted prior to project approval to ensure that these vulnerable populations are served. NCORR will favor the selection of housing proposals which include units that serve vulnerable populations, including transitional housing, permanent supportive housing, permanent housing serving individuals and families that are homeless and at-risk of homelessness. NCORR directly serves the need for public housing developments by funding public housing authorities directly for more resilient public housing stock.

NCORR is considering individuals with access and functional needs that will require assistance with accessing and/or receiving CDBG-MIT disaster resources. These individuals may be children, senior citizens, persons with disabilities, from diverse cultures, transportation disadvantaged, homeless, having chronic medical disorders, and/or with limited English speaking, reading, having comprehension capacity, or altogether be non-English speaking.

NCORR will satisfy effective communications, language assistance needs, and reasonable accommodations procedures required of recipients of Federal financial assistance. NCORR will implement HUD guidance to plan for the functional needs of persons with disabilities in the implementation of relocation activities. NCORR will utilize specialized resources to plan for and

⁶² Hersher, Rebecca and Robert Benincasa. *How Federal Disaster Money Favors the Rich*.
<https://www.npr.org/2019/03/05/688786177/how-federal-disaster-money-favors-the-rich>.

accommodate the functional needs of people with disabilities and other vulnerable populations, including, but not limited to, public or private social services, transportation accommodations, information, interpreters, translators, I-speak cards, and other services for those persons who may be visually or speech impaired during the Action Plan process free of charge. NCORR is taking care to ensure that individuals are able to equitably access disaster recovery resources.

The approach to recovering neighborhoods after Hurricane Matthew was to strategically examine where the damage occurred, and then focus its recovery efforts in those areas, paying special attention to the housing types and special needs of these unique communities. The strategy for mitigation and resiliency is similar in that NCORR will approach disaster resilience and climate change adaptation through a cross-sector lens that anticipates how a changing climate, extreme events, ecological degradation and their cascading effects will impact the needs of North Carolina’s vulnerable populations.

In understanding that families and individuals with social vulnerabilities oftentimes face greater challenges in evacuating during a disaster event, NCORR analyzed FEMA Individual Assistance (IA) applications to determine which neighborhoods withstood the brunt of Hurricane Matthew’s impact, took into account the impact of Hurricane Florence for the same impacted areas, reviewed current CDBG-DR applications for assistance, and then examined the socio-economic and demographic profiles of these neighborhoods to ensure that equitable treatment was sought in every step of the process.

NCORR performed an analysis of vulnerable populations during the development of the proposed buyout areas, and focused on those proposed areas which would potentially serve the most vulnerable individuals and neighborhoods impacted by Hurricane Matthew. An analysis of the demographic features of those proposed buyout areas is found below.

Table 27 – Active Buyout Area Demographics (Updated November 2020)

Finding	Number	Percent
Census Block Groups above statewide LMI average	10	71%
Census Block Groups above statewide African American average	12	86%
Census Block Groups above statewide Hispanic Average	2	14%
Census Block Groups above statewide Households with individuals over 60	12	86%

NCORR has selected buyout areas specifically to provide an opportunity for long term resilience for historically underserved populations. NCORR believes that the demographic makeup and identity of the proposed buyout areas reflects the most vulnerable communities in harm's way. Compared to the overall state demographic profile:

- 71 percent of buyout zones contain greater than the state average of LMI individuals and households.
- 86 percent of buyout zones contain greater than the state average for African American-identifying individuals and households.
- 86 percent of buyout zones contain greater than the state average for households with individuals over 60 years of age.

NCORR recognizes that not every municipality that coordinates with NCORR on buyout will ultimately elect to participate in a buyout program. However, NCORR commits to continuing to assess each new or alternative buyout zone proposed by participating communities to ensure that the buyout zone works in favor of those community members which have historically not had the same opportunities to recover or benefit from long-term resilience and mitigation.

NCORR is committed to rebuilding damaged communities in a more resilient manner that affirmatively furthers fair housing opportunities to all residents. For this reason, the analysis above identifies which impacted neighborhoods have a disproportionate concentration of minority populations as well as those with Limited English Proficiency. As these communities rebuild, the State will focus its planning and outreach efforts to ensure that rebuilding is equitable across all neighborhoods, including making provision for all information available about CDBG-MIT funding and programs in both English and Spanish and having appropriate translation, interpretation, and others services for persons with disabilities free of charge and accessible to the public in accordance with all HUD regulations and program guidelines.

Table 28 – Key Impacted Area Demographic Information

County	MID Area	LMI Population	Total Population	% LMI	Minority	Hispanic	LEP	Persons with Disabilities
Anson County	-	12,005	24,295	49.41%	48.6	4.3%	4.9%	12.5%
Beaufort County	-	19,205	47,075	40.80%	25.1%	8.0%	6.1%	13.1%
Bertie County		10,039	20,518	48.93%	61.2%	2.2%	3.9%	14.1%
Bladen County	Yes	16,735	34,105	49.07%	42%	7.5%	3.0%	21.6%

County	MID Area	LMI Population	Total Population	% LMI	Minority	Hispanic	LEP	Persons with Disabilities
Brunswick County	Yes	47,235	115,025	41.06%	17%	4.7%	2.10%	17.2%
Camden County		3,405	10336	32.94%	12%	3.0%	5.2%	9.5%
Carteret County	Yes	26,895	67,125	40.07%	11%	4.2%	1.8%	19.9%
Chatham County	-	28,425	66,565	42.70%	12.7%	12.3%	5.8%	10.3%
Chowan County		5,561	14370	38.70%	34.5%	3.7%	1.0%	10.3%
Columbus County	Yes	24,610	54,415	45.23%	38%	5.0%	2.6%	20.1%
Craven County	Yes	36,490	100,565	36.28%	30%	7.0%	3.6%	17.4%
Cumberland County	Yes	117,930	314,220	37.53%	51%	11.2%	3.2%	14.0%
Currituck County		8,985	25,247	35.59%	5.8%	4.0%	1.0%	11.1%
Dare County		9,891	35,412	27.93%	2.7%	7.3%	2.7%	9.9%
Duplin County	Yes	29,900	58,775	50.87%	36%	21.3%	12.1%	19.0%
Durham County	-	134,820	275,290	48.97%	37.3%	13.7%	8.9%	7.0%
Edgecombe County	Yes	27,870	54,032	51.58%	57.8%	4.8%	1.6%	12.1%
Gates County		4,705	11,601	40.56%	31.2%	2.3%	1.1%	16.0%
Greene County	-	9,090	19,235	47.26%	36.8%	15.5%	7.1%	18.1%
Guilford County	-	205,120	490,610	41.81%	35.1%	8.2%	5.7%	7.5%
Halifax County		25,015	52,300	47.83%	53.7%	3.1%	0.9%	13.9%
Harnett County	-	48,490	121,000	40.07%	22.0%	13.0%	3.5%	10.1%
Hertford County		11,517	24,262	47.47%	61.0%	3.8%	2.0%	15.2%
Hoke County	-	20,520	49,850	41.16%	35.3%	13.6%	5.2%	13.4%
Hyde County	-	1,640	5,005	32.77%	29.0%	9.2%	6.9%	6.8%
Johnston County	-	92,715	176,620	52.49%	16.8%	14.0%	5.5%	10.5%
Jones County	Yes	4,565	10,040	45.47%	34%	4.2%	2.4%	23.8%
Lee County	-	23,400	58,375	40.09%	20.1%	19.5%	8.4%	11.6%
Lenoir County	-	27,790	57,525	48.31%	41.5%	7.5%	4.8%	19.1%
Madison County		10,044	21,347	47.05%	1.5%	2.4%	1.1%	12.2%

County	MID Area	LMI Population	Total Population	% LMI	Minority	Hispanic	LEP	Persons with Disabilities
Martin County		10,034	23,227	43.20%	42.3%	4.2%	1.4%	13.1%
Moore County	-	36,635	90,530	40.47%	12.2%	6.8%	2.5%	10.1%
Nash County		39,429	94,125	41.89%	41.0%	7.1%	2.6%	11.0%
New Hanover County	Yes	94,235	206,370	45.66%	19%	5.3%	2.8%	12.6%
Northampton County		10,407	20,426	50.95%	57.5%	2.3%	0.9%	14.9%
Onslow County	Yes	58,239	170,790	34.10%	26%	11.8%	2.0%	16.9%
Orange County	-	54,145	128,180	42.24%	11.8%	8.6%	6.0%	5.9%
Pamlico County	Yes	4,965	12,350	40.20%	24%	3.6%	.50%	20.8%
Pasquotank County		16,264	39,546	41.22%	36.5%	5.7%	2.1%	10.2%
Pender County	Yes	22,025	53,820	40.92%	23%	6.4%	3.0%	16.7%
Perquimans County		4,804	13,506	35.57%	23.0%	2.6%	1.7%	8.9%
Pitt County	-	75,519	167,660	45.04%	35.7%	6.3%	2.6%	8.9%
Richmond County	-	21,705	44,665	48.60%	32.0%	6.7%	3.4%	13.2%
Robeson County	Yes	70,970	131,455	53.99%	16.6%	8.3%	3.6%	16.6%
Sampson County	-	29,415	62,945	46.73%	26.6%	20.4%	9.8%	13.8%
Scotland County	Yes	17,835	33,675	52.96%	55%	2.8%	.40%	19.5%
Tyrrell County		1,525	4,090	37.29%	38.1%	9.0%	1.9%	15.5%
Union County	-	73,680	211,280	34.87%	12.3%	11.4%	4.9%	6.3%
Wake County		418,841	1,023,811	40.91%	21.0%	10.3%	5.9%	5.8%
Washington County		5,050	12,331	40.96%	48.0%	5.8%	0.4%	16.8%
Wayne County	Yes	52,850	121,450	43.52%	32.3%	12.3%	6.2%	12.2%
Wilson County	-	34,285	80,005	42.85%	40.4%	10.8%	4.7%	11.4%

CDBG-MIT is not the only source of resilience available, and the buyout initiative in this Action Plan cannot be considered in a vacuum. Other funds are available to address a host of important issues resulting from Hurricane Matthew and Hurricane Florence, including significant CDBG-DR investment in single-family housing recovery, property elevation, small rental repair programs, multi-family housing development, public housing development, and construction trades training and code enforcement support programs. CDBG-MIT cannot be divorced from the impacts of these funding sources on these other areas of critical need. FEMA funds such as HMGP and PA may also contribute to the other recovery needs of vulnerable communities.

NCORR will follow Fair Housing and Civil Rights laws in the implementation of its programs. NCORR further understands the complexity of housing resilience in racially and ethnically concentrated areas, as well as concentrated areas of poverty. A recurring theme and comment from the community engagement during Action Plan development was the importance of place and home for impacted individuals. NCORR will coordinate with its subrecipient NCHFA and other potential subrecipients or partners to determine the best course of action to provide equitable, meaningful housing solutions for all impacted individuals. To best serve vulnerable populations such as transitional housing, permanent supportive housing, permanent housing serving individuals and families (including subpopulations) that are homeless and at-risk of homelessness, and public housing developments, NCORR will engage local Public Housing Authorities (PHAs) to support resilience needs for public housing at the local level.

10.6.5 Application Status

NCORR is committed to sharing timely and accurate updates on applications to the Strategic Buyout Program. NCORR will publicize the application start date to potential applicants living within the “Buyout Zones”/DRRAs identified by NCORR and accepted by the local municipality. After submitting an application, applicants will be assigned a case manager to see them through the buyout process. Applicants can learn more about the status of their application through the following methods:

- 833-ASK-RBNC (833-275-7262).
- Phone call directly to the assigned case manager.
- Direct email to the assigned case manager.

10.7 Strategic Buyout Program

Strategic Buyout			
Allocation:	\$ to LMI:	\$ to MID (Minimum):	% of Total Allocation:
\$151,260,300	\$84,033,500	\$128,571,255	90%
Primary Community Lifeline Impact:	Hazard Mitigation Plan Action Item:	National Objective:	CDBG-Eligibility Criteria:
Food, Water, Sheltering	NC-2	LMB, LMHI, UNM	HCDA 105(a)(1), 105(a)(7), 105(a)(24)

10.7.1 Program Description

In its approved CDBG-MIT Action Plan, the description of funding for the program included \$25 million in Hurricane Matthew CDBG-DR funds and \$109,243,550 in CDBG-MIT funds. The Hurricane Florence Action Plan allocated another \$32,558,640 million in CDBG-DR funds to the buyout program for a total Strategic Buyout Program budget from all three sources of \$166,802,190. This amendment seeks to consolidate the funding sources supporting the Strategic Buyout Program (SBP) so that CDBG-MIT funding becomes the sole funding source for that activity. A portion of the allocation of \$1.5 million in CDBG-DR Hurricane Florence funds for housing counseling service will be used in the service of buyout applicants. While the overall Strategic Buyout Program budget has been reduced by \$15.5 million, NCORR believes that the consolidation of the effort into CDBG-MIT and the accompanying program changes will lead to an easier to understand and implement program. NCORR may elect to re-allocate CDBG-DR funds for the Strategic Buyout Program in the future if the program requires additional funding.

This budget revision is proposed for several reasons. First, the Strategic Buyout Program is a mitigation effort aimed at eliminating future loss of life and property due to anticipated storm damage and therefore fully aligns with the objectives of the CDBG-MIT program. In addition, the Strategic Buyout Program can benefit from the increased flexibility provided by CDBG-MIT funds in its requirement to expend 50% of funding on LMI household, rather than 70%. For the program, it is important to buyout as many owners as possible, regardless of income level, in areas determined to be at risk in order to reduce loss of life and property and assist in the efficient allocation of emergency service lifelines. Lastly, the consolidation of the buyout budget under CDBG-MIT allows for more efficient administration of the Strategic Buyout Program.

The Strategic Buyout Program provides funding for the purchase of eligible properties in Disaster Risk Reduction Areas (DRRA) and files a deed restriction on the parcel, restricting future development. Once the property is purchased, NCORR will demolish and clear the structure. The properties purchased under SBP will be owned by units of general local government and will be maintained in a manner consistent with open space or floodplain management in perpetuity. NCORR, in consultation with units of general local government, will identify DRRAs and enter into cooperative agreements to facilitate the administration of the program and the transfer of real estate. The program prioritizes low-moderate income persons through the selection of its DRRAs.

Eligible property owners whose properties are located in DRRAs may participate in the Strategic Buyout Program. The program offers property owners the appraised current fair market value for their property. All participants in the SBP will receive an offer based on current FMV, regardless of when they applied for the program. and eligible participants can receive additional incentives to assist their relocation to a less risky area, and to assist with further housing costs associated with purchasing or renting subsequent housing. Property owner participation in the Strategic Buyout Program is entirely voluntary.

The CDBG-Mitigation funds provided to the state are allocated to cover the cost of purchasing properties in areas identified by the state and local partners as being at-risk for future storm damage. CDBG-DR funds allocated under the Hurricane Florence recovery grant will support the housing counseling effort to assist Strategic Buyout applicants in selecting the best subsequent housing option, providing homeownership and credit enhancement training and counseling, and advising on incentive amounts. NCORR may also elect to use activity delivery costs associated with a successful buyout to deliver housing counseling. NCORR will administer and manage the Strategic Buyout Program. Housing Counseling services are expected to be delivered in coordination with the North Carolina Housing Coalition (NCHC) network of housing counseling agencies. Individuals interested in the Housing Counseling Fund should read the Hurricane Florence CDBG-DR Action Plan for more details. That plan is available at <https://rebuild.nc.gov/action-plans>.

The Strategic Buyout Program described above includes some program changes from the initial program design. Previously the valuation method for offering a purchase price to an applicant was based on the appraised pre-storm Fair Market Value (FMV). This amendment revises the valuation method to the appraised current market Fair Market Value (CMV). This revision is made in tandem with a revised incentive structure that provides applicants with a potentially higher level of financial support and more housing choice. Further, utilizing the CMV also allows applicants to move more quickly through the program process and get to closing as a few pre-closing administrative requirements are removed by using this method. Further, a review of the housing market indicates that generally the market has rebounded in the majority of counties so that CMV will not typically be less than the pre-storm FMV. In the cases where CMV is less than pre-storm FMV, the incentives to eligible participants will ensure that subsequent housing is both attainable and affordable.

The program will also be administered in phases. Phase I of the program prioritizes the purchase of eligible residential property located in Disaster Risk Reduction Areas (DRRAs). Properties eligible under Phase I are primary owner-occupied residence and rental properties that were owned by the owner as of the date of the storm and are still owned by the same owner, however such properties are not required to be currently occupied by the owner. There are limitations on the number of rental properties that may participate during Phase I. These limits are found in the *Strategic Buyout Program Manual* and may be subject to change. Now-vacant land that had an eligible residential structure on it as of the date of the storm may also be eligible in Phase I. Clear title must be achieved before an applicant is eligible for the program.

Once substantial progress is made on Phase I, the program will implement Phase II, depending on the availability of funds. Phase II will allow for the buyout of vacant land, properties purchased after the storm, second homes, and as a lower priority, commercial properties. Properties and applicants must meet the eligibility criteria for the program as outlined in the *Strategic Buyout Program Manual*.

Property owners whose eligible property type is located in the DRRAs will be able to apply for participation in the Strategic Buyout Program. Eligible owners who agree to sell their property will be offered the appraised CMV, minus any liens. Owners may also be eligible for incentive(s) in addition to the sale price.

10.7.2 Maximum Award

The current year's Federal Housing Association (FHA) loan limits are the ceiling for the Current Fair Market Value, by county, for properties that participate in this program. Maximum awards for properties over four units will be assessed on a case-by-case basis and will be based on the appraised current Fair Market Value. The Initial Offer Price offered to an eligible applicant is equal to the appraised CMV up to the program ceiling. The final amount paid will be minus liens.

Incentives are available to eligible applicants above the Initial Offer Price. When an incentive is requested, the program will perform a duplication of benefits (DOB) analysis of other disaster recovery assistance received and any DOB will be subtracted from the incentive amount. Incentives are available to owners who were primary residents at the time of the storm event. Renters that are permanently displaced are eligible for assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (URA), as amended. To qualify for all incentives, applicants must move to an area outside the DRRA and to an area of reduced risk (see for explanation of reduced risk areas and other requirements): <https://www.rebuild.nc.gov/Buyout>.

Eligible applicants may receive up to two incentives: a risk reduction incentive and an affordable housing incentive. These incentives are described as follows:

- The **Risk Reduction Incentive** is an incentive to move to an area of reduced risk for future storm damage. This incentive is available to eligible applicants regardless of income, whether they decide to become a renter or a homeowner after the buyout of their storm-damaged property.

Eligible Participants who qualify for the risk reduction incentive and move to an area of reduced risk will receive one of the following:

- \$10,000, if the Participant moves to an area that is an area of reduced risk (as defined above) as long as the move is to a *residence within the same County* as the storm-impacted property; or
 - \$5,000 if the Participant moves to an area that is in an area of reduced risk (as defined above) outside of the county where the storm-damaged property is located, as long as the move is to a residence within North Carolina.
- There are three **Affordable Housing Incentives**. Eligible applicants may receive one of the following to establish a new primary residence after buyout:
 - The **Affordable Rental Incentive** is available to eligible households with annual

incomes at or below 80% of AMI who choose to rent after the buyout of the storm-impacted property. The maximum incentive available by county and unit size is available on the Strategic Buyout Program website at <https://www.rebuild.nc.gov/Buyout>.

- The **Affordable Homeownership Incentive** is available to eligible households with annual incomes at or below 80% of AMI for the purpose of buying a home in an area of reduced risk that that is within the same county as the storm-damaged property. The incentive cap varies by county group and is based on average county real estate values based on American Census Survey and real estate data (see website listed above for more information on each county). In order to ensure housing affordability and determine the incentive amount, an analysis of the household's financial situation will be performed. Housing Counselor will perform the assessments and make a recommendation on the incentive amount. The maximum incentive available by county is provided on the Strategic Buyout Program website at <https://www.rebuild.nc.gov/Buyout>.
- The **Matching Down Payment Incentive** is available to eligible households with an annual income of up to or at 120% of AMI for the purpose of buying a home in an area of reduced risk within the same county as the storm-damaged property. The Program will match the down payment that a buyer puts down, up to \$50,000. The cap for this incentive is \$50,000.

All eligible applicants will have nine months from the date their storm-impacted property is purchased under the Program to request the incentive (using the required forms) and provide supporting documentation. Supporting documentation is required in order to establish eligibility for all incentives. Information and additional eligibility and supporting documentation requirements on these incentives can be found online at <https://www.rebuild.nc.gov/Buyout>.

10.7.3 Geographic Eligibility

Following an analysis of impacted areas and communication with local municipalities concerning disaster risk, NCORR identifies Disaster Risk Reduction Areas (DRRAs) where buyout is most appropriate. A DRRA is identified by NCORR through a data analysis, including local government input, repetitive loss property clusters, storm damage, floodplain location, and other natural and man-made features. NCORR also considers the portion of LMI person in the area population when selecting an area to be a DRRA. A significant portion of the population must meet the HUD definition of LMI in order for the area to be considered a DRRA (see Section 10.6.1). The *Strategic Buyout Program Manual* provides more specific information on the criteria applied in DRRA identification. DRRAs are posted on the ReBuild NC website as they are finalized. DRRA applicants will be the first priority. The program will also consider residential properties located in floodways outside of DRRAs on a case-by-case basis as a strategic locational buyout in accordance with policy outlined in the *Strategic Buyout Program Manual*.

10.7.4 Priorities

The applicants prioritized for Strategic Buyout are those described in Section 10.7.1 above whose property is located in a DRRRA. Phase I residential properties will be served under the program before Phase II.

The LMI population has been prioritized through the selection and prioritization of DRRAs which are generally LMI as determined through U.S. Census Data or through conversations with local municipalities. Income determinations are made on each participating property. NCORR will ensure that greater than 50 percent of funds benefit LMI beneficiaries. See Part 10.6 above for a review of the characteristics of these populations. Both the purchase price of the property and the incentives provided are part of this goal.

10.7.5 Eligible Applicants

For Phase I, applicants must own residential property that was damaged by the qualifying storm, have owned the property as of the date of the storm and still maintain ownership, achieve clear title, meet program eligibility requirements, and meet the geographic eligibility requirements listed above. Supporting documentation is required to prove eligibility for the initial buyout and subsequent incentives.

10.7.6 Projected Start and End Date

This program is currently taking applications in identified DRRAs.

- Start Date: January 2020
- End Date: April 2026

10.8 Resilient Affordable Housing Development Program

10.8.1 Program Description

The Resilient Affordable Housing Development Program fund has been de-obligated from CDBG-MIT funds. In lieu of providing this service with CDBG-MIT funds, NCORR has increased the CDBG-DR allocation for Affordable Housing by \$33.48 million, slightly more than the original CDBG-MIT allocation for this purpose. Individuals interested in affordable housing opportunities created by NCORR should read the Hurricane Florence CDBG-DR Action Plan for more information at <https://rebuild.nc.gov/action-plans>.

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11.0 Amendments to the Action Plan

NCORR identifies the following criteria which constitute a substantial amendment:

- A change in program benefit or eligibility criteria.
- The addition or deletion of an activity.
- An allocation or reallocation of \$15 million or more.
- The addition of a CDBG-MIT defined “covered project”.
 - A covered project is an infrastructure project having a total project cost of a \$100 million or more with at least \$50 million of CDBG funds regardless of source (CDBG-DR, CDBG National Disaster Resilience (NDR), CDBG Mitigation, or CDBG).

Substantial Action Plan amendments will be provided for public comment for no less than 30 days, and can be found online at <https://www.rebuild.nc.gov/mitigation>. NCORR will notify HUD, but is not required to seek public comment, when it makes a plan amendment that is not substantial. HUD must be notified at least five business days before the amendment becomes effective. However, every amendment to the action plan (substantial and non-substantial) will be numbered sequentially and posted on the ReBuild NC website above.

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12.0 Schedule of Expenditures and Outcomes

NCORR maintains a schedule of expenditures and outcomes, periodically updated in accordance with its mandatory reporting to HUD. The schedule of expenditures and outcomes is located at <https://www.rebuild.nc.gov/reporting-and-compliance/reporting>.

In accordance with the Notice, 50 percent of funds will be expended within six years and 100 percent of funds will be expended within 12 years of HUD's grant execution date.

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13.0 Community Participation and Public Comment

NCORR values the input of its many impacted citizens and the decision makers and stakeholders that represent the vulnerable communities impacted by Hurricanes Matthew and Florence. As set forth in the Notice, NCORR was required to hold at least one public meeting prior to the completion of the Action Plan to receive feedback and guidance from citizens and stakeholders to shape project and program design, allocation amounts, and community needs.

The primary driver of community engagement and impacted jurisdictions is to course-correct the plan and to include elements that may have been overlooked. It is difficult to gauge reactions on sometimes divisive issues such as buyout, which has both significant supporters and understandable hesitance. NCORR will work to incorporate feedback into program development to ensure that the programs that are funded are correctly meeting the needs of the affected individuals.

NCORR followed its Citizen Participation Plan specific to CDBG-MIT funds, available at <https://www.rebuild.nc.gov/reporting-and-compliance/action-plans>. The Citizen Participation Plan includes outreach and engagement strategies for citizen participation, including the use of translation and transcription services in use during public hearings. The Citizen Participation Plan was drafted to comply with the requirements set at 24 CFR Part 91.115. All public hearing locations were handicap accessible and held at a reasonable time. Materials were made available for those that requested them in a language and format other than those available.

13.1 Community Engagement

NCORR held a series of three public hearings prior to the completion of this Action Plan. These hearings were:

1. October 14, 2019 at the Robeson Community College in Lumberton, NC (Robeson County).
2. October 15, 2019 at the Edgecombe Community College in Tarboro, NC (Edgecombe County).
3. October 16, 2019 at Grover C. Fields Middle School in New Bern, NC (Craven County).

Total attendance at these meetings was 88 in Robeson County, 112 in Edgecombe County, and 73 in Craven County.

At these meetings, NCORR presented four information tables on Buyout, Planning and Resilience Opportunities, Infrastructure, and Affordable Housing. Hearing participants were guided by experts at each table in a discussion and review of options, approaches, and

techniques in use nationwide for each activity type and a brief review of the developing approach that NCORR was taking for the use of the CDBG-MIT funds.

Table 29 - Buyout Community Input

Buyout			
If the Buyout Program becomes available for your neighborhood, do you think you might participate in the program?	Robeson	Edgecombe	Craven
Yes	4	13	13
No	3	3	2
I need more information	2	8	6
It would depend on many factors	2	6	4
It would depend on what my neighbors do	2	3	1
It would depend on whether I can find a new home in the same area	1	2	3
Total Engagement	14	35	29

Table 30 - Planning and Resilience Opportunities Community Input

Planning and Resilience Opportunities			
What are the most important planning activities that North Carolina and impacted communities should undertake to mitigate the impact of future disasters?	Robeson	Edgecombe	Craven
Planning studies to identify mitigation opportunities	6	14	10
Changes to local and state zoning and building codes	7	7	3
Resilient construction guidelines	4	7	10
Training and building capacity of local government and nonprofits so they can better assist with mitigation activities	3	10	12
Total Engagement	20	38	35

Table 31 – Infrastructure Community Input

Infrastructure			
Which infrastructure improvements are most important to protect North Carolinians from future disasters?	Robeson	Edgecombe	Craven
Water and wastewater treatment facilities	3	6	3
Electric grids	5	4	5
Natural infrastructure	9	12	9
Transportation	3	7	8
Total Engagement	20	29	24

Table 32 - Affordable Housing Community Input

Affordable Housing			
My community needs more (vote for your top two choices)...	Robeson	Edgecombe	Craven
Affordable, quality homes for sale	11	12	8
Affordable, quality rental units	10	13	12
Housing choices outside of flood zones	11	14	14
Parks and recreational space	5	3	5
Community amenities (such as good schools, stores, etc.)	4	8	4
Total Engagement	41	50	43

In addition to the information tables, the public hearing consisted of a brief presentation on CDBG-MIT funding facts and potential uses. At the conclusion of the public hearing, participants were permitted to enter a comment for the public record or write in their comments. These public comments, and their responses, are include in Appendix A.

During the public comment period of the Action Plan, a second round of Public Hearings were held. These meetings were:

1. December 3, 2019 at the Goldsboro City Council Chambers in Goldsboro, NC (Wayne County).
2. December 5, 2019 at the One Harbor Church in Beaufort, NC (Carteret County).

Total attendance at these second round of public hearings was 55 in Wayne County and 12 in Carteret County.

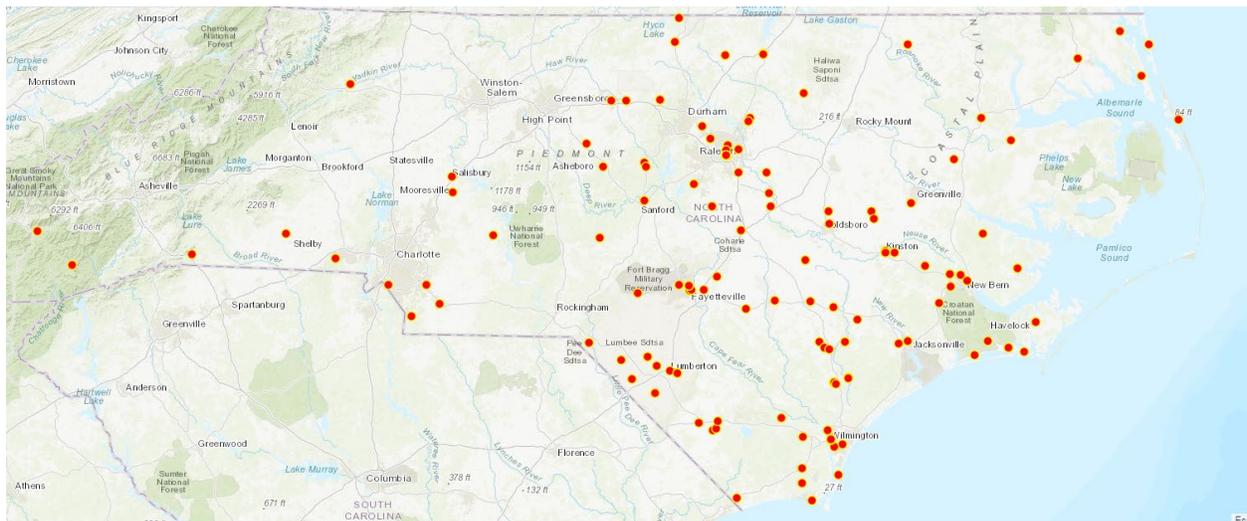
At these meetings, NCORR had copies of the Action Plan available for review in English and in Spanish and delivered a brief presentation on the Action Plan, including a review of CDBG-MIT is, a review of funding allocations, and details on the different programs selected for funding. At the conclusion of the public hearing, participants were permitted to enter a comment for the public record or write in their comments. These public comments, and their responses, are include in Appendix A.

The public hearing transcriptions are available online at <https://www.rebuild.nc.gov/mitigation>.

13.2 Impacted Jurisdiction Engagement

Given the massive geographical extent of the impacted area, physical meetings with every impacted jurisdiction was infeasible during development of the Action Plan. To coordinate with impacted jurisdictions and stakeholders, NCORR released a survey on Wednesday, October 9 through Monday, October 21, 2019. The survey was released to a list of 663 critical stakeholders including public housing authorities, planning organizations, town governments, city governments, and county governments. Of the 663 invited participants, 173 responded for a response rate of 26 percent.

Figure 16 - CDBG-MIT Survey Response Locations



In the survey, respondents were asked to describe their hazard vulnerability, mitigation measures that they think would be beneficial for their community, and what mitigation activities they have recently implemented or are currently implementing.

13.4 Response to Citizen Complaints and Appeals

NCORR shall provide a written response to every complaint relative to CDBG-MIT within fifteen (15) working days of receipt. The state will execute its Appeals Process in response to appeals received and will require any subrecipients to adopt a similar process. The process will be tiered whereby applicants will be able to appeal a decision and received further review from another level.

All sub-contractors and local government grantees will be required to develop an appeals and complaint procedure to handle all complaints or appeals from individuals who have applied for or have an interest in CDBG-MIT funding. A written appeal may be filed when dissatisfied with program policies, eligibility, level of service or other issue by including the individual facts and circumstances as well as supporting documentation to justify the appeal.

Generally, the appeal should be filed with the administrating entity or sub-contractor. The appeal will be reviewed by the administrating entity with notification to NCORR for the purpose of securing technical assistance. If the appeal is denied or the applicant is dissatisfied with the decision, an appeal can be made to NCORR directly. If NCORR denies the appeal, the final step in the internal appeals process is to appeal to the Secretary of the Department of Public Safety. If the Secretary denies the appeal, the applicant will be notified regarding the process to appeal to the North Carolina Office of Administrative Hearings.

In programs that serve individual applicants, applicants may appeal their award determinations or denials that are contingent on Program policies. However, it should be noted that NCORR does not have the authority to grant an appeal of a statutory or HUD-specified CDBG-MIT requirement.

13.5 Public Notice, Comment Period, and Website

A comment period of at least 45 days, as required by HUD, was provided for citizens, affected local governments, and other interested parties an opportunity to comment on the initial draft and subsequent substantial amendments to the Action Plan. The initial public comment period began on November 7, 2019 and ended on December 23, 2019 at 5:00 PM.

In accordance with CDBG-MIT requirements, NCORR has developed and will maintain a comprehensive website regarding all disaster recovery activities assisted with these funds. NCORR will post all Action Plans and amendments on the NCORR's CDBG-MIT website at <http://www.rebuild.nc.gov/mitigation>. The website gives citizens an opportunity to read the plan and to submit comments. This website is featured prominently on, and is easily navigable from, NCORR's homepage. NCORR will maintain the following information on its website: actions plan, any substantial amendments, all performance reports, citizen participation requirements, and activities/program information that are described in the action plan,

including details on contracts and ongoing procurement opportunities and policies, including opportunities for minorities, women and other disadvantaged persons, veteran, and other historically underutilized businesses (HUB). Paper copies of the Action Plan Amendment will be available in both English (including large, 18pt type) and Spanish as needed at applicant service centers. Applicant service center locations are found at the ReBuild NC website at <https://www.rebuild.nc.gov/information-assistance>.

After approval of the State's Action Plan, HUD provided the State an action plan approval letter, grant terms and conditions, and grant agreement. Upon receipt of the grant agreement, the State will executed the grant agreement with HUD.

Subsequent amendments to the action plan include a 30-day public comment period. After the conclusion of the required comment period, all comments shall be reviewed and the State will provide responses to the comments. The State's consideration on all public comments can be reviewed in Appendix A.

More information on public notice and participation are found in the Citizen Participation Plan at <https://rebuild.nc.gov/action-plans>.

13.5.1 Contact Information

Interested parties may make comments or request information regarding the Citizen Participation Planning process by mail, telephone, facsimile transmission, or email to NCORR.

Comments and complaints may be submitted as follows:

- Written comments may be mailed to:
North Carolina Office of Recovery and Resiliency (NCORR)
PO Box 110465
Durham, NC 27709
- Email comments: publiccomments@rebuild.nc.gov.
- By telephone for those hearing impaired: (984) 833-5350, TDD 1-800-735-2962
- By Fax transmission: (919) 405-7392

NCORR will post this and all Action Plans and amendments on the State's CDBG-MIT website at <https://www.rebuild.nc.gov/mitigation> to give citizens an opportunity to read the plan and to submit comment(s). Please provide comments to NCORR directly at (984)-833-5350 or publiccomments@rebuild.nc.gov. At the conclusion of the public comment period, all comments will be reviewed and the State will provide responses to the comments. The State's consideration of all public comments can be reviewed in Appendix A. Following submittal by NCORR of the Action Plan to HUD, HUD has a review period to consider and approve the Action Plan. Upon

approval by HUD, a final version of this Action Plan Amendment will be posted on NCORR's website.

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Appendix A: Response to Public Comments

The public comment period for Substantial Action Plan Amendment 1 began December 7, 2020 and ended January 7, 2021. This public comment period complies with the 30-calendar day public comment period requirement set in 84 FR 45838.

In some instances, public comments are shortened to focus on the specific elements of the comment. Where commenters revealed private details or personal information, that information was removed from the public comment to protect the commenter's identity.

Comments that were specific to the status of an ongoing CDBG-MIT application for buyout assistance were referred internally for additional review and direct response, and may not be reflected in this response to public comments.

1. **Comment:** In most industries an action plan contains a detailed timeline to ensure the project meets deadlines. I do not see a timeline in the amendment.

Response: The timeline for completion of each individual program is included in a description of that program. CDBG-MIT funds must be spent within twelve years.

2. **Comment A:** Projects should focus on re-establishing shoreline vegetation and restoring off-shore landscape ecosystems in open water to increase roughness and decrease storm velocity, surge height, and damage to on-shore infrastructure.

Comment B: A comment from Restoration Systems LLC encouraging NCORR to allocate funds to the promotion and installation of natural infrastructure projects such as living shorelines.

Response: Primarily CDBG-MIT funds focus on the buyout and long-term mitigation of risk to housing. Other funds are available for infrastructure projects, such as FEMA Public Assistance (PA) funds.

3. **Comment:** A comment regarding the shift from pre-storm fair market value (FMV) to current FMV for the valuation of buyout awards. Specifically the comment is concerned about the potential for a reduced award amount for the buyout activity.

Response: Significant market analysis was conducted to inform the shift from pre-storm FMV to current FMV. First, as the CDBG-MIT funds are long-term mitigation activities, it may not make financial sense to honor a pre-storm FMV valuation later in the life cycle of these grant funds, which may be expended up to twelve years after allocation to the state. In the long term, the current FMV may eclipse the pre-storm FMV and in some instances in some areas identified for buyout, already has.

Second, NCORR has re-evaluated its incentive structure to provide greater incentives independent of the valuation of the buyout property itself. A shift to current FMV simplifies the property appraisal process and buyout offer to the property owner while NCORR focuses on providing significant incentives to relocate to a safer area – a primary goal of the Strategic Buyout Program.

4. **Comment:** I feel it would be of great interest to help improve the phone/internet lines for many areas. Since the flood many of the damaged lines have not be repaired. I understand it is a responsibility of the phone company. Since the Hurricane they have promised to replace the lines. Still many are living with lines run over the ground. They are subject to be cut, damaged, and do not tolerate rain. This has caused lack of internet for children who have to virtual learn, and employees who may need to work from home.

Response: Infrastructure projects, such as repairing phone and internet lines, are often the responsibility of the utility provider. Other funds may be available for these projects.

5. **Comment:** My only concern about the plan, which may be beyond the scope of permitted activities, is the relation to voluntary community, particularly community based long term recovery organizations. I am concerned that there needs to be more support for construction supervision in long term recovery organizations. Far more LTRGs close their doors for lack of funds to maintain the organization than because they run out of funds for materials. If the state were to more directly assist LTRG's either with funds to hire construction supervisors/coordinators volunteer work teams could multiply their impact on rebuilding.

Response: Volunteer Organizations (VOADS) and other community groups are essential to the ongoing recovery effort. NCORR has been meeting with many large VOAD groups to coordinate resources, especially as they relate to homeowner recovery. The establishment of the Construction Trades Training Program also seeks to help build capacity.

6. **Comment:** A comment from the Environmental Defense Fund, NC Conversation Network, the Nature Conservancy, and the Conservation Fund regarding the reduction of planning funds in the combined Action Plans.

Response: NCORR notes that the planning budget across all three allocations is currently set at \$16.1 million, a significant amount of funding for planning efforts. NCORR is supportive of the planning activity and has set more specific criteria on how planning funds are used for ongoing planning efforts in the state, including potentially funding planning activities provided by the Recovery Support Function (RSF) groups operating in the State. Already some funding projects have been proposed by these groups which NCORR is looking forward to funding. More planning funds may be made available as compelling resilient planning opportunities are introduced to NCORR and such planning activities are in line with CDBG-DR and CDBG-MIT eligible uses of funds.