



County of Lexington, South Carolina

Community Development Block Grant Mitigation

DRAFT ACTION PLAN

June 12, 2020

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with assistance from Tetra Tech, Inc.

Ledger of Action Plan Amendments

Action Plan Version	HUD Approval Date	Status
Initial Action Plan		In Development

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1. Executive Summary

Lexington County continues to recover from disaster impacts from storm and flooding event which took place in October 2015. To assist in the recovery from this disaster the County received two allocations of Community Development Block Grant–Disaster Recovery (CDBG-DR) funds under the Disaster Relief Appropriations Act of 2016. These funds totaled more than \$20 million in recovery assistance. In order to help reduce the repetitive cycle of disaster impacts and loss the Additional Supplemental Appropriations for Disaster Relief Requirements Act, 2018 (Pub. L. 115–123, approved February 9, 2018) directed the U.S. Department of Housing and Urban Development (HUD) to allocate no less than \$12 billion for mitigation activities for States and local grantees who had received CDBG-DR funds for disasters occurring in 2015, 2016 and 2017. These funds, allocated as Community Development Block Grant-Mitigation funds (CDBG-MIT), were allocated to assist the County mitigate against future disaster risks while providing an opportunity to improve planning within the County. Lexington County was allocated \$15,185,000 in CDBG-MIT funds under Federal Register Notice, 84 FR 45838, August 30, 2019 (Notice). Funds provided under this allocation must address mitigation activities which are defined as:

. . . those activities that increase resilience to disasters and reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship, by lessening the impact of future disasters.

HUD’s purpose for these funds, as identified in the Notice, is to:

- Support data-informed investments in high-impact projects that will reduce risks attributable to natural disasters, with particular focus on repetitive loss of property and critical infrastructure;
- Build the County’s capacity comprehensively analyze disaster risks and to update hazard mitigation plans through the use of data and meaningful community engagement;
- Support the adoption of policies that reflect local and regional priorities that will have long-lasting effects on community risk reduction, to include the risk reduction to community lifelines such as;
 - Safety and Security,
 - Communications,
 - Food & Water,
 - Sheltering,
 - Transportation,
 - Health and Medical,
 - Hazardous Material (management) and
 - Energy (Power & Fuel); and
 - Future disaster costs (eg. Forward looking land use plans)
- Maximize the impact of available funds by encouraging leverage, private-public partnerships, and coordination with other Federal programs.

The Notice provided the regulations and requirements the CDBG-MIT funds are subject to and described the responsibilities and processes the County must undertake in the utilization of these funds. This

includes the development and provision of an Action Plan as defined under section V.a.2 of the Notice and is presented here. The Action Plan consists of the Hazard Mitigation Needs Assessment, Allocation of Funds, Citizen Participation Efforts, Planning and Coordination, Mitigation Commitments, and Monitoring Standards & Reporting Requirements. The Hazard Mitigation Needs Assessment includes the review of the County's Hazard Mitigation Plan, "An All Natural Hazard Risk Assessment and Hazard Mitigation Plan for Central Midlands Region of South Carolina, 2016" and critical analysis of the County's potential hazards in relation to Community Lifelines. This assessment is critical in assisting and guiding the process for project identification and funding justification for CDBG-MIT funds. The subsequent portion of the Plan contains the Allocation of Funds portion which summarizes findings and goals of the HMP and describes project identification, consideration, eligibility review and funding allocation and justification. The remaining four portions, Citizen Participation Efforts, Planning and Coordination, Mitigation Commitments, and Monitoring Standards & Reporting Requirements describe the processes and activities ensuring regulatory compliance with funding requirements.

The Action Plan requires that the County hold two public hearings, one of which must occur prior to the publication of the draft Action Plan. The County's first public hearing was advertised on June 4, 2020 and held on June 10, 2020. Due to COVID-19 public gathering limitations and restrictions, this public hearing was held online as a HUD approved virtual public hearing. The purpose of this meeting was to inform the public of the allocation of CDBG-MIT funds to the County and to inform them of the development and purpose of the Action Plan. The draft action plan was then posted on the County's CDBG Mitigation website on June 12, 2020 for public review and comments. The public was notified of a 45-day comment period following the post of the draft Action Plan in order to provide comments and feedback. The document was made available for review on the County of Lexington Disaster Mitigation webpage and in hard copy form at the County Community Development Offices at 212 S. Lake Drive, Lexington SC 29072. The second public hearing, which was also a virtual public hearing, was advertised on June 18, 2020 and was held on July 2, 2020. The purpose of this hearing was to notify the public on the proposed projects listed in the Action Plan. The proposed plan, along with comments received, will be presented to County Council for their comment(s) during a regularly scheduled County Council meeting. Public comments from both public hearing are included in Section 4.2 of this Action Plan.

1.1 Planning, Coordination, and Consistency

As part of the development of this Action Plan, Lexington County evaluated other County planning documents including its CDBG Consolidated Plan and its CDBG-DR Action Plan to ensure consistency and conformity across documents. The County also provided necessary updates to the County Citizen Participation Plan in order to address changes specific to public participation requirements for CDBG-MIT funds, particularly as impacts from COVID-19 necessitated changes regarding public gatherings such as public hearings. This Action Plan was developed in coordination with several County departments which provided guidance and insight during its development of the plan. These departments included:

- Finance Department
- Procurement Department
- Legal Department
- Public Works
- Emergency Management
- County Administration
- County Council

- Department of Community Development

Lexington County consulted with Richland County as well as the City of Columbia during the development of the Action Plan. Richland County and the City of Columbia are both CDBG-DR and CDBG-MIT funding recipients engaged in active recovery and mitigation projects within the region which made communication with them particularly meaningful. The County has also been in communication with the Central Midlands Council of Governments which is responsible for the development of the regional and County-specific hazard mitigation plan. The County has maintained ongoing communication with FEMA through the County’s Emergency Management Division as part of continuing recovery activities as well as to ensure adequate and up-to-date information pertaining to FEMA recovery and mitigation activity is it related to the Action Plan.

1.2 CDBG-MIT Program National Objectives

The primary objective of the CDBG-MIT Program is to assist persons of low- and moderate-income (LMI), thereby improving the housing, quality of life, and economic conditions of the affected Lexington County communities. HUD CDBG allocations typically must meet one of three National Objectives, however, under the CDBG-MIT allocation requirements this has effectively been reduced to two National Objects. These two National Objectives include:

- Benefit LMI persons
- Meet an urgent need

Projects funded by CDBG-MIT can’t meet the previous “aid in the prevention of elimination of slum or blight” National Objective without prior HUD approval through a waiver consideration. However, HUD has provided additional guidance regarding the utilization of the “Urgent Need” National Objective. The Notice explains that in order to qualify under the Urgent Need National Objective a project must, “. . . reference in (the) action plan the risk identified in the Mitigation Needs Assessment that is addressed by the activity. (The County) must maintain documentation of the measurable and verifiable reduction in risk that will be achieved upon completion of the activity.” Additionally, CDBG-MIT funds have slightly reduced requirements regarding meeting the LMI National Objective where typically 70% of CDBG funds must meet the LMI National Objective, this requirement has been reduced to 50% for CDBG-MIT funds. HUD defines LMI as household income that is less than 80% of area median income. Therefore, 50% of the CDBG-MIT allocation must provide benefits to LMI populations. Lexington County has allocated \$8,275,750 (54.5%) of its total CDBG-MIT allocation to meet LMI benefit which exceeds the 50% LMI requirement.

1.3 CDBG-MIT Eligible Activities

All CDBG-MIT activities must be an eligible activity as defined under the Housing and Community Development Act of 1974 (HCDA). Any other activities outside of those defined as eligible activities must have been approved under a previous Federal Register waiver or must be submitted to and approved by HUD as a waiver.

1.4 Mitigation Assessment Summary

As part of the development of this Action Plan Lexington County conducted a Mitigation Needs Assessment of the County’s HMP as required under federal guidelines. The existing hazard mitigation plan identified 15 hazards which included:

- Winter Weather
- Drought
- Hail
- Flash Flood

- Lightning
- Fog
- Tropical Storms
- Extreme Cold
- Extreme Heat
- Tornadoes
- Riverine Flood
- Wind
- Earthquake
- Thunderstorm
- Wildfires

Each of the 15 hazards were then assigned an overall risk designation of high, medium or low based upon several criteria including:

- Geographic Extent
- Probability of Future Occurrence
- Vulnerability Assessment
- Magnitude of Severity

The County’s assessment of the HMP involved an additional layer of analysis to identify the level of vulnerability and consequences to community lifelines. This additional layer of analysis was critical in meeting the CDBG-MIT requirements to evaluate hazards based on risks and impacts posed to these community lifelines. A scoring criteria was developed which resulted in the following results.

Table 1-1: Vulnerability and Consequence to Community Lifelines Scores for All Hazards

Hazard*	Vulnerability and Consequence to Community Lifelines
Winter Snow and Ice Storms	33
Hurricane and Tropical Storms	32
Flood	30
Tornado	30
Wildfire	28
Earthquake	26
Thunderstorm	25
Wind	25
Lightning	24
Hail	22
Drought	21
Extreme Temperatures	17
Fog	16

* As part of this analysis and as included in the HMP, Extreme Cold and Heat were combined under Extreme Temperatures and Flash Flooding and Riverine Flooding were combined under Flood.

Results from this analysis were utilized to assist in the identification and evaluation of projects. As can be seen in Table 1-1, two of the highest scoring hazards, Hurricane/Tropical Storm and Flood both result in flood related disasters. These are also the types of hazards which have resulted in significant impacts, damages and financial loss for the County in recent years. So much so that the County is still recovering

from flood impacts from events occurring in 2015. This being the case, the County prioritized mitigation activities to address flood related hazards and impacts for its CDBG-MIT allocation.

The County coordinated its project identification process between the Community Development, Emergency Management and Public Works Departments. In order to address continued issues and dangers posed by properties located in flood prone areas and subject to repetitive loss the County decided to continue its property buyout program to help continue to mitigate risk to properties located in these hazard areas.

The County also took inventory of its transportation infrastructure since flooding causes substantial issues for transportation routes throughout the County. Flooding events result in substantial damage to the road infrastructure in the County and hampers accessibility and can even result in geographic isolation as flood water cut off neighborhoods and leave residents stranded. By conducting this inventory, the County was able to identify several road improvement projects that could help increase safety and mitigate damages from flood impacts during heavy rain events.

One of the County’s main priorities as part of its project development and consideration process was to increase safety and help mitigate loss of life and injury during these flood events. To that end, the County met with its first responders to identify any potential projects that could help mitigate loss of life and injury risks. Coordination with County fire and rescue services resulted in identifying the need for rescue boats to assist in life saving activities during flood events. This posed benefits for both the residents, who may become isolated or inundated by flood water, as well as first responders by providing them with the appropriate equipment to conduct operations effectively to assist flood victims.

By taking all of these considerations into account the County identified the projects and their associated funding allocations provided in Table 1-2.

Table 1-2: Lexington CDBG-MIT Funding

Activity	Current Allocation	Percentage of Total Funding
Administration	\$759,250	5.0%
Planning	\$10,000	0.1%
Public Infrastructure Improvements	\$8,275,750	54.5%
Housing Buyouts	\$5,980,000	39.4%
Public Facilities – Rescue Boats	\$160,000	1.0%
Total Funding Available	\$15,185,000	100%

2. Mitigation Needs Assessment

2.1 Introduction

A critical component of this Action Plan, as required by the Federal Register, is the County's Mitigation Needs Assessment. In order to identify, develop and consider projects and to ultimately assist in informing the allocation of CDBG-MIT funds, a mitigation needs assessment must be conducted. The development of this assessment requires that the County, "identify and analyze all significant current and future disaster risks" and "use the most recent risk assessment completed or currently being updated through the FEMA HMP process to inform the use of CDBG-MIT funds." In order to accomplish this the County conducted an analysis of its Hazard Mitigation Plan which is included as part of the All-Natural Hazard Risk Assessment and Hazard Mitigation Plan for the Central Midlands Region of South Carolina. This HMP is currently in the process of being updated, however, it is still in the preliminary phases of development and funds are still being identified and secured for plan development. This assessment must also analyze hazard risks which impact HUD defined Most Impacted and Distressed (MID) regions of the County. Under the Federal Register Notice all of Lexington County is an identified MID area therefore County-wide analysis was conducted. A key beneficial component of the existing HMP was the inclusion of analysis of impacts to socially vulnerable populations. This helped identify area of potential concentration of socially vulnerable populations. This data could then be taken into consideration during project development and consideration.

Purpose of the Mitigation Needs Assessment

The purpose of this Community Development Block Grant (CDBG) Mitigation (MIT) needs assessment is to examine current hazards as well as future risks as they relate to community lifelines. Community lifelines are key operations that enable the continuous operation of government functions and critical business and is essential to human health and safety or economic security. The key lifelines are identified below:

- Safety and security
- Food, water, sheltering
- Health and medical
- Energy (Power and Fuel)
- Communications
- Transportation
- Hazardous Material

The lifelines are designed to highlight priority areas and interdependencies. Each lifeline is comprised of multiple components and essential elements of information needed to stabilize an incident.

The needs assessment will be used to develop a CDBG-MIT action plan to identify activities designed to increase resilience to community lifelines and ensure they can continue to function despite the occurrence of future disasters. and reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship, by lessening the impact of future disasters. The CDBG-MIT action plan will also prioritize activities that benefit vulnerable and lower-income individuals and communities while also identifying projects that will benefit areas that have been impacted by disasters.

Overview of the All-Natural Hazard Risk Assessment and Hazard Mitigation Plan for the Central Midlands Region of South Carolina

The Lexington County, South Carolina Community Development Block Grant MIT Needs Assessment is informed primarily by the *All-Hazard Risk Assessment and Hazard Mitigation Plan for the Central Midlands Region of South Carolina* (HMP) 2016.¹ The HMP is the most current and in force HMP at the time of the development of this assessment. The purpose of the HMP is to assess the historical impacts of natural hazards to determine high risk areas and identify vulnerabilities. This information is used to identify and prioritize mitigation actions for reducing risk and protecting their citizens from the impacts of natural hazards. The HMP is designed to:

- Describe the natural hazards that most affect and concern each county
- Assess vulnerable populations and assets in each county
- Assess risks varying from one county to another in the region
- Identify and evaluate goals, actions and projects that reduce the effects of identified hazards
- Devise an action plan for prioritizing, implementing, and administering recommended mitigation actions and projects
- Monitor, evaluate, and update the HMP within a five-year period
- Devise the process that participating jurisdictions could use to incorporate plan recommendations into local plans and capital improvements programs
- Ensure continued public involvement in the ongoing mitigation planning process

The HMP is intended to be a tool for city and county planners and emergency management official for planning mitigation actions, identifying at-risk areas, infrastructure and vulnerabilities to support the reduction or elimination of risk and safeguard life and property. The objectives of the HMP are:²

- Coordinate regional resources and personnel to collate the most up-to-date information on natural hazard impacts and mitigation strategies.
- Utilize state-of-the-art scientific techniques to analyze natural hazard risk and impacts.
- Provide an easy to read document that supports evidence-based planning and decision making

Jurisdictions covered by the HMP include the counties of Fairfield, Lexington, Newberry and Richland along with the municipalities within the each of those counties. This assessment will focus on the portion of the HMP that provides the hazard and vulnerability information for Lexington County.

Overview of Lexington County

Lexington County is located in central South Carolina. The County was founded in 1785. According to U.S. Census estimates, the County population as of July 1, 2019 was 298,750. That is a 13.8 percent increase from the population calculated during the 2010 census.³ According to the Census Bureau American Community Survey, the population of Lexington County is expected to increase 81.6 percent over the next

¹ All-Hazard Hazard Risk Assessment and Hazard Mitigation Plan for the Central Midlands Region of South Carolina, 2016 Update, Executive Summary

² All-Hazard Hazard Risk Assessment and Hazard Mitigation Plan for the Central Midlands Region of South Carolina, 2016 Update, Section 1.2 Plan Objectives

³ U.S. Census QuickFacts, Lexington County, South Carolina

30 years. This is the highest projected percentage of growth of any of the Central Midlands Region counties.

The County occupies an area of 758 square miles, of that 699 square miles is land, and 59 miles is water. The County is bordered by Richland County to the east, Orangeburg and Calhoun Counties to the southeast, Aiken County to the southwest, Saluda County to the west, and Newberry County to the northwest.

Approximately 15.8 percent of the population of the County is over the age of 65. 7.1 percent of the jurisdiction speaks a language other than English at home, and approximately 12.5 percent of the population lives in poverty. This means that public information regarding set-out procedures and safe handling of debris must be accessible in multiple formats. In addition, individuals with access needs might need assistance regarding evacuation, sheltering, and reentry following a disaster.

2.2 Overview of Hazards

The HMP has identified 15 natural hazards for which Lexington County has vulnerability. Each of the hazards are analyzed according to the six criteria listed below:

- Perceived risk
- Geographic extent
- Probability of future occurrence
- Vulnerability assessment
- Magnitude and severity
- Overall risk

Perceived risk is assessed using the following categories:

- Least Important
- Somewhat Important
- Very Important
- Most Important

The risk categories for Geographical Extent, Probability of Future Occurrence, Vulnerability Assessment, Magnitude and Severity, and the Overall Risk Rating, along with their indicated color association are listed in Table below.

Table 2-1: Risk Assessment Criteria and Values

Geographical Extent	Probability of Future Occurrence	Vulnerability Assessment	Magnitude and Severity	Overall Risk Rating
Isolated	Infrequent	Limited	Low	Low
Limited	Occasional	Moderate	Medium	Medium
Widespread	Likely	Extensive	High	High

Overall risk is categorized as low, medium, or high. These categories are defined below:

- **Low:** Minimal potential impact. The recurrence and potential cost of damage to life and property is minimal.
- **Medium:** Moderate potential impact. The potential damage is more isolated and less costly than a more widespread disaster. There is a moderate threat level to people, critical infrastructure, and/or built environment.
- **High:** Widespread potential impact. The potential for damage is widespread. Hazards have a high recurrence interval and/or pose a high threat to residents, critical infrastructure, and/or built environment.

The risk assessment criteria and values has been combined with the list of hazards in Table 2-2 to provide an over-all snapshot of the hazards and assessment of risk for Lexington County. More detail on each hazard and their impact on the community lifelines are described in Sections 2.5 through 2.17.

Table 2-2: Overall Risk Assessment for Lexington County

Perceived Risk	Hazard	Geographic Extent	Probability of Future Occurrence	Vulnerability Assessment	Magnitude and Severity	Overall Risk
Most Important	Winter Weather	Widespread	Likely	Extensive	High	High
Somewhat Important	Extreme Heat	Widespread	Occasional	Extensive	High	High
Somewhat Important	Droughts	Widespread	Occasional	Extensive	High	High
Very Important	Tornadoes	Isolated	Likely	Extensive	High	High
Most Important	Tropical Storms	Widespread	Occasional	Moderate	Medium	Medium
Most Important	Wind	Limited	Likely	Moderate	Medium	Medium
Somewhat Important	Extreme Cold	Widespread	Likely	Limited	Medium	Medium
Least Important	Earthquakes	Widespread	Infrequent	Moderate	Medium	Medium
Very Important	Flash Floods	Isolated	Occasional	Moderate	Medium	Medium
Very Important	Riverine Floods	Limited	Occasional	Moderate	Low	Medium
Very Important	Lightning	Isolated	Likely	Moderate	Low	Medium
N/A	Hail	Isolated	Occasional	Moderate	Medium	Medium
Most Important	Thunderstorms	Isolated	Likely	Limited	Low	Medium
Least Important	Fog	Isolated	Likely	Limited	Low	Medium
Least Important	Wildfires	Isolated	Occasional	Limited	Low	Low

2.3 Social Vulnerability

In the HMP a system for measuring the sociodemographic make-up of the county is devised that measures how well populations within a census tract can prepare for, respond to, or recover from a hazard. This measure of social vulnerability is derived from eight main vulnerability components including:

- Wealth
- Female headed households
- Age (older)
- Rural and primary sector employment
- Poverty and Unemployment
- Ethnicity (Hispanic)
- No automobile
- Race (Native American)

The social vulnerability scores are tallied and mapped using three categories:

- High social vulnerability
- Medium vulnerability
- Low social vulnerability

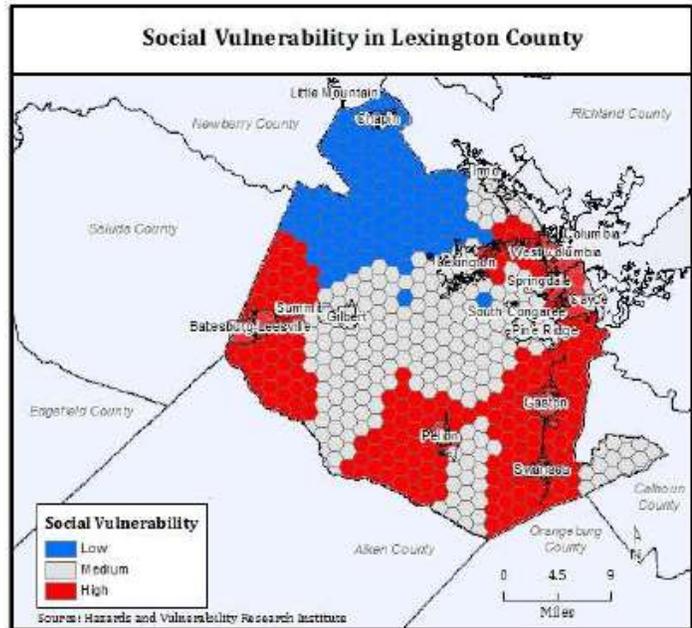


Figure 2-1: Social Vulnerability in Lexington County

Figure 3-1 shows the distribution of the three categories of social vulnerability across the county. Nearly 60,000 of the county’s residents live in highly vulnerable areas of the county, mostly in the southern and far eastern and western portions of the county.

After the scores are mapped the social vulnerability map is overlaid with the map of the county hazards to determine the socially vulnerable populations for each hazard.

2.4 Lifeline Assessment

The community lifelines assessment is designed to assist local, state and federal agencies, to better understand how the hazards for which the County has vulnerability and how those hazards can potentially impact those community lifelines. Each of the community lifelines have specific components to further clarify the functions that fall under each lifeline category. The community lifelines, along with their components are identified in Table 2-3.

Table 2-3: Community Lifelines and Components

Safety & Security	Food, Water, Sheltering	Communications
Law Enforcement/Security	Food	Infrastructure
Fire Service	Water	Responder Communications
Search and Rescue	Shelter	Alerts, Warnings, Messages
Government Service	Agriculture	Finance
Community Safety		911 and Dispatch
Transportation	Health and Medical	Hazardous Material (Management)
Highway/Roadway/Motor Vehicle	Medical Care	Facilities
Mass Transit	Public Health	HAZMAT, Pollutants, Contaminants
Railway	Patient Movement	Energy
Aviation	Medical Supply Chain	Power Grid
Maritime	Fatality Management	Fuel

The assessment of the risks to community lifelines from County hazards is conducted by assessing the vulnerability and potential consequence of the hazards to the community lifelines. The categories used to differentiate the levels of vulnerability and consequence are explained in Tables 2-4 and 2-5.

Table 2-4: Lifeline Vulnerability Categories

Vulnerability	Category Description
Low	The lifeline is significantly resilient to the hazard, or the effects of the hazard on facilities and critical systems are isolated.
Moderate	The lifeline has low resilience to the hazard or the effects of the hazard on facilities and critical systems is geographically widespread.
High	The lifeline has low to no resilience to the hazard AND the effects on facilities and critical systems is widespread.

Table 2-5: Lifeline Impact Categories

Consequence	Category Description
Low	There is minimal disruption to the lifeline and can be fully functioning in a short period of time.
Moderate	The lifeline is disrupted for a few days while restoration activities are underway.
High	The lifeline is disrupted for potentially weeks while restoration activities are underway.

In order to quantify the level of danger posed to community lifelines from each hazard a scoring criteria was developed and applied to the level of vulnerability and consequence applicable to each lifeline for each of the hazards as described in the tables at the end of each section 2-5 through 2-17. A low categorization is equal to a 1 score. A moderate characterization is equal to a 2 score, and a high characterization is equal to a 3 score. By totaling the scores together among the vulnerability and consequence columns, a vulnerability and consequence community lifeline score can be derived for each hazard.

2.5 Winter Snow and Ice Storms

A winter snow or ice storm are the hazards with the highest perceived risk to Lexington County. Ice storms and winter weather occur nearly every year in the County. On average the County endures 1 to 3 days per year of ice storms and winter weather. High snowfall amounts over 2 inches are rare although as much as 16 inches of snow was recorded in 1973. Ice storms occur more frequently than snowstorms in the county. Accumulations of $\frac{3}{4}$ of an inch of ice are possible which can result in treacherous road conditions. In addition, the accumulation of ice can result in downed tree limbs and power lines causing widespread power outages across the county.

While the entire county is vulnerable to winter snow and ice storms, the western and southwestern portions of the county experiences 1 or 2 additional days of winter snow and ice storms than the eastern portion of the county. Figure 2-2 shows the areas of the county most vulnerable to winter snow and ice storms along with those areas with populations of social vulnerability.

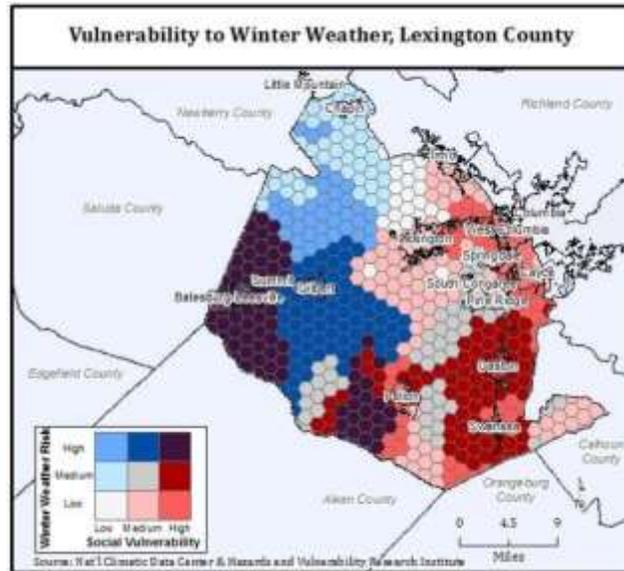


Figure 2-2: Lexington County Areas Vulnerability to Winter Weather

Winter snow and ice storms pose a significant risk to the health and safety of residents to Lexington County. Potential impacts include:

- Power outages from severe winter weather conditions in some cases have lasted several days. Such extended power outages can affect the delivery of critical services across the county. Ice on roads can also hinder the delivery of fuel further complicating transportation and preventing the refueling of generators providing temporary power to critical operations.
- Vulnerable populations, particularly individuals who are elderly, small infants, or individuals with health issues, can face serious threats from the cold in the event of power outages including frost bite or hyperthermia. Community shelters may need to be established to house individuals potentially exposed to hazardous conditions.
- Response personnel may be hindered in their response, or put themselves at risk, in responding to calls for assistance due to treacherous road conditions.
- Lack of power can result in greater chances for house fires as individuals burn candles to provide lighting or light fires to stay warm.
- Lack of power can also result in incidents of carbon monoxide poisoning or death due in improper use and placement of generators as individuals run portable generators to provide power to lights, refrigerators, heaters, and other appliances.
- Frozen pipes as a result of extreme weather events can cause serious damage to homes as well as critical facilities and prevent the delivery of critical services to the community.

The economic and financial consequences of a winter snow or ice storm incident will depend on several factors including the length of time the incident lasts, the extent of damages, the level of preparedness taken by communities prior to the incident, how quickly repairs can be made, and how quickly community lifelines can be restored. A summary assessment of the winter snow and ice storms vulnerability and impacts to community lifelines is presented in Table 2-6.

Table 2-6: Winter Snow and Ice Storm Vulnerability and Consequence by Lifeline

Winter Snow and Ice Storms	Vulnerability	Consequence
Safety and Security	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	High Impact to Lifeline/Services
Communications	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Transportation	High Vulnerability	High Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Hazardous Material	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Energy (Power and Fuel)	High Vulnerability	High Impact to Lifeline/Services

2.6 Flooding

Since 1960, Lexington County has encountered 47 flooding incidents. Of those, 38 resulted in property damages. Most of the flooding incidents in Lexington County resulted from heavy precipitation that lead to flash flooding. During these incidents, water can rise along smaller creeks and tributaries along the Broad, Congaree and Saluda Rivers. In addition, other areas in the county can also be at risk of flash flooding due to ponding and inadequate drainage. In fact, based on past events, low lying areas and areas downstream from small dams can also be susceptible to flash flooding.

In October of 2015, Lexington County experienced flooding as a result of record setting rainfall totals, up to 17.21 in some areas of the county. The heavy rainfall caused flash flooding, dam breaches and failures, as well as backwater flooding as a result of having to release water from the Lake Murray Dam. Overall, the flooding caused \$27 million in property damage and nearly \$1 million in crop damages. Water systems were affected in the City of Columbia and as a result, schools and business operations were disrupted.

Overall, flooding is the deadliest natural disaster that occurs in the U.S. each year. To address this threat the county uses Flood Rate Insurance Maps (FIRMs) to regulate new development to ensure new homes and buildings are not erected in flood prone areas. Figure 2.3 shows the location of the 100-year flood zone (indicates a 1% annual chance of occurrence) in Lexington County as well as the locations of dams including the dams that failed in the 2015 flood. Risk of flooding in the 100-year flood plain is largely limited to residential structures. There are three critical structures located in the 100-year flood plain. Inside the 100-year flood zone there are approximately 19,474 people with 682 of those individuals with high social vulnerability.

In a 1000-year flood incident, approximately 1,506 buildings would be moderately damaged, and 707. Most of the damage would center around the Town of Lexington. Economic impacts have been estimated at \$710 million. No critical infrastructure is estimated to receive any damage.

Other impacts from flooding in Lexington County could include the following:

- Health risks can be elevated after a flood due to potential issues from hazardous materials spills, releases of untreated sewage and mold growth in flooded areas of buildings.
- Floods may necessitate rescues of individuals from low lying areas or swift water rescues putting first responders at risk.
- If roadways are impassable, first responders may not be able to respond to certain areas of the county.

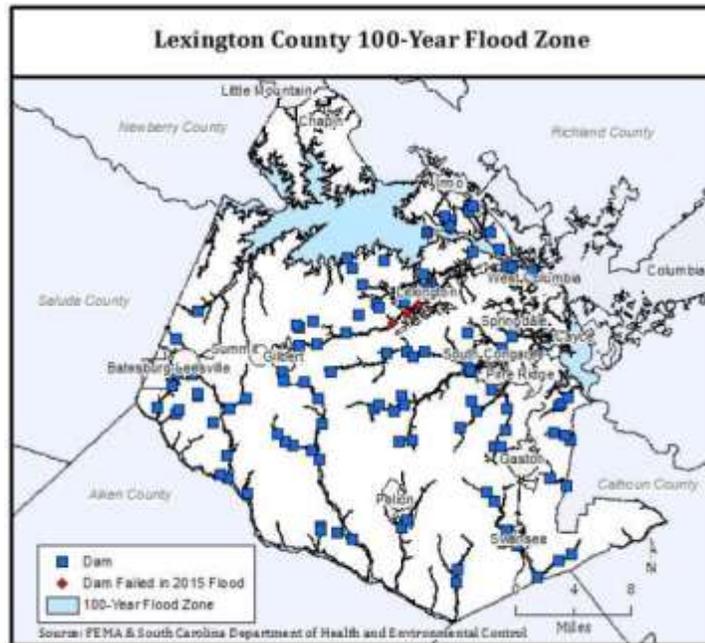


Figure 2-3: 100-Flood Zones, Dam Locations, and Locations of Dam Failures from the 2015 Flood

- Residents may be displaced from their homes while repairs are taking place. Displaced residents may not be able to return to work immediately potentially slowing recovery efforts.
- The flooding may cause a loss of utility services such as water or power due resulting in the closure of schools or businesses until utility services can be restored.
- Flooding increases the number of pollutants and toxicants in local waterways, affecting the ecosystem.
- Extensive or repetitive flooding can decrease home values in affected areas.
- If critical service employees suffer losses, they may not be able to return to work which could limit recovery operations.

Figure 2-4 shows the areas of the county vulnerable to flooding as well as the populations with social vulnerability.

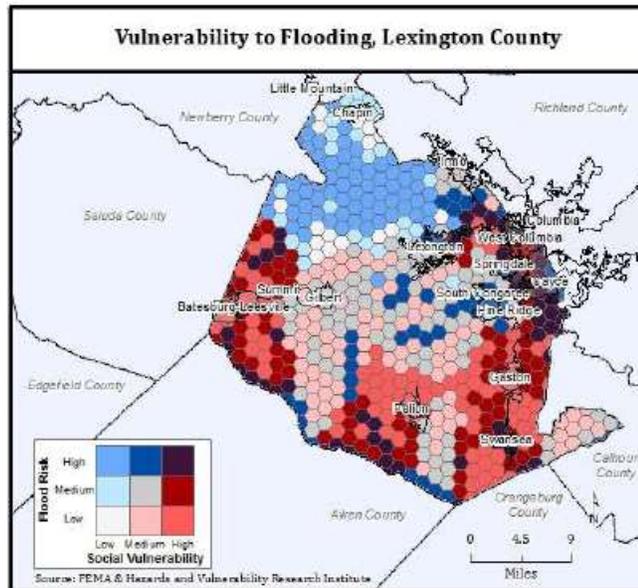


Figure 2-4: Areas of Vulnerability to Flooding in Lexington County

A summary assessment of flood hazard vulnerability and impacts to community lifelines is presented in Table 2-7.

Table 2-7: Flood Hazard Vulnerabilities and Consequences to Community Lifelines

Flooding	Vulnerability	Consequence
Safety and Security	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Communications	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Transportation	High Vulnerability	High Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Hazardous Material	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Energy (Power and Fuel)	Moderate Vulnerability	Moderate Impact to Lifeline/Services

county. Figure 2-6 illustrates the areas of greatest impacts from hurricane and tropical storm impacts as well as the socially vulnerable populations living in those areas.

Other impacts from hurricanes and tropical storms in Lexington County could include the following:

- Individuals exposed to hurricanes and tropical storms could be injured from wind-blown debris, falling trees or branches.
- Structures and vehicles can be damaged by falling trees.
- Falling trees or limbs and high winds can damage power lines and result in power outages.
- Extended power outages can hinder or delay the conduct of community lifelines services.
- Downed power lines can prevent passage of roads hindering access for emergency response vehicles.
- Loss of power can lead to house fires as residents use candles to provide light or light fires to keep warm.
- As a receiving jurisdiction of evacuees from coastal communities, community lifelines may become strained as additional people tap into county and city services.
- Streets can be blocked by falling trees and other debris from the high winds during a hurricane or tropical storm.
- Some business operations may be hindered by the additional traffic on the road from evacuees.
- Carbon monoxide poisoning can result in injury or death from the misuse and misplacement of portable generators.
- Cell phone networks and other communications systems can be damaged, or they can be temporarily unavailable during and immediately following a disaster.
- High winds and excessive rain from a hurricane or tropical storm can result in hazardous materials spills.

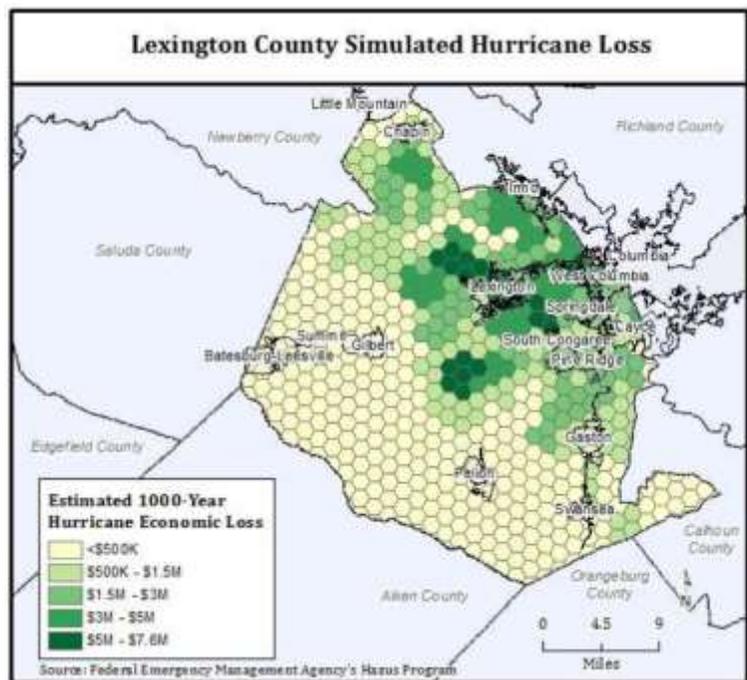


Figure 2.6: Simulated Losses from a 1000 Year Hurricane

The financial and economic recovery of the county following a hurricane or tropical storm will vary based upon the scope of the incident, the amount of damage created and the ability of the county and cities to make repairs and restore essential functions and community lifelines. Also, the speed of recovery can also depend on the amount of planning and preparation taken prior to the incident.

A summary assessment of flood hazard vulnerability and impacts to community lifelines is presented in Table 2-8.

Table 2-8: Hurricane and Tropical Storm Vulnerabilities and Consequences to Community Lifelines

Hurricane and Tropical Storms	Vulnerability	Consequence
Safety and Security	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Communications	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Transportation	High Vulnerability	High Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Hazardous Material	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Energy (Power and Fuel)	High Vulnerability	High Impact to Lifeline/Services

2.8 Tornadoes

A tornado is a narrow, violently rotating column of air that extends from a thunderstorm to the ground. About 1,200 tornadoes hit the U.S. yearly.⁵ The strength of tornadoes is measured using the Enhanced Fujita (EF) Scale. The scale categorizes the intensity of tornadoes by using six categories EF0 to EF6 based upon the estimated wind speeds and damage that they cause. The six categories of the EF Scale, associated wind speeds and damages are listed in Table 2-9.

Table 2-9: Enhanced Fujita Scale

Tornado Category	Wind Speed Estimate (Miles Per Hour)	Potential Damage
EF0	65 - 85	Minor damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage.
EF1	86 - 110	Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111 - 135	Considerable damage. Roofs torn off from well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF3	136 - 165	Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations are badly damaged
EF4	166 - 200	Devastating damage. Well-constructed and whole frame houses completely leveled; some frame homes may be swept away; cars and other large objects thrown and small missiles generated.
EF5	>200	Incredible damage. Well-built frame houses destroyed with foundations swept clean of debris; steel-reinforced concrete structures are critically damaged; tall buildings collapse or have severe structural deformations; cars, trucks, and trains can be thrown approximately 1 mile

In Lexington County a tornado occurs about every other year. While typically low magnitude (F0, F1) higher magnitude tornadoes have occurred in the county. Figure 2-7 shows the strength and tracks of tornadoes that have occurred in the county over the years.

Every structure and person are at risk of tornadoes in Lexington County. Based on historic data there is a slightly higher risk in the northwest and southwest corners of the county. Tornadoes in the county can be generated from severe thunderstorms or from tropical storms and hurricanes.

From 1994 to 2014, 24 tornadoes have occurred in the county. In 1994, an F3 tornado touched down in the county south-southeast of Lexington. The tornado moved to the north and east damaging 200 homes, 5 electric substations, as well as many businesses, several churches and public buildings. In addition, 40 people were injured.

Areas of high vulnerability to tornadoes are defined as areas of the county where there have been a high frequency of past tornado warnings (more than 0.625 warnings per year). These areas of higher risk are

⁵ The National Severe Storms Laboratory, Severe Weather 101 – Tornadoes, <https://www.nssl.noaa.gov/education/svrwx101/tornadoes/>

shown in Figure 2-8 along with the populations of social vulnerability to tornadoes. The high-risk areas contain 6% of the critical infrastructure for the county, \$3.4 billion (7%) of building stock, 6% of the county population, and approximately 2,376 people (or 2%) of the socially vulnerable population in the county.

Tornadoes have the potential to pose a significant risk to the population and can create dangerous situations for public health and safety officials. Impacts to Lexington County can include:

- Individuals exposed to a tornado can be struck by flying debris, falling tree limbs, or downed trees, causing serious injury or death.
- Mobile or manufactured homes may suffer substantial damage as they would be more vulnerable than typical site-built structures.
- Tornadoes often result in widespread power outages, increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outages can hinder or delay the conduct of community lifelines services.
- Downed power lines can prevent passage on roads hindering access for emergency response vehicles.
- Loss of power can lead to house fires as residents use candles to provide light or light fires to keep warm.
- Recovery of community lifelines may be delayed as damages to critical facilities are being repaired.

The financial and economic recovery of the county following a hurricane or tropical storm will vary based upon the scope of the incident, the amount of damage created and the ability of the county and cities to make repairs and restore essential functions and community lifelines. Also, the speed of recovery can also depend on the amount of planning and preparation taken prior to the incident.

A summary assessment of flood hazard vulnerability and impacts to community lifelines is presented in Table 2-10.

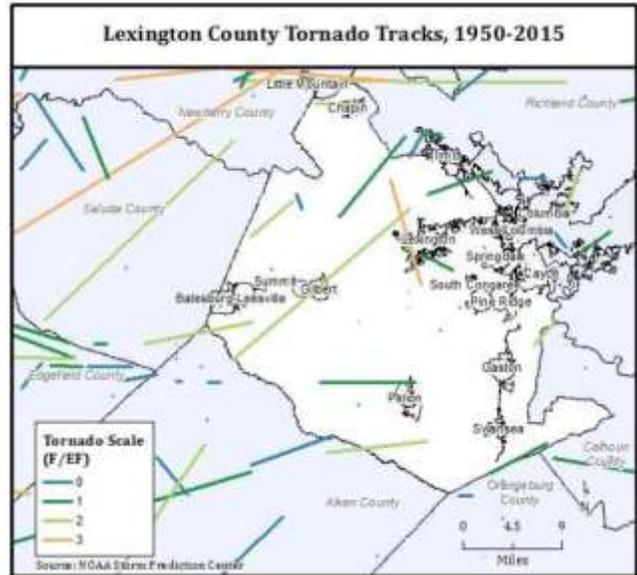


Figure 2-7: Strength and Track of Tornadoes in Lexington County

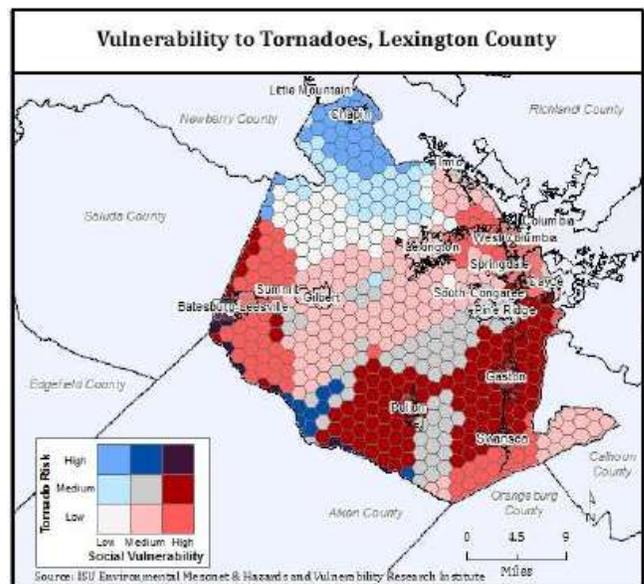


Table 2-8: Vulnerability to a Tornado in Lexington County

Table 2-10: Tornado Vulnerabilities and Consequences to Community Lifelines

Tornadoes	Vulnerability	Consequence
Safety and Security	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Communications	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Transportation	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Hazardous Material	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Energy (Power and Fuel)	High Vulnerability	High Impact to Lifeline/Services

2.9 Thunderstorm

Severe thunderstorms are quite common in Lexington County. Approximately 11 to 18 severe thunderstorm warnings are issued annually by the local National Weather Service Office. The region can see on average up to 12 days per year with rainfall amounts of 1 inch or more, 30 days per year with rainfall between 1/2 inch and 1 inch, and about 70 days per year with rainfall amounts of less than 1/2 inch.⁶ Thunderstorms can be accompanied by lightning, high winds, torrential rains, and hail.

All of Lexington County is susceptible to thunderstorms, however, based upon the location of storm warnings each year, there appears to be a greater propensity for thunderstorms in the eastern half of the county. Figure 2-9 illustrates the locations of storm warnings from 2008 to 2015.

Over the past 54 years there have been 41 severe thunderstorm incidents in the county with 38 of those resulting in property damage. In the future there is the likelihood of increase occurrences of severe thunderstorms with a shortening of return periods.

More than 40 percent of the county's infrastructure resides in thunderstorm high risk areas. These areas receive more than 16 thunderstorm warnings per year. Also, in the area of high risk is 42 percent of the county's building stock, 45 percent of the population of the county and 39 percent of the county's population of individuals with social vulnerabilities. Figure 2-10 shows the overlap between the area of the county at high risk from severe thunderstorms and populations of socially vulnerable individuals in Lexington County.

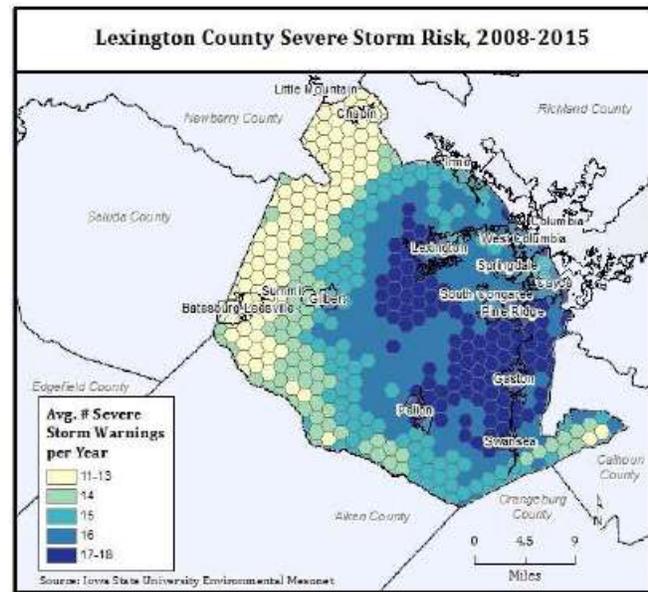


Figure 2-9: Average Number of Storm Warnings from 2008 to 2015

Thunderstorms have the potential to pose a significant risk to the population and can create dangerous situations for public health and safety officials. Impacts to Lexington County can include:

- Individuals exposed to a severe thunderstorm can be struck by flying debris, downed trees or limbs causing serious injury or death.
- Structures can be damaged by flying debris or falling trees resulting in damage.
- Severe thunderstorms can hinder transportation in the county and provide challenges to response agencies answering calls for assistance.
- Roadways can be blocked by debris from a severe thunderstorm, hindering movement around the county and the movement of response vehicles.
- Power outages can result from the high winds and downed trees and limbs from a severe thunderstorm.

⁶ SCDNR, n/d. South Carolina Climate. http://www.dnr.sc.gov/climate/sco/ClimateData/cli_sc_climate.php

- Essential staff may not be able to report to work in a severe thunderstorm.
- Power outages might place individuals reliant on oxygen or other electrically operated health and safety devices at risk.
- Power outages may affect the ability of government operations and local businesses to provide essential services.
- Older structures may suffer more serious impacts from severe thunderstorms as they may not be constructed to the same standards as newer structures.
- First responders will be exposed to potential hazards on responding to calls for assistance such as down power lines, heavy rains, hail, and falling trees.
- Loss of power can lead to house fires as residents use candles to provide light or light fires to keep warm.
- Recovery of community lifelines may be delayed as damages to critical facilities are being repaired.
- Cell phone operations and other communications equipment may be adversely affected by storm conditions.

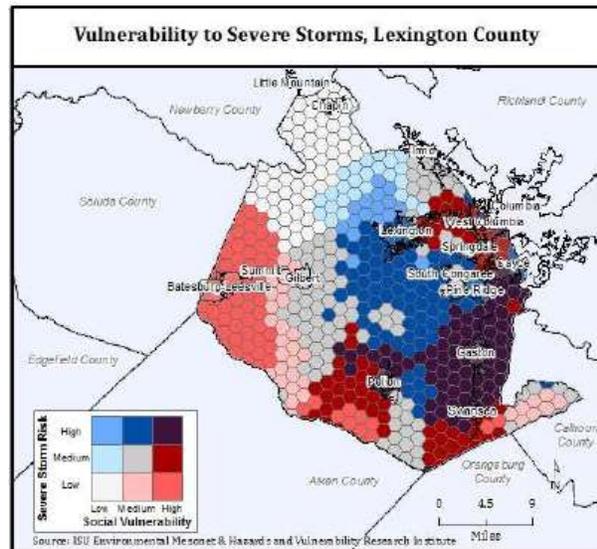


Figure 2-10: Vulnerability to Severe Thunderstorms in Lexington County

The financial and economic recovery of the county following a thunderstorm will vary based upon the scope of the incident, the amount of damage created and the ability of the county and cities to make repairs and restore essential functions and community lifelines. Also, the speed of recovery can also depend on the amount of planning and preparation taken prior to the incident.

A summary assessment of thunderstorm hazard vulnerability and impacts to community lifelines is presented in Table 2-11.

Table 2-11: Thunderstorm Vulnerabilities and Consequences to Community Lifelines

Thunderstorm	Vulnerability	Consequence
Safety and Security	Low Vulnerability	Low Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Low Impact to Lifeline/Services
Communications	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Transportation	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Health and Medical	Low Vulnerability	Low Impact to Lifeline/Service
Hazardous Material	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Energy (Power and Fuel)	High Vulnerability	High Impact to Lifeline/Services

2.10 Lightning

Lightning is the visible discharge of electricity that occurs when a region of a cloud acquires an excess electrical charge, either positive or negative, that is sufficient to break down the resistance of air.⁷

Energy from lightning can heat the air to about 18,000 degrees Fahrenheit and rapidly expand causing thunder.⁸ A bolt of lightning can contain up to one billion volts of electricity and a single thunderstorm can cause hundreds of lightning strikes.

From 1986 to 2012 there have been 149,258 lightning incidents in Lexington County. 39 of these incidents resulted in property damage. 2 of the incidents resulted in fatalities.

The entire county is at risk from lightning strikes; however, historical records of lightning strikes show the greatest concentration of lightning strikes to have taken place in the southeastern portion of the county as illustrated in Figure 2.11.

Since 1960, lightning strikes have caused \$2,162,403 in damages. Most of these damages consist of lightning striking homes and setting them on fire. Lightning has also done \$15,927 dollars in damage to crops in the county. Lightning has also damaged trees, barns and other facilities. Besides causing fires, a lightning strike can also cause severe damage to electrical components if not equipped with surge protection.

The areas of greatest vulnerability to lightning in the county experience more than 31,800 cloud to ground lightning strikes per year. About one third of the county's critical infrastructure, population and building stock are located in the highest risk area of the county for lightning strikes. There are also approximately 53,430 socially vulnerable

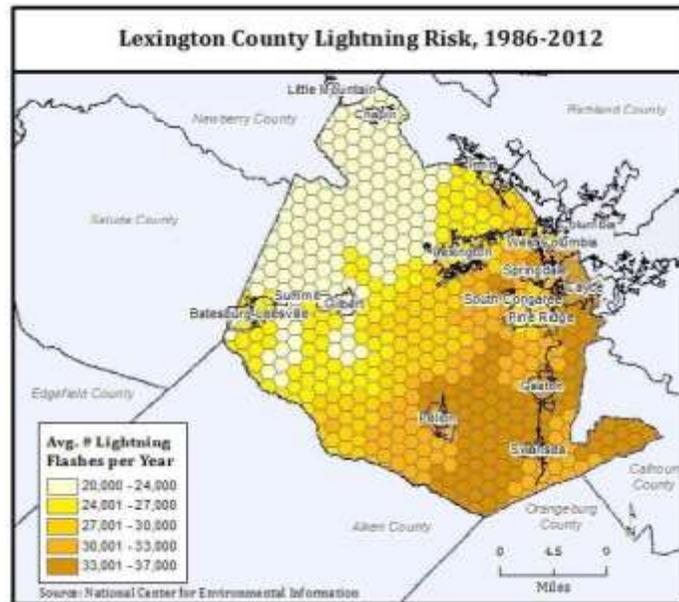


Figure 2-11: Lightning Strikes in Lexington County

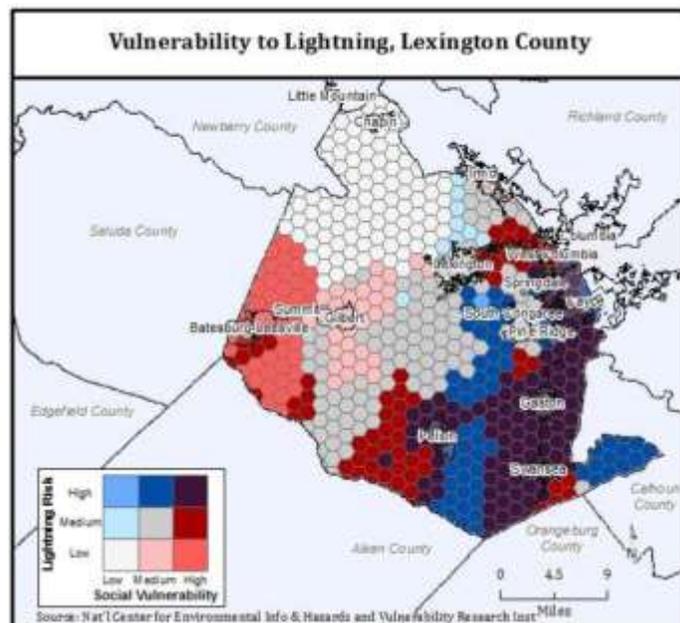


Figure 2-12: Vulnerability to Lightning in Lexington County

⁷ Lightning, Britannica.com, <https://www.britannica.com/science/lightning-meteorology>

⁸ Severe Weather 101: Lightning Basics, <https://www.nssl.noaa.gov/education/svrwx101/lightning/>

individuals located in the lightning high risk area. The areas of social vulnerability in relation to the lightning hazard in Lexington County are shown in Figure 2-12.

Lightning has the potential to pose a significant risk to the population and can create dangerous situations for public health and safety officials. Impacts to Lexington County can include:

- Lightning has the potential to pose a significant risk to the population and can create dangerous situations for public health and safety officials. Impacts to the Lexington County can include:
- Individuals can be struck by directly lightning which can cause serious harm or death. Individuals can also experience lightning shocks standing under trees or near other objects that have been struck by lightning. These incidents can also result in serious harm or death.
- Trees struck by lightning can fall or limbs can separate causing injuries to individuals nearby or damage to nearby structures.
- Lightning strikes and cause structure fires and wildfires creating risk of harm to residents and first responders.
- Lightning can cause power surges and power outages affecting government and business operations.
- Lightning can damage or affect communications systems.
- Loss of power can lead to house fires as residents use candles to provide light or light fires to keep warm.
- Power outages might place individuals reliant on oxygen or other electrically operated health and safety devices at risk.
- Recovery of community lifelines may be delayed as damages to critical facilities are being repaired.

The financial and economic recovery of the county following a lightning incident will vary based upon the scope of the incident, the amount of damage created and the ability of the county and cities to make repairs and restore essential functions and community lifelines. Also, the speed of recovery can also depend on the amount of planning and preparation taken prior to the incident.

A summary assessment of lightning hazard vulnerability and impacts to community lifelines is presented in Table 2-12.

Table 22-12: Lightning Vulnerabilities and Consequences to Community Lifelines

Lightning	Vulnerability	Consequence
Safety and Security	Moderate Vulnerability	Low Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Low Impact to Lifeline/Services
Communications	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Transportation	Low Vulnerability	Low Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Low Impact to Lifeline/Services
Hazardous Material	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Energy (Power and Fuel)	High Vulnerability	Moderate Impact to Lifeline/Services

2.11 Wind

Wind is the horizontal movement of air across the surface of the earth. Gases move from high-pressure areas to low pressure areas. The bigger the difference in the pressures, the faster the air will move from the high pressure to the low pressure.⁹ High winds are commonly associated with certain weather events such as thunderstorms, hurricanes and tornadoes. High winds are capable of causing damage to structures, trees, and power lines.

In Lexington County, wind gusts of 58 mph or more are frequently experienced. Wind gusts as high as 92 mph have been experienced. On average, high wind incidents occur monthly in the county. From 1960 to 2014 there were 490 wind incidents in the county. Of those, 170 wind incidents resulted in property damages. Total losses from those incidents are estimated at \$2,312,724. There was also one fatality and 14 injuries from those incidents. Most of the incidents consisted of trees down, power lines down, trees on homes, roof damages or damages to sheds and carports.

The entire county is vulnerable to the impacts of high winds. Because high winds are often associated with thunderstorms, the area of greatest risk from high winds lies in the central and southern parts of the county as outlined in Section 2.9: Thunderstorm. In southern Lexington County, the areas of high social vulnerability coincide with more than two days of high winds per year. Eleven percent of the county's critical infrastructure, 6 percent of the building stock, 12 percent of the population, and approximately 26 percent of the socially vulnerable populations of the county reside in this area. The areas of social vulnerability in relation to the wind hazard in Lexington County are shown in Figure 2-13.

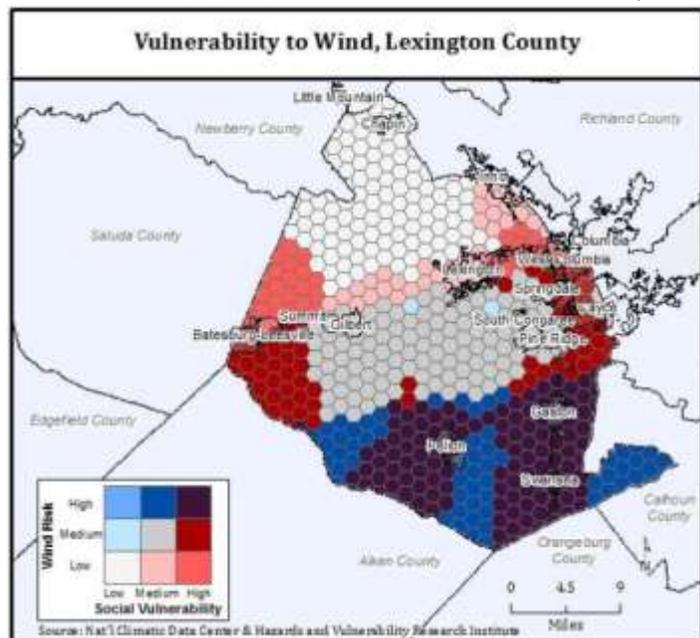


Figure 2-13: Vulnerability to Wind in Lexington County

Wind incidents have the potential to pose a significant risk to the population and can create dangerous situations for public health and safety officials. Impacts to Lexington County can include:

- Individuals exposed to high winds can be struck by flying debris, downed trees or limbs causing serious injury or death.
- Structures can be damaged by flying debris or falling trees resulting in damage.
- Roadways can be blocked by debris from a severe thunderstorm, hindering movement around the county and the movement of response vehicles.
- Power outages can result from the high winds and downed trees and limbs.

⁹ SciJinks, Wind. <https://scijinks.gov/wind/>

- Power outages might place individuals reliant on oxygen or other electrically operated health and safety devices at risk.
- Power outages may affect the ability of government operations and local businesses to provide essential services.
- Older structures, sheds and car ports may suffer damage as they may not be constructed to the same standards as newer structures.
- First responders will be exposed to potential hazards on responding to calls for assistance such as down power lines and falling trees and limbs.
- Loss of power can lead to house fires as residents use candles to provide light or light fires to keep warm.
- Recovery of community lifelines may be delayed as damages to critical facilities are being repaired.

The financial and economic recovery of the county following a wind incident will vary based upon the scope of the incident, the amount of damage created and the ability of the county and cities to make repairs and restore essential functions and community lifelines. Also, the speed of recovery can also depend on the amount of planning and preparation taken prior to the incident.

A summary assessment of wind hazard vulnerability and impacts to community lifelines is presented in Table 2-13.

Table 2-13: Wind Vulnerabilities and Consequences to Community Lifelines

Wind	Vulnerability	Consequence
Safety and Security	Low Vulnerability	Low Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Low Impact to Lifeline/Services
Communications	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Transportation	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Health and Medical	Low Vulnerability	Low Impact to Lifeline/Service
Hazardous Material	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Energy (Power and Fuel)	High Vulnerability	High Impact to Lifeline/Services

2.12 Hail

Hail is a form of precipitation consisting of solid ice that forms inside thunderstorm updrafts. Hailstones are formed when raindrops are carried upward by thunderstorm updrafts into extremely cold areas of the atmosphere and freeze. They then grow by colliding with liquid water drops that freeze on the hailstones surface. The hailstone eventually falls when the updraft weakens or when the weight of the hailstone grows to the point that the updraft can no longer support its weight.¹⁰

In Lexington County, incidents of hail are experienced at least every six months. Hailstorms typically occur during spring thunderstorms from March through May. There have been 283 hail incidents from 1960 to 2014. Sixty-eight of these incidents resulted in property damages totaling \$1,665,131. Damage to roofs, vehicles and trees were reported from these incidents. Damage to crops has also been reported. No injuries or deaths were reported. The size of the hailstones during these incidents were compared to quarters, hen eggs, golf balls and ping pong balls.

The entire county is susceptible from hail; however, the county has experience large hail sizes, up to 2.5" in diameter, in the central and southern parts of the county. This correlates to the areas of greatest risk from thunderstorms as discussed in Section 9: Thunderstorms. There are small pockets of high vulnerability to hail incidents in various parts of the county including the Batesburg-Leesville and the Cayce area. In these higher vulnerability areas is 12 percent of the county's critical infrastructure, 6 percent of the building stock, 5 percent of the population and 7 percent of high social vulnerability populations. The areas of social vulnerability in relation to the hail hazard in Lexington County are shown in Figure 2-14.

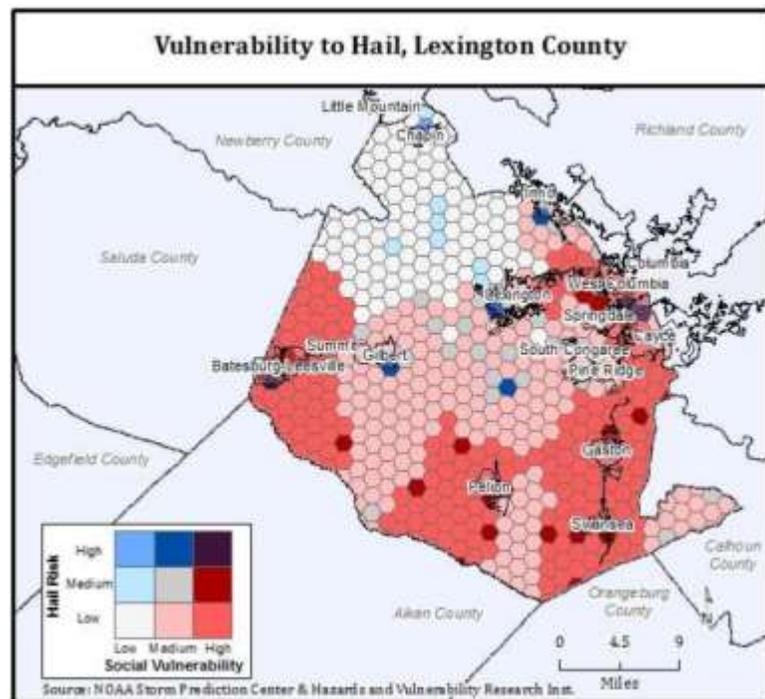


Figure 2-14: Vulnerability to Hail in Lexington County

Hail has the potential to pose a significant risk to the population and can create dangerous situations for public health and safety officials. Impacts to Lexington County can include:

- Individuals and first responders exposed to a storm may be struck by hail, falling branches, fall trees or other debris causing injuries or fatalities.
- Hail incidents can often cause extensive roof damage to structures to residential structures and broken windows.

¹⁰ Severe Weather 101, Hail, <https://www.nssl.noaa.gov/education/svrwx101/hail/>

- Insurance claims can rise as a result of a hail incident creating a rise in insurance premium costs.
- Hail incidents can severely damage vehicles causing hardships to residents as well as potentially affecting governmental and business operations.
- Travel can be perilous during a hail incident delaying response to calls for assistance from first response agencies or potentially harming first responders.
- Power outages might place individuals reliant on oxygen or other electrically operated health and safety devices at risk.
- Power outages may affect the ability of government operations and local businesses to provide essential services.
- Loss of power can lead to house fires as residents use candles to provide light or light fires to keep warm.
- Recovery of community lifelines may be delayed as damages to critical facilities are being repaired.
- Cell phone operations and other communications equipment may be adversely affected by hail damage.
- Hail incidents can cause extensive damage to agricultural crops resulting economic losses to farms and the surrounding communities.
- Hail incidents can injure or kill livestock and wildlife in the county.

The financial and economic recovery of the county following a wind incident will vary based upon the scope of the incident, the amount of damage created and the ability of the county and cities to make repairs and restore essential functions and community lifelines. Also, the speed of recovery can also depend on the amount of planning and preparation taken prior to the incident.

A summary assessment of wind hazard vulnerability and impacts to community lifelines is presented in Table 2-14.

Table 2-14: Hail Vulnerabilities and Consequences to Community Lifelines

Hail	Vulnerability	Consequence
Safety and Security	Moderate Vulnerability	Low Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Low Impact to Lifeline/Services
Communications	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Transportation	Moderate Vulnerability	Low Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Low Impact to Lifeline/Services
Hazardous Material	Moderate Vulnerability	Low Impact to Lifeline/Services
Energy (Power and Fuel)	Moderate Vulnerability	Low Impact to Lifeline/Services

2.13 Fog

Fog is a cloud of small water droplets that is near ground level and sufficiently dense enough to reduce horizontal visibility to less than 1,000 meters (3,281 feet).¹¹ The reduced visibility caused by the fog can be a factor in aircraft, motor vehicle, and boating accidents.

In Lexington County fog is a common occurrence particularly in the fall and spring months. On average the county experiences approximately 25 days of fog per year in the western part of the county and up to 107 days of fog in the east central portion of the county. There is no specific data regarding property damage since fog does not cause property damage, but fog can be a contributing factor to accidents, particularly, motor vehicle accidents. According to the Federal Highway Administration, in the U.S. each year 38,700 vehicle crashes occur in fog. Over 600 people are killed and more than 16,300 people are injured in these crashes annually.¹²

In the areas of high risk of fog are approximately 26 percent of the county's critical infrastructure, 18 percent of the building stock, 25 percent of the population and 36 percent of the county's socially vulnerable populations. The areas of social vulnerability in relation to the fog hazard in Lexington County are shown in Figure 2-16.

Fog has the potential to pose a risk to the population and can create dangerous situations for public health and safety officials. Impacts to Lexington County can include:

- Limited visibility can lead to traffic accidents in the county resulting in injuries and deaths.

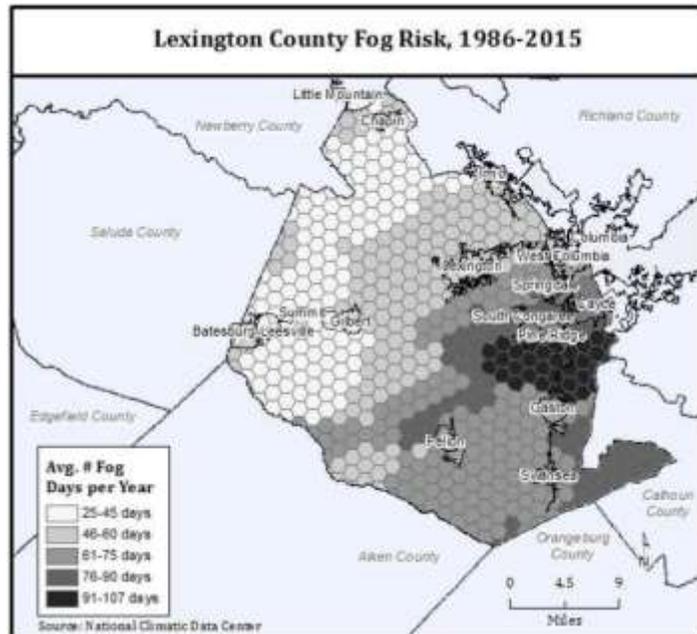


Figure 2-15: Areas of Fog Risk in Lexington County

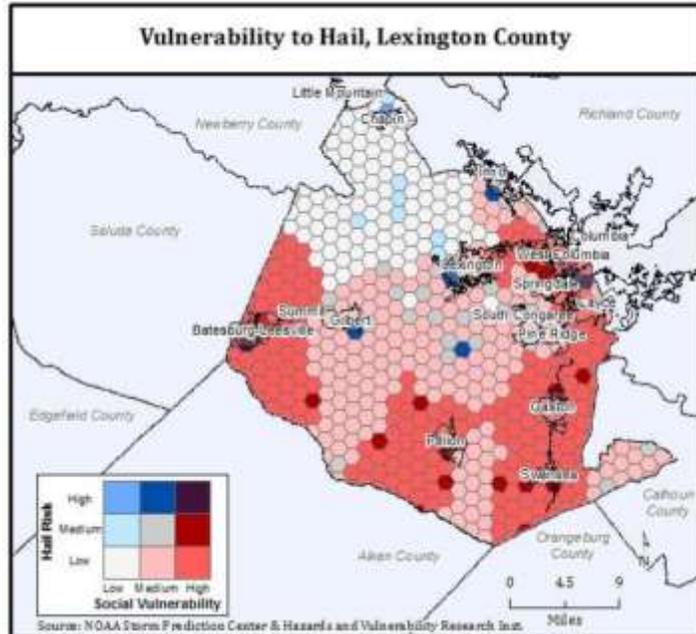


Figure 2-16: Vulnerability to Fog in Lexington County

¹¹ Britannica.com, Science, Fog, <https://www.britannica.com/science/fog>

¹² Federal Highway Administration, Road Weather Management Program, Low Visibility, https://ops.fhwa.dot.gov/weather/weather_events/low_visibility.htm

- Because of the limited visibility, first responder agencies may be hindered or delayed in response to calls for assistance.
- Traffic accidents can cause traffic jams and delays in shipping goods and services to local businesses and government offices.
- Traffic accidents can result in damage to roads and bridges and other transportation infrastructure which can hinder travel in the region of the accident.
- Traffic accidents can result in hazardous materials spills which can harm the environment and put first responders in harms ways working to contain and clean up the spill.

The financial and economic recovery of the county following an incident involving fog will vary based upon the scope of the incident, the amount of damage created and the ability of the county and cities to make repairs and restore essential functions and community lifelines. Also, the speed of recovery can also depend on the amount of planning and preparation taken prior to the incident.

A summary assessment of fog hazard vulnerability and impacts to community lifelines is presented in Table 2-13.

Table 2-13: Fog Vulnerabilities and Consequences to Community Lifelines

Fog	Vulnerability	Consequence
Safety and Security	Low Vulnerability	Low Impact to Lifeline/Services
Food, Water, Sheltering	Low Vulnerability	Low Impact to Lifeline/Services
Communications	Low Vulnerability	Low Impact to Lifeline/Services
Transportation	Moderate Vulnerability	Low Impact to Lifeline/Services
Health and Medical	Low Vulnerability	Low Impact to Lifeline/Services
Hazardous Material	Moderate Vulnerability	Low Impact to Lifeline/Services
Energy (Power and Fuel)	Low Vulnerability	Low Impact to Lifeline/Services

2.14 Temperature Extremes

Extreme cold temperatures are temperatures that fall below the freezing point. Extreme heat are temperatures that reach or rise above 95 degrees. Lexington County experiences both extreme cold and hot conditions each year.

Extreme Cold

Lexington County experiences between 41 to 50 days a year when temperatures fall below freezing any given time in a 24-hour period. The coldest temperature in a 24-hour period is typically in the overnight hours. The county averages about 13 to 19 days per year of extremely cold temperatures. Lexington County has had 31 incidents of extremely cold temperatures that resulted in property damage. Total losses from these incidents totaled \$7,732,324. There has also been one fatality from an extreme cold temperature incident.

The entire county is susceptible to extreme cold temperatures; however, according to historical data, the northern portion of the county experiences the greatest number of cold weather days with 49 to 50 days where temperatures reach below freezing temperatures. See Figure 2-17. On the other hand, southern Lexington County is the most vulnerable to extreme cold temperatures as measured by the number of days that remain extremely cold throughout the day. The 95th percentile calculation is used to separate out when temperatures are not extremely cold for a given location. When using the 95th percentile calculation, the southern-most part of the county has 18 to 19 extremely cold days, whereas the northern portion of the county only has 13 to 14. See Figure 2-18.

Using the 95th percentile data, the southern-most portion of the county coincides with the larger numbers of socially vulnerable individuals in the county. In the high-risk area for extreme cold temperatures is 13% of the critical infrastructure for the

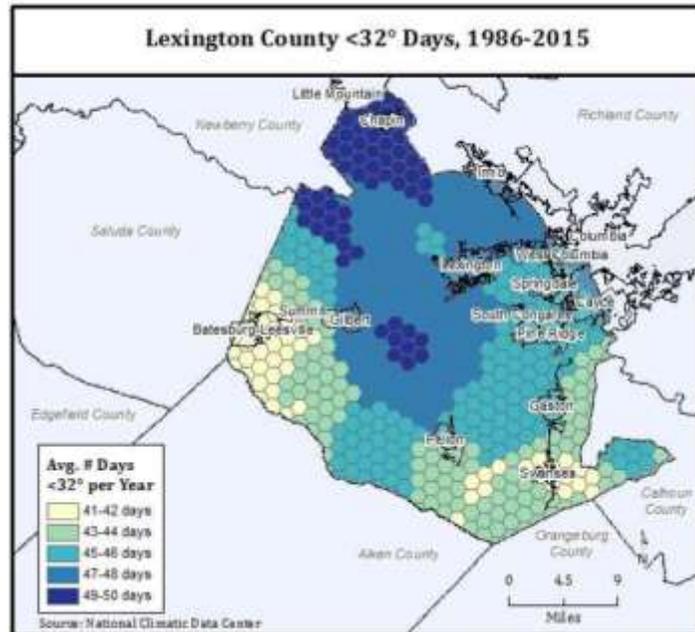


Figure 2-17: Average # of Days with <32 Degree Temperatures

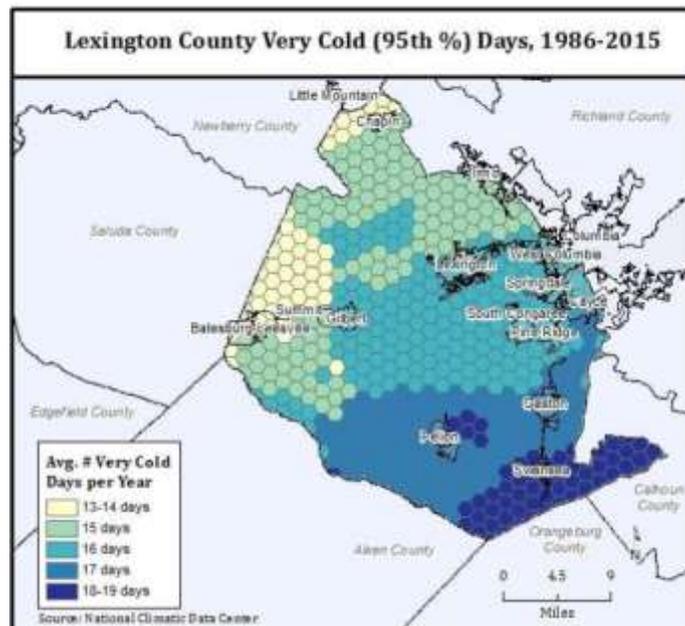


Figure 2-18: Average # of Very Cold (95th %) Days

county, 6 percent of the building stock, 12 percent of the population (or 32,789 people) and 27 percent of the socially vulnerable population of the county. The areas of social vulnerability in relation to the extreme cold hazard in Lexington County are shown in Figure 2-19.

Extreme cold has the potential to pose a serious risk to the population and can create dangerous situations for public health and safety officials. Impacts to Lexington County can include:

- Vulnerable populations, particularly individuals who are elderly, small infants, or individuals with health issues, can face serious threats from the cold in the event of power outages including frost bite or hyperthermia.
- Individuals required to work outside may be hindered due to the cold or may suffer frost bite or hyperthermia.
- Community shelters may need to be established to house individuals potentially exposed to hazardous conditions including the homeless in the community.
- Frozen pipes as a result of extreme cold can cause serious damage to homes as well as critical facilities.
- Repair to facilities from frozen might hinder governmental and business operations and prevent the delivery of critical services to the community.
- Extreme cold accompanied by precipitation can result in ice on roadways. Icy conditions on roadways can result in accidents, injuries and deaths.

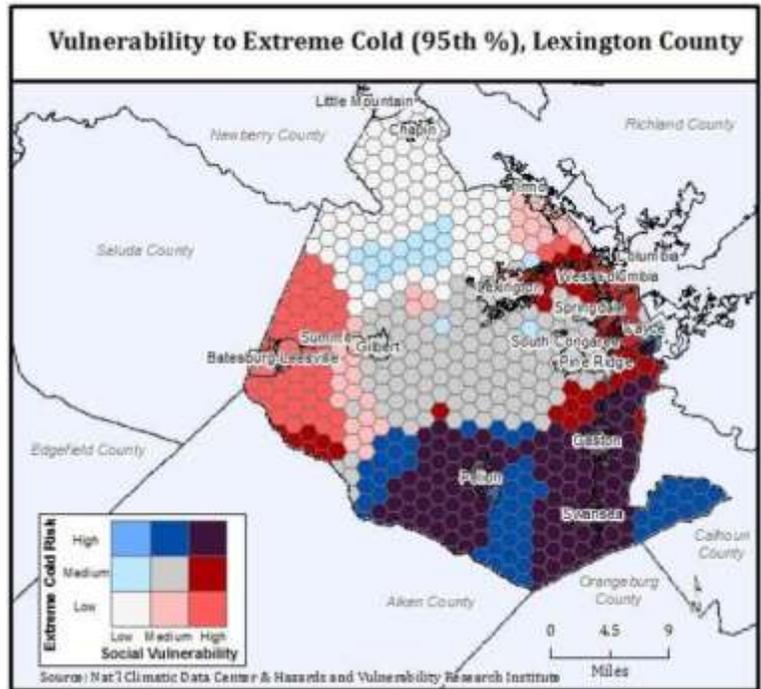


Figure 2-19: Vulnerability to Extreme Cold in Lexington County

The financial and economic recovery of the county following an incident involving extreme cold will vary based upon the scope of the incident, the amount of damage created and the ability of the county and cities to make repairs and restore essential functions and community lifelines. Also, the speed of recovery can also depend on the amount of planning and preparation taken prior to the incident.

A summary assessment of extreme cold hazard vulnerability and impacts to community lifelines is presented in Table 2-14.

Table 2-14: Extreme Cold Vulnerability and Consequence to Community Lifelines

Extreme Cold	Vulnerability	Consequence
Safety and Security	Low Vulnerability	Low Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Low Impact to Lifeline/Services
Communications	Low Vulnerability	Low Impact to Lifeline/Services
Transportation	Moderate Vulnerability	Low Impact to Lifeline/Services
Health and Medical	Low Vulnerability	Low Impact to Lifeline/Services
Hazardous Material	Low Vulnerability	Low Impact to Lifeline/Services
Energy (Power and Fuel)	Moderate Vulnerability	Low Impact to Lifeline/Services

Extreme Heat

Hot temperatures are typical in Lexington County during the late spring, summer and early fall months. On average there are 18 to 27 days of temperatures above 95 degrees each year. In addition, Lexington County will endure some days of temperatures over 100 degrees during the months of May, June, July, August, September, and October. Extreme heat is a public health concern due to the increased possibility of heat related illnesses among residents and workers in the county. According to the HMP there were 7 extreme heat events from 1960 to 2014 that resulted in losses of \$21,263,066. The details regarding the type of losses is not defined in the plan nor in the National Centers for Environmental Information (NCEI) Storm Events Database.

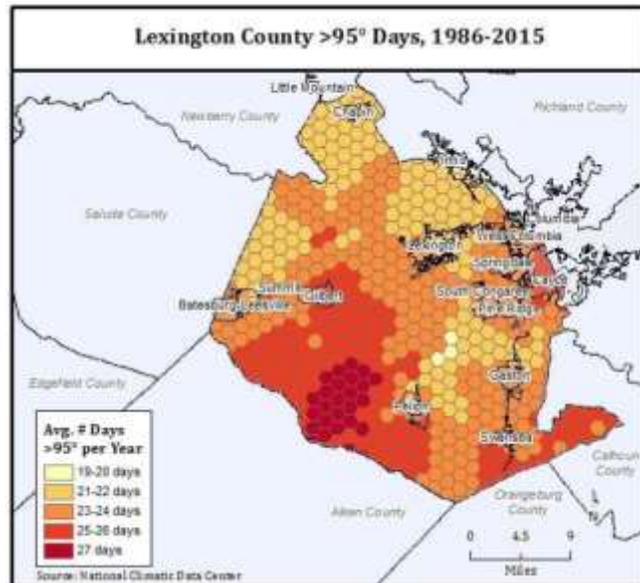


Figure 2-20: Average # of Days >95 Degrees in Lexington County

All of Lexington County is susceptible to extreme heat. While central and southern parts of the county experience more days above 95 degrees (See Figure 2-20) it is the extreme eastern portions of the county that are at most risk from temperature anomalies meaning the eastern region may experience an additional day of extreme temperatures compared to the rest of the county (See Figure 2-21). The 95th percentile calculation is used to separate out when temperatures are not extremely hot for a given location.

The southern and southwestern most portion of the county coincides with the larger numbers of socially vulnerable individuals in the county with an average of 24.3 days a year of temperatures over 95 degrees. In the high vulnerability area for extreme heat in the county there is 13% of the critical infrastructure for the county, 12 percent of the building stock, 16 percent of the population, and 23 percent of the socially vulnerable population of the county. The areas of social vulnerability in relation to the extreme heat hazard in Lexington County are shown in Figure 2-22.

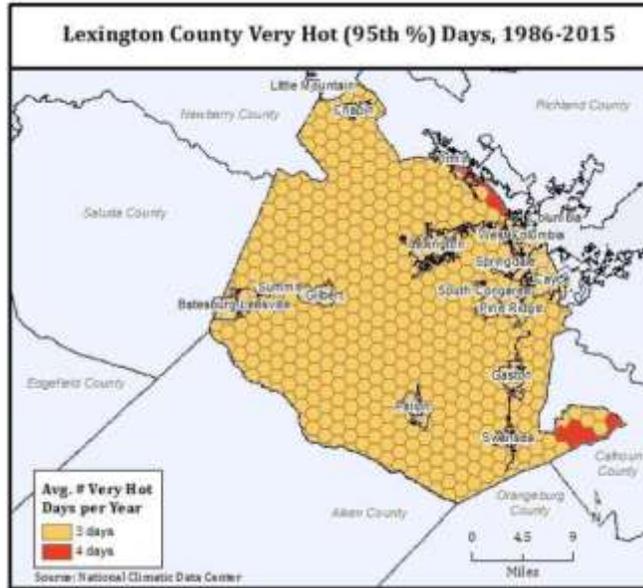


Figure 2: Average # of Very Hot (95th %) Days

Extreme heat has the potential to pose a serious risk to the population and can create dangerous situations for public health and safety officials. Impacts to Lexington County can include:

- Vulnerable populations, particularly the elderly and children under 5, can face serious or life-threatening health problems from exposure to extreme heat including hyperthermia; heat cramps; heat exhaustion; and heat stroke (or sunstroke).
- Response personnel including utility workers, public works personnel, and any other professions where individuals are required to work outside, are more subject to extreme heat related illnesses since their exposure would typically be greater.
- High energy demand periods can outpace the supply of energy, potentially creating the need for rolling brownouts, which would elevate the risk of illness to vulnerable residents.

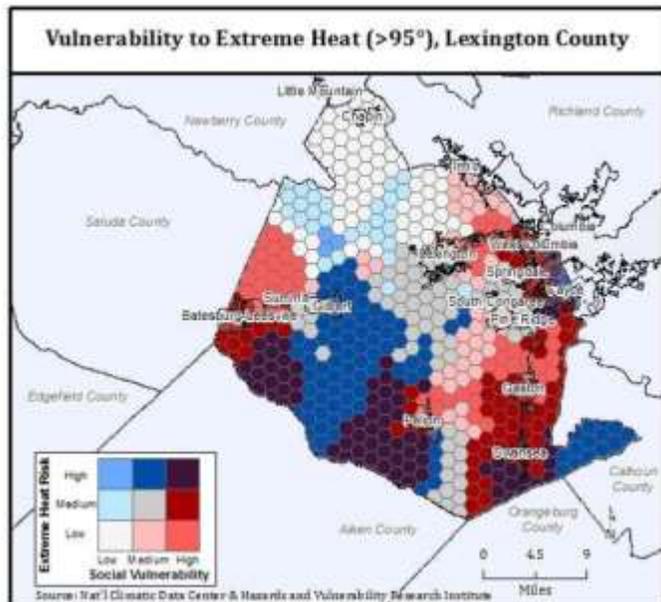


Figure 2-22: Vulnerability to Extreme Heat in Lexington County

- Highways and roads may be damaged by excessive heat causing asphalt roads to soften and concrete roads to shift or buckle.
- Vehicle engines and cooling systems typically run harder during extreme heat events, resulting in increases in mechanical failures.
- Extreme heat events during times of drought can exacerbate the environmental impacts associated with drought, decreasing water and air quality, and further degrading wildlife habitat.

The financial and economic recovery of the county following an incident involving extreme heat will vary based upon the scope of the incident, the amount of damage created and the ability of the county and cities to make repairs and restore essential functions and community lifelines. Also, the speed of recovery can also depend on the amount of planning and preparation taken prior to the incident.

A summary assessment of extreme heat hazard vulnerability and impacts to community lifelines is presented in Table 2-15.

Table 2-15: Extreme Heat Vulnerability and Consequences to Community Lifelines

Extreme Heat	Vulnerability	Consequence
Safety and Security	Low Vulnerability	Low Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Low Impact to Lifeline/Services
Communications	Low Vulnerability	Low Impact to Lifeline/Services
Transportation	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Health and Medical	Low Vulnerability	Low Impact to Lifeline/Services
Hazardous Material	Low Vulnerability	Low Impact to Lifeline/Services
Energy (Power and Fuel)	Low Vulnerability	Low Impact to Lifeline/Services

2.15 Wildfires

A wildfire, also called wildland fire, is an uncontrolled fire in a forest, grassland, brushland, or land sown to crops.¹³

Wildfires occur very frequently, about one every two days in the county. Fortunately, wildfires resulting in property damage are rare. From 1988 to 2015 there were only three fires resulting in property losses. The damage costs from those three fires were estimated at \$366,633. The number of wildfires in the county are expected to increase.

All portions of the county are susceptible to wildfires. However, the greatest risk for wildfire in the county lies in the southern portion of the county. Figure 2-23 maps the average number of acres burned per year in Lexington County.

The highest vulnerability for wildfires is in the eastern and southeastern areas of the county. In the areas of highest vulnerability are 38 percent of the county's critical infrastructure, 38 percent of the county's building stock, 42 percent of the county's population, and 38 percent of the county's socially vulnerable populations.

Wildfire has the potential to pose a serious risk to the population and can create dangerous situations for public health and safety officials. Impacts to Lexington County can include:

- Individuals in the area of the wildfire are at risk of serious injury or death from burns or smoke inhalation.
- Critical facilities may be damaged or destroyed in a wildfire resulting in service interruptions or delays.
- Governmental offices and businesses operations may be disrupted by the wildfire or response operations.

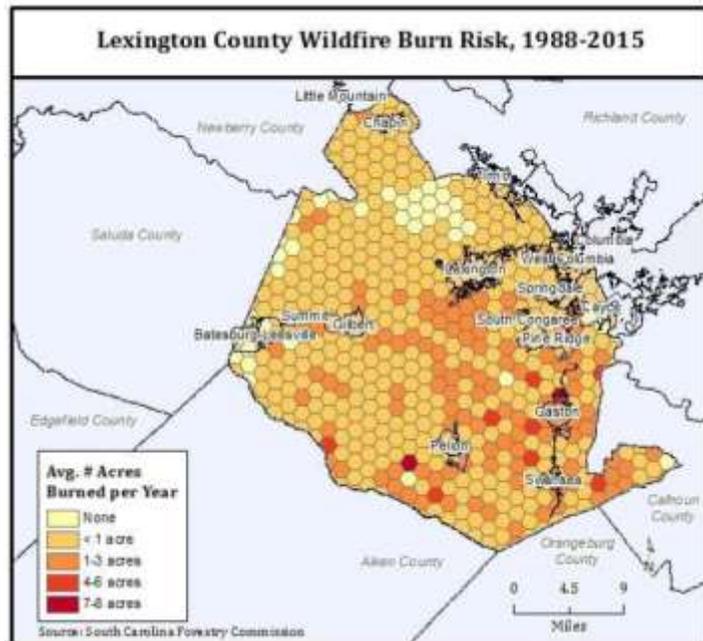


Figure 2-23: Wildfire Burn Risk in Lexington County

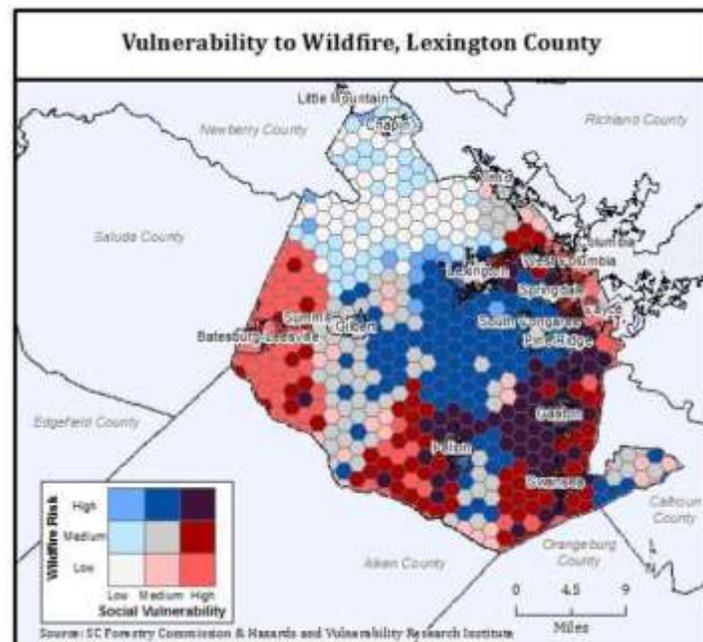


Figure 2-24: Vulnerability to Wildfire in Lexington County

¹³ Britannica.com, Wildfire, <https://www.britannica.com/science/wildfire>

- Utility services may suffer damages or service interruptions.
- Residents might be displaced requiring the need for temporary sheltering services as well as longer term housing solutions.
- Smoke may affect vulnerable populations with respiratory issues.
- Business and tourism may be disrupted due to the wildfire hindering the economic recovery of the area.
- The potential displacement of residents and businesses may result in lost tax revenues for the communities affected.
- The loss of trees and groundcover on sloped areas might increase the opportunity for mudflows during storms.
- The substantial costs associated with wildfire response and recovery can exhaust the financial resources of the affected communities.
- Roadways and bridges may suffer damage or be closed due to wildfire response and recovery activities.
- First responders may suffer injuries, death, or long-term illnesses from fire-fighting efforts.

The financial and economic recovery of the county following an incident involving wildfire will vary based upon the scope of the incident, the amount of damage created and the ability of the county and cities to make repairs and restore essential functions and community lifelines. Also, the speed of recovery can also depend on the amount of planning and preparation taken prior to the incident.

A summary assessment of wildfire hazard vulnerability and impacts to community lifelines is presented in Table 2-16.

Table 2-16: Wildfire Vulnerability and Consequence to Community Lifelines

Wildfires	Vulnerability	Consequence
Safety and Security	Low Vulnerability	Moderate Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Communications	Low Vulnerability	High Impact to Lifeline/Services
Transportation	Low Vulnerability	High Impact to Lifeline/Services
Health and Medical	Low Vulnerability	Moderate Impact to Lifeline/Services
Hazardous Material	Low Vulnerability	Moderate Impact to Lifeline/Services
Energy (Power and Fuel)	Moderate Vulnerability	Moderate Impact to Lifeline/Services

2.16 Drought

Drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people.¹⁴

According to the Palmer Drought Severity Index, Lexington County has drought conditions on average 5 to 6 months a year. Between 1960 to 2014, Lexington County has experienced 17 drought incidents with total losses of \$24,345,64 including crop damages of \$14,696,052. It is suspected that the losses associated with drought are understated and may possibly exceed \$100 million. Particularly damaging droughts occurred in the county in 1954, 1986, and from 1998 to 2002. Less severe droughts occurred in 1988, 1990, 1993, and 1995.

All portions of the county are susceptible to drought; however, the western half of Lexington County experiences more weeks of drought conditions than other portions of the county. Figure 2-25 illustrates the average number of weeks in drought per year in Lexington County.

The western and southern portions of the county are the most vulnerable to droughts as these areas see more than 20.7 weeks of drought per year and the socially vulnerable populations that reside in these areas. In the areas of highest vulnerability for drought are 22 percent of the county's critical infrastructure, 20 percent of the building stock, 17 percent of the county's population, and 14 percent of the county socially vulnerable populations. Figure 2-26 shows the areas of Lexington County that have social vulnerability to drought.

Drought has the potential to impact to the county as a result of diminishing water supplies and cascading effects. Impacts to Lexington County can include:

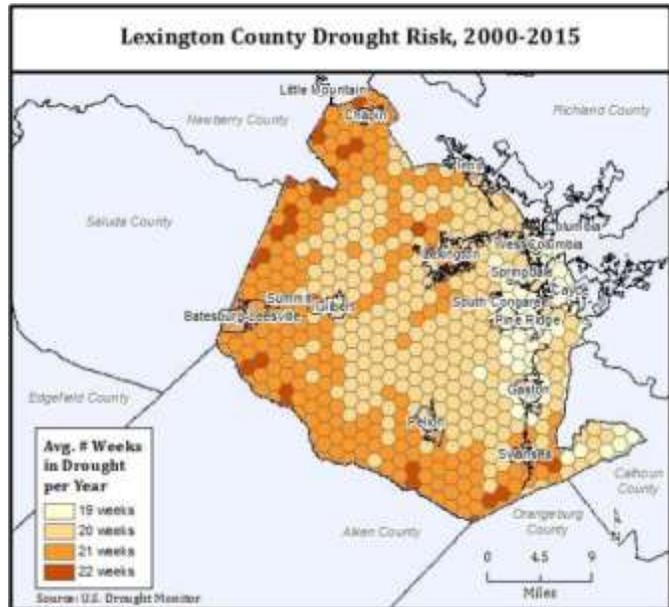


Figure 2-25: Average # Weeks of Drought Per Year in Lexington County

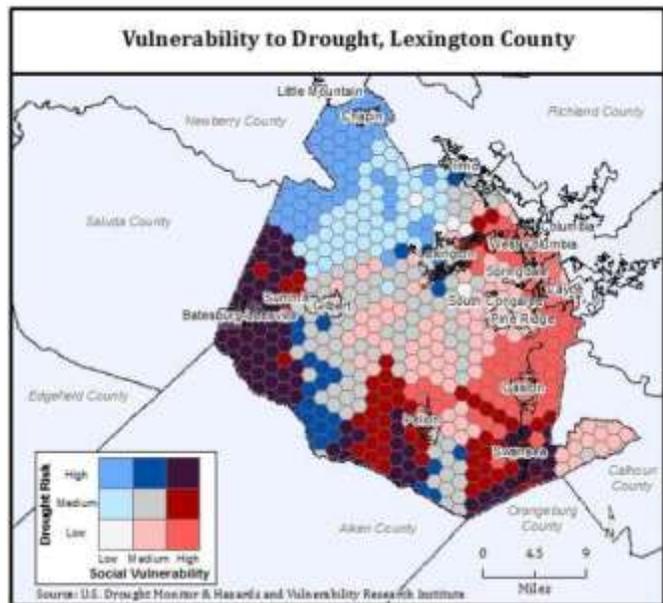


Figure 2-26: Vulnerability to Drought in Lexington County

¹⁴ National Weather Service, Drought Public Fact Sheet.

<https://www.esrl.noaa.gov/gmd/obop/mlo/educationcenter/students/brochures%20and%20diagrams/noaa%20publications/Drought%20Fact%20Sheet.pdf>

- Water shortages may trigger the need for water rationing in affected communities.
- Law enforcement may have to take measures to enforce water rationing directives.
- A severe water shortage may result in an inadequate supply for human needs.
- Reduced water pressure may result in reduced water quality requiring boil water or other notices be communicated to the public.
- Utility companies will see reduced revenues in the event reduced consumption directives are directed to the public and businesses.
- An extended drought can lead to an increase in wildfires.
- Firefighters may have reduced resources for fighting wildfires and other fire suppression activities.
- As water sources dry up in forested areas, wildlife may enter developed area looking for water and food.
- Hydroelectric facilities could have decreased power generating capabilities.
- Trees can become stressed and eventually die causing a hazard to the public from falling limbs and trees.
- Affected communities may face increased costs by having to transport water into water shortage areas.
- Agriculture can suffer loss of crops where other irrigation methods are not possible.
- Drought may limit livestock grazing areas resulting in decreased livestock weight as well as potential illness and death.
- Farms may incur increased costs of feed and may need to transport water for livestock and irrigation.

The financial and economic recovery of the county following an incident involving drought will vary based upon the scope of the incident, the amount of damage created and the ability of the county and cities to maintain essential functions and community lifelines. Also, the speed of recovery can also depend on the amount of planning and preparation taken prior to the incident.

A summary assessment of extreme heat hazard vulnerability and impacts to community lifelines is presented in Table 2-17.

Table 2-17: Drought Vulnerability and Consequence to Community Lifelines

Drought	Vulnerability	Consequence
Safety and Security	High Vulnerability	Low Impact to Lifeline/Services
Food, Water, Sheltering	High Vulnerability	Low Impact to Lifeline/Services
Communications	Low Vulnerability	Low Impact to Lifeline/Services
Transportation	Low Vulnerability	Low Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Low Impact to Lifeline/Services
Hazardous Material	Low Vulnerability	Low Impact to Lifeline/Services
Energy (Power and Fuel)	High Vulnerability	Low Impact to Lifeline/Services

2.17 Earthquake

An earthquake is the shaking of the surface of the Earth resulting from a sudden release of energy in the Earth's lithosphere that creates seismic waves. Earthquakes are measured by moment magnitude. Moment magnitude (M_w) is derived by analyzing all the waveforms recorded from the shaking. Table 2-18 provides the moment magnitude scale currently used to measure the size of an earthquake.¹⁵

Table 2-18: Earthquake Measurement Scale

Magnitude Class	Measurement	Damage
Microearthquake	<3	Little to none
Minor earthquake	3.0 - 3.9	Little to none
Light earthquake	4.0 - 4.9	Moderate
Moderate earthquake	5.0 - 5.9	Considerable
Strong earthquake	6.0 - 6.9	Severe
Major earthquake	7.0 - 7.9	Widespread, heavy
Great earthquake	8.0 and up	Tremendous

In Lexington County, no earthquakes have occurred since 1900. There is only a 2 percent chance of a microearthquake occurring with a magnitude of 1.5 to 2. The worst-case scenario, according to the South Carolina Geological Survey would be a 6.8 magnitude earthquake such as the Charleston Earthquake that occurred in 1886. Should this happen approximately 90 percent of buildings would remain undamaged, about 3,100 buildings (3 percent of the county building stock) would be moderately damaged with an estimated property damage value of \$226 million. Most of the damaged structures would be residential and would occur in central and western Lexington County.¹⁶ Figure 2-27 shows the peak ground acceleration from a modeled 6.8 magnitude earthquake.

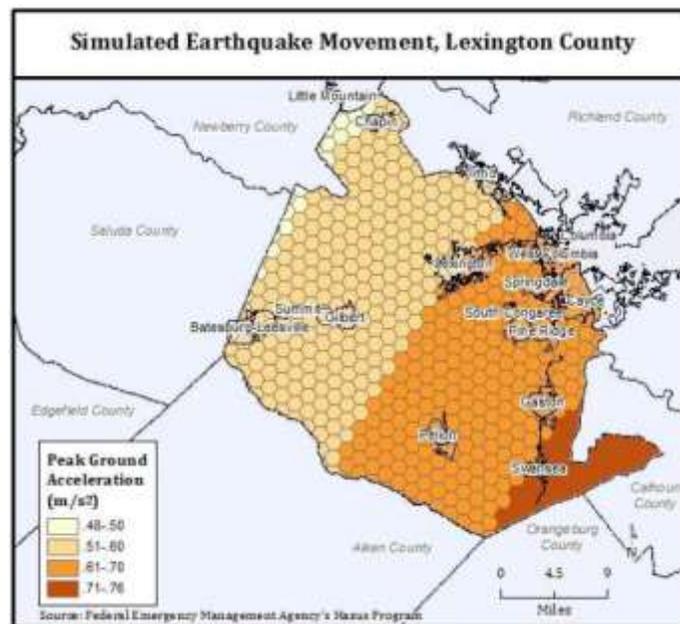


Figure 2-27: Simulated Earthquake Movement in Lexington County

While all areas of the county are susceptible to the effects of an earthquake, it is the southeast portion of the county that has the highest vulnerability. In that area of the county is 5 percent of the critical infrastructure, only 1 percent of the building stock, 2 percent of the population, and 4 percent of socially

¹⁵ How Earthquakes Are Measured, CNN.com, <https://edition.cnn.com/2015/04/25/tech/measuring-earthquakes/index.html>

¹⁶ SCGS, Projected Earthquake Intensities for South Carolina, Educational Series #7a. Available at <http://www.dnr.sc.gov/geology/images/Equake%20intens1-pg.pdf>

vulnerable populations. Figure 2-28 shows the areas of social vulnerability to an earthquake in Lexington County.

An earthquake has the potential to pose a serious risk to the population and can create dangerous situations for public health and safety officials. Impacts to Lexington County can include:

- Individuals can be injured or killed from falling debris or collapsed structures.
- Homes can be damaged or destroyed in an earthquake necessitating the need for temporary and permanent housing solutions.
- Roads and bridges can sustain severe damage as a result of an earthquake hindering transportation throughout affected parts of the county.

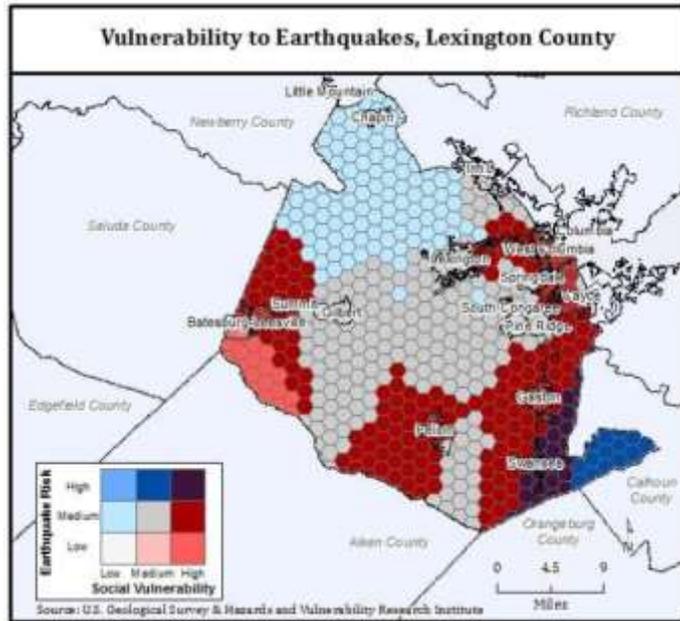


Figure 2-28: Vulnerability to Earthquakes in Lexington County

- Pipelines can rupture and hazardous materials can spill or be released resulting in potentially dangerous conditions for nearby residents and responders.
- Transportation accidents from motor vehicles and/or trains could occur resulting in injuries, deaths, and hazardous materials spills.
- Utilities can suffer damages resulting in power, water and natural gas outages to affected communities.
- Businesses providing critical services may be impacted and may therefore be unable to provide critical services to the communities and agencies they serve.
- Repairing and rebuilding can take an extending period of time impacting the economic well-being of affected communities.
- Older structures may suffer more serious impacts from an earthquake as they may not be constructed to the same standards as newer structures.
- Loss of power can lead to house fires as residents use candles to provide light or light fires to keep warm.
- Recovery of community lifelines may be delayed as damages to critical facilities are being repaired.

The financial and economic recovery of the county following an incident involving an earthquake will vary based upon the scope of the incident, the amount of damage created and the ability of the county and cities to make repairs and restore essential functions and community lifelines. Also, the speed of recovery can also depend on the amount of planning and preparation taken prior to the incident.

A summary assessment of earthquake hazard vulnerability and impacts to community lifelines is presented in Table 2-19.

Table 2-19: Earthquake Vulnerability and Consequence to Community Lifelines

Earthquake	Vulnerability	Consequence
Safety and Security	Low Vulnerability	Low Impact to Lifeline/Services
Food, Water, Sheltering	High Vulnerability	High Impact to Lifeline/Services
Communications	Low Vulnerability	Low Impact to Lifeline/Services
Transportation	Moderate Vulnerability	High Impact to Lifeline/Services
Health and Medical	Low Vulnerability	Moderate Impact to Lifeline/Services
Hazardous Material	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Energy (Power and Fuel)	Moderate Vulnerability	Moderate Impact to Lifeline/Services

2.18 Assessment Summary

To summarize the data from the assessment, each of the hazards reviewed was given a score based upon its vulnerability and consequence to community lifelines as included in the Vulnerability and Consequence to Community Lifelines table included at the end of each hazard section (2.5 thru 2.17). A low categorization is equal to a 1 score. A moderate characterization is equal to a 2 score, and a high characterization is equal to a 3 score. By totaling the scores together among the vulnerability and consequence columns, a vulnerability and consequence community lifeline score can be derived for each hazard. In Table 2-20, the scores are provided for the vulnerability and consequence to community lifelines for each hazard.

Table 2-20: Vulnerability and Consequence to Community Lifelines Scores for All Hazards

Hazard	Vulnerability and Consequence to Community Lifelines
Winter Snow and Ice Storms	33
Hurricane and Tropical Storms	32
Flood	30
Tornado	30
Wildfire	28
Earthquake	26
Thunderstorm	25
Wind	25
Lightning	24
Hail	22
Drought	21
Extreme Temperatures	17
Fog	16

In scoring each hazard regarding its vulnerability and consequence to community lifelines, those hazards which pose the highest threat to community lifelines and vulnerable populations can be determined. For Lexington County, the hazards that pose the highest threat to community lifelines and vulnerable populations are winter snow and ice storms, hurricane and tropical storms, flood and tornado. These are followed by wildfire, earthquake, thunderstorm, wind (thunderstorm and wind score evenly), lightning, hail, drought, extreme temperatures, and fog.

One of the most critical findings from this assessment is that many of the hazards that pose the highest threats to community lifelines and vulnerable populations result in flooding. Hurricane/tropical storm, flood and thunderstorm can result in heavy rains and flooding. This was a critical finding since it aligned with the same impacts suffered by the County for which its initial CDBG-DR allocation was awarded. This echoes the concerns that were communicated by the County’s Emergency Management Department, Community Development Department and Public Works. This critical finding helped provide guidance in the identification, development and selection of CDBG-MIT activities.

2.19 Acronyms and Abbreviations

CDBG	Community Development Block Grant
EF	Enhanced Fujita Scale
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
HAZMAT	Hazardous Materials
HHW	Household Hazardous Waste
HMP	All-Hazard Risk Assessment and Hazard Mitigation Plan for the Central Midlands Region of South Carolina
MIT	Mitigation
NCEI	National Centers for Environmental Information
PA	Public Assistance
State	The State of South Carolina
Tetra Tech	Tetra Tech, Inc.
U.S.	United States

3. Allocation of Funds

3.1 Mitigation Goals

Another component of the assessment of the County's HMP was to record mitigation goals identified as part of the HMP. This was critical during project development and consideration since the County wanted to ensure that any potential projects for consideration would actually address a mitigation goal established under the HMP. The following goals and objectives were included in the HMP purposefully to "help guide planners in making decisions that safeguard the life and property of Lexington County citizens":

1. Develop better data for the community relating to type, impact, location and cost of the natural disaster mitigation strategies occurring in the area.
2. Increase the community's capacity to initiate and sustain emergency response operations during and after a natural disaster, thereby mitigating effects of hazardous events.
3. Enhance existing, or design new, policies and/or programs in the community to reduce the potential damaging effects of hazards without hindering other community goals or impeding hazard mitigation programming in the county.
4. Protect the most vulnerable populations, buildings and critical facilities in the County through the implementation of cost-effective, environmentally sound, and technically feasible mitigation projects.
5. Protect the public health, safety and welfare by increasing public awareness and understanding of hazards and by fostering both individual and public responsibility in the mitigation of risks through available techniques that minimize vulnerability to those hazards.
6. Increase understanding of all residents in the community about the natural hazards threatening local areas and techniques available to minimize vulnerability to those hazards.
7. Maintain the economic vitality of the community in the face of natural disasters.
8. Ensure the security of homes, institutions and places of employment throughout the community that are considered vulnerable to natural disasters.
9. Ensure that the availability and function of community infrastructure will not be significantly disrupted by a natural disaster.
10. Inventory, map and assess all flood plain structures and properties that are or may be repetitive loss properties."

Each project included in this Action Plan addresses and meets at least one of the goals and objectives listed above.

3.2 Basis for Funding Allocation

Process

This section describes how the findings of the mitigation needs assessment informed development of mitigation programs and projects and the allocations of funding. Lexington County's initial analysis indicates unmet need in all three core recovery categories of housing, infrastructure, and economic development. The starting point in the basis for the allocation of the CDBG-MIT funds began with the

allocation of 5% of the total funds for administrative costs associated with the funding allocation. This is the maximum amount permitted for administration expenses. Additionally, the County seeks to provide \$10,000 to assist in the ongoing development of the updated Hazard Mitigation Plan. Once these two initial funding allocations were defined the allocation of the remaining funds were subject to the following process.

As was described in the Mitigation Needs Assessment, two of the highest scoring hazards, Hurricane/Tropical Storm and Flood both result in flood related impacts. All of the County's current disaster recovery funding including HUD, FEMA and SBA funding are provided as a result of flood related disasters. Flood related disasters have been the most consistent and impactful threat to the County over the last 30 years and are projected to continue to be a significant threat if not the most significant hazard threat in the future. Despite heavy rains occurring as part of larger weather systems such as hurricanes, impacts from winds were not found to be nearly as substantial or impactful as flood inundation. Even under the County's Minor Housing Rehabilitation Program funded with the County's CDBG-DR allocation, the primary source of recorded impacts were flood related damages as opposed to those caused by wind. Based on this information the County prioritized reviewing and considering projects that mitigate impacts from flood related hazards.

The County's existing buyout program, utilizing CDBG-DR funding, has been successful in permanently removing people and property from flood hazard areas. These are also the types of hazards which have resulted in significant impacts, damages and financial loss for the County in recent years. Additionally, the language in the Federal Register and its associated waivers strongly supported a buyout program which aligned with the County's mitigation goals and objectives while addressing mitigation needs from one of the County's most substantial hazards, flooding. The buyout program also meets two of the County's mitigation goals which include:

- Ensure the security of homes, institutions and places of employment throughout the community that are considered vulnerable to natural disasters.
- Enhance existing, or design new, policies and/or programs in the community to reduce the potential damaging effects of hazards without hindering other community goals or impeding hazard mitigation programming in the county.

As the County departments worked together to identify potential projects based on mitigation needs the ongoing impacts to infrastructure, particularly roads, arose as a continuous issue. The County continues to seek ways to mitigate impacts to infrastructure from flooding which it began to address using CDBG-DR funds. Impacts from flooding not only hinder transportation in the County during heavy rain events due to roadway flooding but also results in significant damages to roadways and can leave residents isolated as roads become impassable. Therefore, the County conducted an inventory of its most impacted roads and sought out those serving LMI qualified block groups within the County. Improving these roadways will not only help mitigate impacts from flooding but also aligns with the following goals identified in the HMP:

- Ensure that the availability and function of community infrastructure will not be significantly disrupted by a natural disaster.
- Increase the community's capacity to initiate and sustain emergency response operations during and after a natural disaster, thereby mitigating effects of hazardous events.

Possibly the most significant factor among the mitigation considerations was how to mitigate the loss of life and injury during hazard events. The County reviewed a variety of options including the provision of public services, public facility improvements and a variety of planning options. In order to most directly

address need related to flood risks the County identified the acquisition of rescue boats to be located at fire stations serving LMI qualified service areas. This will allow the County to more effectively conduct rescue operations and traverse flooded portions of the County to assist residents inundated with flood water. It will also increase the safety for the first responders who will now be equipped with the appropriate equipment to conduct such operations. Since people with mobility issues or special health needs often have more difficulty in quickly evacuating and escaping rising flood water, the provision of these boats provides a particularly impactful benefit to this population. This mitigation activity met the following two mitigation goals identified in the HMP:

- Increase the community's capacity to initiate and sustain emergency response operations during and after a natural disaster, thereby mitigating effects of hazardous events.
- Protect the most vulnerable populations, buildings and critical facilities in the County through the implementation of cost-effective, environmentally sound, and technically feasible mitigation projects.

Summary

In order to continue to address the needs being served by the Buyout Program the County sought to allocate funds to assist in finalizing the acquisition of several properties originally identified under the CDBG-DR Buyout Program. These funds had to be allocated under the Urgent Need National Objective since they did not provide LMI benefit. The remaining funds, therefore, were prioritized to benefit LMI populations. Projects then had to be evaluated to meet this LMI eligibility criteria. Projects and project locations were then identified based upon their ability to meet the LMI National Objective which helped lead to the final determination of specific projects.

Disaster Mitigation Program Planning

The County will utilize CDBG-MIT funds for long-term community planning and rebuilding efforts. Lexington County will utilize \$10,000 to assist in the development of the County's new Hazard Mitigation Plan. These funds will be provided to the Central Midlands Council of Governments who oversees the development of the regional Hazard Mitigation Plan. Please note that the Planning and Administration allocations are based on the best data currently available. It can be anticipated that, as programs are implemented and actual needs are determined, these allocations may be adjusted accordingly. However, planning and administrative expenses will not surpass the HUD-mandated statutory caps (fifteen percent for Planning and five percent for Administration).

Lexington County procured the services of Tetra Tech, Inc. to assist in the development of the Action Plan and to assist in implementation of CDBG-MIT activities. This includes assistance with management, technical assistance and compliance of CDBG-MIT funds, such as environmental review activities.

Except for those activities related to the development of the County's HMP, the County of Lexington will directly manage all Program Planning Activities utilizing Community Development Department staff and the contractors listed above. Initial Program Planning Activities have already begun and should last for only the first few months following HUD approval of this Action Plan.

Disaster Mitigation Program Administration

Proper administration of the CDBG-MIT grant will support the delivery of programs in the areas of financial management, procurement, information management and quality assurance and technical assistance. The County must provide administrative and support services necessary to formulate, implement, and evaluate the County's CDBG-MIT programs. These overall grant management activities include preparing and amending the CDBG-MIT Action Plan; ensuring the public is aware of and understands the Plan; developing program policies and procedures; monitoring program expenditures; ensuring compliance with all requirements; and creating reporting functionality on Recovery websites, etc. The County anticipates utilizing 5%, \$759,250, of the CDBG-MIT allocation for administrative purposes. Please note that the Planning and Administration allocations are based on the best data currently available. It can be anticipated that, as programs are implemented and actual needs are determined, these allocations may be adjusted accordingly. However, planning and administrative expenses will not surpass the HUD-mandated statutory caps (fifteen percent for Planning and five percent for Administration).

As of November 2016, the County had hired a CDBG-DR Administrator, as a temporary grant-funded employee, to serve as the leader of the day-to-day activities of the administrative team. This individual will also act as the Administrator for CDBG-MIT funded activities. Just as with CDBG-DR they will serve to coordinate the activities of the contractors that will be hired to manage the activities of the individual programs. Additionally, the County has employed and will continue to employ a consulting company whose primary functions will be to provide Technical Assistance to the county and to other contractors and to assist in the Quality Assurance function as it relates to gathering and storing accurate, appropriate documentation of the overall program and the individual programs. The Quality Assurance/Technical Assistance team leader and the CDBG-MIT Administrator will work closely in seeing that all CDBG-MIT rules and regulations, as well as spending and procurement activity, are accomplished according to appropriate standards.

Both the CDBG-MIT Administrator and the Quality Assurance/Technical Assistance team leader will report to the County of Lexington Grants Manager and Community Development Director. The Community Development Director will remain the chief administrator for the Disaster Mitigation Effort.

County staff, including the Community Development Director and the CDBG-MIT Administrator, will directly oversee and manage all administrative efforts related to CDBG-MIT activities.

3.3 Housing Programs

Disaster Mitigation Buyout Program

Program Description:

As part of its disaster mitigation strategy, the County will implement identified mitigation activities that will reduce impacts of future storms on properties while increasing safety by maintaining the acquired properties' undeveloped space for recreation or stormwater management purposes. To accomplish this, CDBG-MIT funds will be used to purchase twenty-six properties within the floodplain. Applicants who owned the homes for which they are applying for a buyout will be offered the pre-disaster fair market value for their property. Person who bought the property, for which they are applying for a buyout, after the disaster will be offered the current, post-disaster appraised value of the property. Once the County obtains ownership of these properties any existing structures will be demolished and all debris removed from the site. The County will then grade the site as needed and either plant grass or local vegetation so that the lot does not remain as vacant dirt lot. The lot will be maintained by the County, in perpetuity, for use in accordance with section V.B.4 of the Notice.

Program Budget:

The total program budget for this activity is **\$5,980,000**. This allocation may be increased or decreased with an amendment to the Action Plan and approval by the County Council and HUD.

Relation to Hazard Mitigation Needs Assessment

Support for the buyout program will address immediate needs and support the County's long-term hazard mitigation strategy by helping to reduce impacts from future flood events by acquiring developed properties which suffer repeated flood impacts and return them to undeveloped space. This space can then serve as passive or active recreation space, general open space or assist in stormwater management. The importance of this activity is paramount as it directly removes property owners from flood threatened areas which can prevent future property loss and damage as well as limit the number of people who may require rescuing when flood event occur. This activity specifically addresses the following two goals and objectives identified in the County's HMP:

- #3. Enhance existing, or design new, policies and/or programs in the community to reduce the potential damaging effects of hazards without hindering other community goals or impeding hazard mitigation programming in the county.
- #8. Ensure the security of homes, institutions and places of employment throughout the community that are considered vulnerable to natural disasters.

CDBG Eligibility and National Objective:

The acquisition of property is an eligible CDBG activity as described in 24 CFR 570.201 (a). All activities funded through this program will meet the National Objectives requirement under the authorizing statute for CDBG-MIT funds. This project meets the CDBG-MIT defined Urgent Needs Mitigation (UNM) National Objective. Projects utilizing the CDBG-MIT UNM National Objective must indicate that they meet the following two criteria;

1. Addresses the current and future risks as identified in the grantee's Mitigation Needs Assessment of most impacted and distressed areas; and
2. Will result in a measurable and verifiable reduction in the risk of loss of life and property.

The Disaster Mitigation Buyout Program will address issues related to flood risks which were identified as one of the most substantial hazard risks to the County as described in the Hazard Mitigation Assessment included in this plan. Additionally, the project will result in a "measurable and verifiable reduction in the risk of loss of life and property" by directly removing property owners and structures from flood prone areas. With these criteria being met the project can qualify under the UNM National Objective.

Geographic Area:

The projects are located in the following neighborhoods and Lexington County;

- Challedon
- Coldstream
- Pineglen
- Whitehall

Eligibility Requirements and Threshold Factors:

All activities funded through this program must meet certain eligibility standards to qualify for assistance. The following threshold requirements must be met for a project to be eligible for assistance:

- Project must be located in the County.

- Project must clearly demonstrate a connection to hazard mitigation needs assessment conducted in this Action Plan.
- Project must be CDBG eligible.
- Project must meet a CDBG-MIT national objective.
- Project must meet duplication of benefits requirements included under CDBG-MIT.

Grant Size Limits (Buyouts only):

The grant size limit for any project is not expected to exceed (\$5,980,000). The maximum amount the County of Lexington will spend on a buyout property is not expected to exceed \$230,000.

Proposed Start/End Dates:

This program is anticipated to begin in 2020 and be completed by 2024.

Responsible Entity:

The County of Lexington is the administrator of a CDBG-MIT Program funded by HUD under Public Law 114-113. The Community Development Department is the agency responsible for administration of mitigation funds allocated to housing, economic development, and infrastructure activities. The Disaster Recovery Administrator is administering these programs directly.

Performance Goals:

The County will acquire 26 properties which will remove those properties, including the people and structures, from ongoing flood hazards by removing structures and maintain the properties as undeveloped sites with limited future use as defined under the buyout guidelines included in the Federal Register.

3.4 Infrastructure Projects

Public Infrastructure Mitigation Program, South Central Lexington County Road Improvements

Program Description:

As part of its mitigation strategy, Lexington County will implement identified resilience improvements to public infrastructure and facilities that will reduce impacts of future storms on public safety and property damage. To accomplish this, Lexington County is seeking competitive bids from South Carolina Department of Transportation approved contractors for the purpose of paving portions of the following roads: Volliedale Drive, Gary Hallman Circle, and Crout Pond Way/Nathan Miller Road. The current roads are dirt roads which are in substandard condition and are prone to erosion and cannot drain water properly. In their existing conditions, the roads are vulnerable to flooding and erosion issues which affect Public Safety response and access for citizens. The proposed work will consist of the construction activities listed below as well as any associated soft cost such as engineering/architect fees legal costs or similar expenses.

1. Volliedale Drive - work will consist of fine grading and surfacing approximately 7,350 linear feet of roadway using 2" Hot Mix Asphalt Surface Course Type C and 6" Graded Aggregate Base Course
2. Gary Hallman Circle - work will consist of fine grading and surfacing approximately 11,595 linear feet of roadway using 2" Hot Mix Asphalt Surface Course Type C and 6" Graded Aggregate Base Course.
3. Crout Pond Way/Nathan Miller Road – work will consist of fine grading and surfacing approximately 6,360 linear feet of roadway using 2" Hot Mix Asphalt Surface Course Type C and 6" Graded Aggregate Base Course.

The paving of these roads mitigate future flooding and erosion issues by stabilizing the surface of the roads and improving existing storm drainage features.

Program Budget:

The total program budget for this activity is **\$4,755,450** with specific allocations as follows:

Volliedale Drive – **\$1,405,150**

Gary Hallman Circle - **\$2,215,150**

Crout Pond Way/Nathan Miller Road - **\$1,135,150.**

These allocations may be increased or decreased with an amendment to the Action Plan and approval by the County Council and HUD.

Relation to Hazard Mitigation Needs Assessment

Support for public infrastructure projects will address immediate needs and support the County's long-term hazard mitigation strategy by helping to reduce impacts from future flood events and ensuring provision of necessary services to residents and businesses. The importance of these services for the health and stability of the County is paramount. Fully functioning and protected public infrastructure before, during, and after a flood improves safety, mobility, and quality of life for residents and businesses, and promotes long-term health of the County. This activity specifically addresses the following two goals and objectives identified in the County's HMP:

- #2. Increase the community's capacity to initiate and sustain emergency response operations during and after a natural disaster, thereby mitigating effects of hazardous events.
- #9. Ensure that the availability and function of community infrastructure will not be significantly disrupted by a natural disaster.

CDBG Eligibility and National Objective:

Assistance for public facilities and improvements is an eligible activity under the CDBG-MIT Program as described in 24 CFR 570.201 (c). All activities funded through this program will meet the National Objectives requirement under the authorizing statute of the CDBG Program. These road improvement projects are located throughout Census Tract 208.01, Block Group 1 which contains a **57%** LMI population according to the most recent HUD LMI data, thereby providing benefit to a majority LMI population.

Geographic Area:

This project is located on several roads dispersed throughout Census Tract 208.01, Block Group 1.

Eligibility Requirements and Threshold Factors:

All activities funded through this program must meet certain eligibility standards to qualify for assistance.

The following threshold requirements must be met for a project to be eligible for assistance:

- Project must be located in the County.
- Project must clearly demonstrate a connection to hazard mitigation needs assessment conducted in this Action Plan.
- Project must be CDBG eligible.
- Project must meet one of the CDBG-MIT national objectives.
- Project must meet duplication of benefits requirements included under CDBG-MIT.

Proposed Start/End Dates:

This program is anticipated to begin in 2021 and be completed by 2024.

Responsible Entity:

The Lexington County Community Development Department is the administrator of a CDBG-MIT Program funded by HUD under Public Law 114-113. Lexington County Community Development is the agency responsible for administration of mitigation funds allocated to housing, economic development, and infrastructure activities. The Lexington County Community Development Department and Public Works Department will work together to directly manage all public infrastructure improvement activities. Contractors will be procured to carry out the actual labor and construction/installation of the road improvement activities. All ongoing maintenance costs associate with road after the project is complete will be the responsibility of the Public Works Department and their road maintenance schedule. Funds for the maintenance of the roads will be provided through the County's general funds.

Performance Goals:

Lexington County is estimating completing this infrastructure project at the cost of **\$4,755,450**. This project will help increase the safety of the identified roads and the block group's 2,095 residents as well as help reduce future road closures and infrastructure repair costs due to impacts from heavy rain events.

Public Infrastructure Mitigation Program, Culler Road Improvements

Program Description:

As part of its mitigation strategy, Lexington County will implement identified resilience improvements to public infrastructure and facilities that will reduce impacts of future storms on public safety and property damage. To accomplish this, Lexington County is seeking competitive bids from South Carolina Department of Transportation approved contractors for the purpose of paving Culler Road. The current road is a dirt road which is in substandard condition and is prone to erosion and cannot drain water properly. In the existing conditions, Culler Road is vulnerable to flooding and erosion issues, which affect Public Safety response and access for citizens.

Estimated costs include any associated soft cost such as engineering/architect fees, legal costs or similar expenses. The proposed work will consist of fine grading and surfacing approximately 7,585 linear feet of roadway using 2" Hot Mix Asphalt Surface Course Type C and 6" Graded Aggregate Base Course. The paving of Culler Road will mitigate future flooding and erosion issues by stabilizing the surface of the road and improving existing storm drainage features.

Program Budget:

The total program budget for this activity is **\$1,455,150**. This allocation may be increased or decreased with an amendment to the Action Plan and approval by the County Council and HUD.

Relation to Hazard Mitigation Needs Assessment

Support for public infrastructure projects will address immediate needs and support the County's long-term hazard mitigation strategy by helping to reduce impacts from future flood events and ensuring provision of necessary services to residents and businesses. The importance of these services for the health and stability of the County is paramount. Fully functioning and protected public infrastructure before, during, and after a flood improves safety, mobility, and quality of life for residents and businesses, and promotes long-term health of the County. This activity specifically addresses the following two goals and objectives identified in the County's HMP:

- #2. Increase the community's capacity to initiate and sustain emergency response operations during and after a natural disaster, thereby mitigating effects of hazardous events.
- #9. Ensure that the availability and function of community infrastructure will not be significantly disrupted by a natural disaster.

CDBG Eligibility and National Objective:

Assistance for public facilities and improvements is an eligible activity under the CDBG-MIT Program as described in 24 CFR 570.201 (c). All activities funded through this program will meet the National Objectives requirement under the authorizing statute of the CDBG Program. This project primarily provides benefits to a majority LMI population located east of Swansea. This project is located in and serves residents in Census Tract 208.01, Block Group 1 which contains a **66%** LMI population according to the most recent HUD LMI data.

Geographic Area:

This project is located on Culler Road between Calvary Church Road and the Calhoun County line in Census Tract 208.01, Block Group 1.

Eligibility Requirements and Threshold Factors:

All activities funded through this program must meet certain eligibility standards to qualify for assistance. The following threshold requirements must be met for a project to be eligible for assistance:

- Project must be located in the County.

- Project must clearly demonstrate a connection to hazard mitigation needs assessment conducted in this Action Plan.
- Project must be CDBG eligible.
- Project must meet one of the CDBG-MIT national objectives.
- Project must meet duplication of benefits requirements included under CDBG-MIT.

Proposed Start/End Dates:

This program is anticipated to begin in 2021 and be completed by 2024.

Responsible Entity:

The Lexington County Community Development Department is the administrator of a CDBG-MIT Program funded by HUD under Public Law 114-113. Lexington County Community Development is the agency responsible for administration of mitigation funds allocated to housing, economic development, and infrastructure activities. The Lexington County Community Development Department and Public Works Department will work together to directly manage all public infrastructure improvement activities. Contractors will be procured to carry out the actual labor and construction/installation of the road improvement activities. All ongoing maintenance costs associate with road after the project is complete will be the responsibility of the Public Works Department and their road maintenance schedule. Funds for the maintenance of the roads will be provided through the County’s general funds.

Performance Goals:

Lexington County is estimating completing this infrastructure project at the cost of **\$1,455,150**. This project will help increase the safety of Culler Road and the block group’s 1,655 residents and help reduce future road closures and infrastructure repair costs due to impacts from heavy rain events.

Public Infrastructure Mitigation Program, Charles Town Road Improvements

Program Description:

As part of its mitigation strategy, Lexington County will implement identified resilience improvements to public infrastructure and facilities that will reduce impacts of future storms on public safety and property damage. To accomplish this, Lexington County is seeking competitive bids from South Carolina Department of Transportation approved contractors for the purpose of paving Charles Town Road. The current road is a dirt road which is in substandard condition and is prone to erosion and does not drain water properly. In the existing conditions, Charles Town Road is vulnerable to flooding and erosion issues which affect Public Safety response and access for citizens. Estimated costs include any associated soft cost such as engineering/architect fees, legal costs or similar expenses. The proposed work will consist of fine grading and surfacing approximately 10,870 linear feet of roadway using 2" Hot Mix Asphalt Surface Course Type C and 6" Graded Aggregate Base Course. The paving of Charles Town Road will mitigate future flooding and erosion issues by stabilizing the surface of the road and improving existing storm drainage features.

Program Budget:

The total program budget for this activity is **\$2,065,150**. This allocation may be increased or decreased with an amendment to the Action Plan and approval by the County Council and HUD.

Relation to Hazard Mitigation Needs Assessment

Support for public infrastructure projects will address immediate needs and support the County's long-term hazard mitigation strategy by helping to reduce impacts from future flood events and ensuring provision of necessary services to residents and businesses. The importance of these services for the health and stability of the County is paramount. Fully functioning and protected public infrastructure before, during, and after a flood improves safety, mobility, and quality of life for residents and businesses, and promotes long-term health of the County. This activity specifically addresses the following two goals and objectives identified in the County's HMP:

- #2. Increase the community's capacity to initiate and sustain emergency response operations during and after a natural disaster, thereby mitigating effects of hazardous events.
- #9. Ensure that the availability and function of community infrastructure will not be significantly disrupted by a natural disaster.

CDBG Eligibility and National Objective:

Assistance for public facilities and improvements is an eligible activity under the CDBG-MIT Program as described in 24 CFR 570.201 (c). All activities funded through this program will meet the National Objectives requirement under the authorizing statute of the CDBG Program. This project primarily provides benefits to a majority LMI population located southwest of Pelion. This project is located in and serves residents in Census Tract 209.03, Block Group 1 which contains a **69%** LMI population according to the most recent HUD LMI data.

Geographic Area:

This project is located on Charles Town Road between Convent Church Road and Hartley Quarter Road.

Eligibility Requirements and Threshold Factors:

All activities funded through this program must meet certain eligibility standards to qualify for assistance. The following threshold requirements must be met for a project to be eligible for assistance:

- Project must be located in the County.

- Project must clearly demonstrate a connection to hazard mitigation needs assessment conducted in this Action Plan.
- Project must be CDBG eligible.
- Project must meet one of the CDBG-MIT qualified national objectives.
- Project must meet duplication of benefits requirements included under CDBG-MIT.

Proposed Start/End Dates:

This program is anticipated to begin in 2021 and be completed by 2024.

Responsible Entity:

The Lexington County Community Development Department is the administrator of a CDBG-MIT Program funded by HUD under Public Law 114-113. Lexington County Community Development is the agency responsible for administration of mitigation funds allocated to housing, economic development, and infrastructure activities. The Lexington County Community Development Department and Public Works Department will work together to directly manage all public infrastructure improvement activities. Contractors will be procured to carry out the actual labor and construction/installation of the road improvement activities. All ongoing maintenance costs associate with road after the project is complete will be the responsibility of the Public Works Department and their road maintenance schedule. Funds for the maintenance of the roads will be provided through the County’s general funds.

Performance Goals:

Lexington County is estimating completing this infrastructure project at the cost of **\$2,065,150**. This project will help increase the safety of Charles Town Road and the block group’s 2,775 residents and help reduce future road closures and infrastructure repair costs due to impacts from heavy rain events.

3.5 Public Facilities Projects

Public Facilities and Improvements, Rescue Boats

Program Description:

In order to help mitigate the loss of life during flood events and reduce risk for first responders trying to assist those impacted by flooding, the County intends to utilize funds for the acquisition of four shallow water rescue boats. This consists of purchasing the boat body, the motor and fuel system and the required trailer necessary for transport.

These boats will be housed and utilized at four stations located throughout the County. These stations include:

Lexington County Station

West Columbia Station

Cayce Station

Batesburg-Leesville

Each station has a specific service except for Batesburg-Leesville which are two separate stations covering neighboring service areas. The boat will be stored at either facility as needed.

The purpose of the boats is to assist in providing rescue services for residents caught in flood events. The intent is to provide more efficient and effective life-saving services while keeping first responders and rescue workers as safe as possible and properly equipped during such activities.

Program Budget:

The total program budget for this activity is **\$160,000**. This allocation may be increased or decreased with an amendment to the Action Plan and approval by the County Council and HUD.

Relation to Hazard Mitigation Needs Assessment

Support for public facility projects will address immediate needs and support the County's long-term hazard mitigation strategy by helping to reduce risk of loss of life for persons isolated or trapped during flood inundation. This activity specifically addresses the following two goals and objectives identified in the County's HMP:

- #2. Increase the community's capacity to initiate and sustain emergency response operations during and after a natural disaster, thereby mitigating effects of hazardous events.
- #4. Protect the most vulnerable populations, buildings and critical facilities in the town through the implementation of cost-effective, environmentally sound, and technically feasible mitigation projects.

The provision of these boats will help mitigate loss of life during flooding by providing rescue services. The boats will also help mitigate potential injuries sustained by persons trying to survive flood inundation by providing rescue services as well as reduce risk and potential injury to responders using wheeled vehicles or boats not intended for such rescue activities. Additionally, it provides critical services for vulnerable populations such as the disabled and elderly who may have difficulty evacuating and escaping flood inundation in a timely manner.

CDBG Eligibility and National Objective:

Assistance for public facilities and improvements is an eligible CDBG activity as described in 24 CFR 570.201 (c). HUD has determined that fire and rescue equipment is considered an “integral part” of such public facilities which provide firefighting, disaster response or rescue services.

All activities funded through this program will meet the National Objectives requirement under the authorizing statute of the CDBG Program. This project primarily benefits majority LMI populations located in the following four (4) fire and rescue service areas.

Lexington County Station						
Tract	Blckgrp	Low	Lowmod	Lmmi	Lowmoduniv	Lowmod_pct
20602	3	235	470	625	945	49.74%
20605	1	240	515	685	930	55.38%
20708	2	205	360	510	885	40.68%
20707	2	935	1185	1435	2005	59.10%
20708	1	630	920	1335	1495	61.54%
20908	1	1300	1840	2125	3265	56.36%
20703	2	425	785	1020	1375	57.09%
20703	3	105	220	490	745	29.53%
20703	4	100	280	380	520	53.85%
20703	1	620	815	1070	1240	65.73%
Total			7390		13405	55.13%

Cayce Station						
Tract	Blckgrp	Low	Lowmod	Lmmi	Lowmoduniv	Lowmod_pct
20100	1	1130	1500	1960	2320	64.66%
20100	2	180	285	330	330	86.36%
20605	1	240	515	685	930	55.38%
20605	2	120	325	500	1035	31.40%
20602	3	235	470	625	945	49.74%
20601	2	150	355	500	880	40.34%
20202	1	335	620	765	985	62.94%
20202	2	270	675	860	1280	52.73%
20300	1	770	1065	1265	1665	63.96%
20300	2	465	725	1005	1375	52.73%
20201	1	860	1010	1130	1410	71.63%
20201	2	225	290	510	1025	28.29%
20201	3	180	340	465	535	63.55%
20604	1	125	225	510	960	23.44%
20604	2	290	505	575	1525	33.11%
20604	3	280	455	550	645	70.54%
Total			9360		17845	52.45%

Batesburg/Leesville Station						
Tract	Bkgrp	Low	Lowmod	Lmmi	Lowmoduniv	Lowmod_pct
21403	1	635	880	1125	1520	57.89%
21402	1	705	820	955	1235	66.40%
21402	2	595	665	775	985	67.51%
21402	3	255	335	400	540	62.04%
21402	4	460	575	625	935	61.50%
21404	1	180	385	730	1060	36.32%
21404	2	695	775	1225	1580	49.05%
Total			4435		7855	56.46%

West Columbia Station						
Tract	Bkgrp	Low	Lowmod	Lmmi	Lowmoduniv	Lowmod_pct
20506	2	90	235	475	1630	14.42%
20506	3	455	835	1290	1465	57.00%
20506	1	650	950	1070	1175	80.85%
20507	2	415	885	915	1295	68.34%
20602	1	270	585	1110	1430	40.91%
20601	3	455	690	750	905	76.24%
20601	2	150	355	500	880	40.34%
20202	2	270	675	860	1280	52.73%
20202	1	335	620	765	985	62.94%
20601	1	655	1005	1115	1380	72.83%
20601	4	220	560	890	985	56.85%
20300	1	770	1065	1265	1665	63.96%
20300	2	465	725	1005	1375	52.73%
20300	3	300	510	565	1020	50.00%
20505	1	1020	1450	2140	2360	61.44%
20505	2	825	1190	1355	1385	85.92%
20509	2	215	355	495	1000	35.50%
20509	1	415	550	705	1045	52.63%
20508	1	140	330	570	1260	26.19%
20508	2	50	225	405	810	27.78%
20509	4	430	630	645	645	97.67%
20509	3	385	530	570	600	88.33%
Total			14955		26575	56.27%

All of the areas served by each of the fire stations are LMI qualified service areas.

Geographic Area:

This project is located within Lexington County. The geographic service areas include the block groups described in the section above.

Eligibility Requirements and Threshold Factors:

All activities funded through this program must meet certain eligibility standards to qualify for assistance. The following threshold requirements must be met for a project to be eligible for assistance:

- Project must be located in the County.
- Project must clearly demonstrate a connection to hazard mitigation needs assessment conducted in this Action Plan.
- Project must be CDBG eligible.
- Project must meet one of the CDBG-MIT national objectives.
- Project must meet duplication of benefits requirements included under CDBG-MIT.

Grant Size Limits :

The grant size limit for any project is not expected to exceed \$40,000.00.

Proposed Start/End Dates:

This program is anticipated to begin in 2021 and be completed by 2022.

Responsible Entity:

The Lexington County Community Development Department is the administrator of a CDBG-MIT Program funded by HUD under Public Law 114-113. Lexington County Community Development is the agency responsible for administration of mitigation funds allocated to housing, economic development, and infrastructure activities. The Lexington County Community Development Department and Emergency Management Division will work together to implement and manage the rescue boat program. Rescue boats will be purchased through the Emergency Management Division and provided to the previously identified fire houses. All ongoing maintenance and associated costs will be the responsibility of the of each fire house each of the boats is assigned to. Funds for the maintenance of the boats will be provided through the County's general funds.

Performance Goals:

The County is estimating completing this project at the cost of \$160,000. This project will help increase the safety for approximately 65,680 residents and help mitigate the future loss of life from flood events.

4. Citizen Participation Efforts

4.1 Public Hearings

As required under Federal Register Notice, 84 FR 45838, August 30, 2019, Lexington County held two public hearings. The first public hearing was conducted as a virtual public hearing due to safety concerns and public gathering restrictions due to COVID-19. The hearing was advertised on June 4, 2020 and was published in The Chronicle Newspaper, put on display in the Lexington County's Administration Building (a public facility) and was published on the County's website. The hearing was held on June 10, 2020. The purpose of the first public hearing was to inform the public of the allocation of CDBG-MIT funds and provide them with information pertaining to its requirements and the development of the Action Plan. The County will also use the hearing to obtain feedback from the public regarding mitigation concerns and answer questions regarding the CDBG-MIT funding and its requirements.

The draft action plan was then posted on the County's CDBG Mitigation website on June 12, 2020 for public review and comments. The public was notified of a 45-day comment period following the post of the draft Action Plan in order to provide comments and feedback. The document was made available for review on the County of Lexington Disaster Mitigation webpage and in hard copy form at the County Community Development Offices at 212 S. Lake Drive, Lexington SC 29072. The second public hearing, which was also a virtual public hearing, was advertised on June 18, 2020 and was held on July 2, 2020. The purpose of this hearing was to notify the public on the proposed projects listed in the Action Plan. The second public hearing utilized the same public notification methods and was also held as a "virtual hearing".

The draft Action Plan was made available for public review and comment from June 12, 2020 through July 27, 2020. To-date, staff has received no comments from the public addressing the draft Action Plan. The Action Plan draft was and still is available on the County's CDBG-MIT website:

<https://www.lex-co.sc.gov/grant-programs/cdbg-mitigation>

4.2 Summary of Public Comments

The County will post any feedback from the public regarding the draft Action Plan.

4.3 Citizen Advisory Committee

Lexington County will develop a Citizen Advisory Committee for the CDBG-MIT funding allocation and its associated projects as required under Federal Register Notice, 84 FR 45838, August 30, 2019. The County will develop this Committee upon HUA approval of the County Action Plan for the CDBG-MIT allocation. The County's Community Development Department will work in coordination with other County departments involved with CDBG-MIT activities to identify potential members for the committee. The County will seek to identify members from all regions of the County to help ensure an extensive geographic representation. Additionally, the County will make attempts to include members that represent a diverse make-up of County residents. Some of the people and stakeholders to be considered as part of the committee make-up will include but not be limited to:

- Neighborhood representatives/leaders
- Community representatives
- Faith based leaders

- Representatives from specific racial or ethnic groups
- Groups or stakeholders assisting seniors and the aging
- Emergency response
- School board members
- Groups serving low income populations
- Homeowner association representatives
- Community service providers such as YMCA, Habitat for Humanity, Salvation Army

Once the committee is assembled it will be required to meet in a public forum at a minimum of twice a year. The purpose of the meetings will be to provide updates to the committee regarding CDBG-MIT activities and progress. The County will also continue to collect information from the committee regarding natural hazard impacts and concerns as well as discuss ongoing hazard mitigation considerations posed by the public or being considered by the County.

4.4 Action Plan Amendments

Throughout the course of the CDBG-MIT program, it may become necessary to amend the County's Action Plan. There are two types of Action Plan amendments: 1) Minor Amendments and 2) Substantial Amendments. Minor Amendments include making changes to the plan to correct typographical errors or improved and updated information provided to the plan. An amendment will be classified as a Substantial Amendment if it meets the following criteria:

- Any new eligible activity funded with supplemental CDBG funds, such as CDBG-DR, CDBG-MIT and CDBG-CV, not already identified in the Action Plan developed specific to those funds;
- The addition of a CDBG-MIT HUD defined "Covered Project" for CDBG-MIT funding.
- Adding additional program options or eligible activities for supplemental CDBG funds, such as CDBG-DR, CDBG-MIT and CDBG-CV funded projects.
- The deletion of any activity funded with supplemental CDBG funding such as CDBG-DR, CDBG-MIT and CDBG-CV.
- A change in the target areas served by the program
- Changes made in allocation priorities or methods of distribution that have the effect of changing the funding level of individual CDBG-MIT projects identified in the CDBG-MIT Action Plan by more than 10% of the total CDBG-MIT funding allocation.

Any changes to the Action Plan that are considered minor or non-substantial do not require the Citizen Participation process, however, the County will post the amendment to the County's CDBG-MIT website and notify HUD of the non-substantial amendment.

If a Substantial Amendment becomes necessary, the County will first publish the Substantial Amendment for a thirty (30) day public comment period. Following the Citizen Participation process, the County will submit the amended Action Plan to HUD for approval. Upon HUD approval, the revised Action Plan will be posted to the County's CDBG-MIT website.

5. Planning & Coordination

Effective communication between and within departments is a major focus of the County of Lexington on all projects, operations and efforts. In addition to normal telephone and e-mail correspondence, the County Administrator holds a weekly Department Head/Senior Staff meeting during which he discusses important activities of the County, and attendees are required to provide updates to major activities occurring in their department(s).

The Organization Structure for the County of Lexington CDBG-MIT team was structured around that of the existing CDBG-DR team and the “Program Review Committee”. This committee is appointed by and answers to the County Administrator and will be chaired by the Director of Community Development. The membership of the committee will consist of Department Heads and/or Senior Staff and/or team leaders from the following groups:

- Finance Department
- Procurement Department
- Public Safety (Emergency Management)
- County Sheriff’s Department
- Human Resources
- Planning & GIS/Mapping,
- Community Development (Zoning Management, Landscape & Open Space Management, Building Inspections & Safety)

This Program Review committee will meet on a regular basis and as-needed for specific issues. The committee will also serve as an outlet for citizens to appeal decisions of the program staff when needed. The County Administrator may request additional departments to assist in monitoring/reviewing the progress of the CDBG-MIT program(s).

6. Mitigation Commitments

In addition to undertaking and promoting mitigation activities intended to reduce future impacts of natural hazards, the County is also committed to utilizing and managing the CDBG-MIT funds with integrity and in compliance with all federal state and local laws, requirements and guidelines. These commitments extend beyond providing CDBG-MIT projects and services which assist in mitigating future hazard impacts but also include promoting and sustaining the efficient and effective management and implementation of these activities. This includes using the funds in the most effective means possible while serving the greatest needs of the County's residents. The County intends to continue its mitigation commitments beyond the utilization of CDBG-MIT funds. It is understood that any long-term changes must come in coordination with county departments, government agencies and the public. Any changes regarding any codes, standards or policies within the County resulting from this Action Plan or the associated MNA will only occur after significant communication and coordination among County agencies and departments and their review of the final Action Plan.

As the County continues to move forward, it is dedicated to ongoing support and protection of its residents and the businesses and services that are located here. The County seeks to continue with its ongoing recovery activities but also seeks to increase its resilience to disasters of all types while engaging in mitigation activities to help reduce future impacts from hazards. This involves using the mitigation needs assessment and its findings, as well as information provided in this Action Plan and the forthcoming regional HMP to help guide decisions and actions moving forward. In order to increase community resilience and mitigate impacts from future disasters the County will consider future planning activities and capital improvements through the lens of hazard mitigation. The County believes that incorporating changes and engaging in activities that support mitigation efforts, will occur most effectively and efficiently if they are incorporated as natural additions of planning and project consideration, engagement and implementation. This will help mitigation be seen as a natural extension of these activities rather than as a stand alone concept to be tagged on as an addition to these activities.

6.1 Leverage of Funds

The County will leverage its CDBG-MIT funds with other federal and non-federal funding sources to the greatest extent possible to maximize the impact of disaster relief monies and prevent duplication of benefits. The County has programmed CDBG-MIT funds to address funding needs not satisfied by other funding sources such as FEMA Individual Assistance and Public Assistance grants, SBA Disaster Loans, NFIP claims and private insurance claims. Due to the limited availability of other funding sources the County does not have additional funds to leverage with its CDBG-MIT funds. The County will continue to seek additional funds to leverage with CDBG-MIT funds in order to allow CDBG-MIT funds to be utilized to the greatest extent possible.

6.2 Duplication of Benefits

Federal law prohibits any person, business concern, or other entity from receiving Federal funds for any part of such loss as to which he/she has already received financial assistance under any other program, private insurance, charitable assistance or any other source. Such duplicative funding is called Duplication of Benefit (DOB) which is defined under the Robert T. Stafford Act (Stafford Act). These

requirements were first introduced to CDBG allocated funds under the CDBG-DR allocation for disaster recovery.

Pursuant to the Stafford Act, the County will establish and follow policies and procedures to uphold the safeguard against DOB within its program guidelines for each eligible activity. Understanding that prevention of DOB is especially critical in the context of housing programs and in anticipation that some form of housing assistance will be identified to fulfill unmet disaster recovery needs at the conclusion of the County's Action Plan development process, the County has established a framework for identifying potentially duplicative sources of funds and reducing documented duplications from potential project awards prior to any award actually being made. Additional information can be found in the County's Duplication of Benefits Policies and procedures included in Appendix J of the County's CDBG-MIT Pre-Award Implementation Plan.

6.3 Timely Information on Application Status

Effective communication is paramount to the successful delivery of complex public programs, particularly in the wake of a disaster. The County of Lexington will, at a minimum, engage in a two-tiered applicant communication strategy, with larger program-wide information being made available on the County's hazard mitigation website and proactive case management to move applicants along within program processes, notifying applicants of status at each critical juncture.

The County understands that a lack of information about program resources, progress, and the status of applications for assistance can exacerbate frustration from potential program beneficiaries. Further, the processes required to deliver benefits, particularly in housing-related activities, are multi-step complex processes that require extensive documentation. The incremental steps within a program require time, and often patience. To mitigate the anxiety of applicants and keep them apprised of application progress, the County of Lexington has instituted a case management system that allows for real-time status updates to applicants upon request. This system will only be accessible to County staff and consultants overseeing the case management to insure the privacy of all applicants and any personally identifiable information. (PII). The County will continue to utilize the information distribution and communication process set up under CDBG-DR to provide applicants with timely information. This process includes:

- Providing direct access to an applicant's designated case manager
- Monitor case manager caseloads and adjust as necessary to keep caseloads at reasonable levels that will ensure frequent applicant contact
- Sending electronic status notifications after critical milestones have been achieved as well as outlining next steps
- Sending printed status updates to applicants who do not have access to electronic media
- Face-to-face consultations with case managers
- After-hours voicemail systems monitored daily and instituting a policy of return calls within 24-hours of voicemail receipt
- Case manager email contact information provided to applicants

6.4 Protection of People and Property

The County will closely monitor each project utilizing CDBG-MIT funding to verify that quality materials and standards are being utilized, that all necessary permits and approvals are in place, and that green building standards are being incorporated when possible and cost effective. To improve the protection of County residents and property, site visits will be conducted regularly during construction to verify that the proper materials and construction standards are being applied during the project. This will

include the use of high-quality materials as well as adherence to other standards that will increase resident safety and property protection.

6.4.1 Construction Standards

All construction work undertaken with CDBG-MIT funds will be performed in accordance with all applicable local codes, rehabilitation standards, ordinances, and zoning ordinances at the time of project completion. International Residential Code (IRC) 2012 will be adhered to as required and where appropriate. All construction will use high-quality materials and will meet industry standards while focusing on long-term durability and quality. The County will not utilize any previously used or secondhand material in its construction and all construction will be overseen by a qualified construction manager. Where and when possible the County will utilize “green” or energy efficient building materials and construction methods. Since the purpose of these funds are to mitigate impacts from future disaster all construction will be undertaken with the intent for the design and construction to mitigate the impacts of future disasters. Road construction specifically will involve proper elevation and grading of the road to allow for the appropriate drainage of rainwater. Construction will also involve the inclusion of stormwater management systems along the road to better handle and transport rainwater.

The County does not anticipate using CDBG-MIT funds for residential construction and these construction standards will be updated and clarified if such construction is undertaken with CDBG-MIT funds.

6.4.2 Contractor Standards

Contractors interested in participating in the CDBG-MIT program:

- Must not be listed on the Federal, State, or County debarment list.
- Must submit a completed *Contractor Application* and new vendor packet.
- Must participate in the County’s Contractors’ Workshop (a certificate of completion will be issued).
- Must have verification of current contractor liability, worker’s compensation, and auto insurance.

Once all applicable requirements are satisfied, contractors will be placed on a list of approved contractors for Lexington County and will be given the opportunity to bid on projects as they become available. The bidding process is handled through the Procurement Department and follows Lexington County Procurements Rules and Regulations.

Once a contractor is awarded a project, the contractor is responsible for the quality of their work, the work of his/her employees, and work performed by any subcontractors and their employees. For housing rehabilitation projects, the contractor will be responsible for providing all manufacturers’ warranties to the homeowner and copies of each to the County at the time of the final inspection. The contractor must warranty all work for a period of one (1) year from the date of completion (final inspection and acceptance by homeowner) of the entire job under contract. The contractor will correct any defects that occur during that period at no additional cost to the homeowner or the County.

6.4.3 Personally Identifiable Information

The County will make all possible efforts to protect Personally Identifiable Information (PII) of program beneficiaries. The County will collect and maintain all PII under its existing guidelines and in compliance with the Privacy Act (5 U.S.C. 552a) and all other federal, state, and local laws. Individual program policies and procedures will provide details regarding the steps that will be taken to protect information including the security of facilities, files and documents which contain such information. Additionally, PII that is held in digital format will only be held on secured systems with limited access by staff or consultants approved to manage CDBG-MIT or engage in compliance activities.

6.4.4 Complaints

Written complaints from the public related to this Action Plan (or its amendments), QPRs, or the County's activities or programs funded with CDBG-MIT, will receive careful consideration and will be answered in writing, or other effective method of communication, within fifteen (15) business days, where practicable. Additional information regarding complaints is provided in the County's CDBG-MIT Pre-Award Implementation Plan.

6.4.5 Appeals

The County has established a formal appeals process which is described in the County's CDBG-MIT Pre-Award Implementation Plan. The document will be posted on the County's CDBG-mitigation website and available for the public to review and reference.

6.5 Necessary and Reasonable Costs

Part of the process in the duplication of benefits procedures involves verifying necessary and reasonable costs. This helps ensure that funds are efficiently and effectively utilized. The determination of necessary and reasonable costs will apply to any project or program receiving funding as well as administrative and planning funds. The County will utilize the cost principles described in 2 CFR Part 225 (OMB Circular A-87) to determine necessity and reasonableness. According to 2 CFR part 225, "A cost is reasonable if, in its nature and amount, it does not exceed that which would be incurred by a prudent person under the circumstances prevailing at the time the decision was made." The County will follow these principles and fund only project costs that are deemed necessary and reasonable.

6.6 Minimizing Displacement

Consistent with the County's Consolidated Plan, CDBG-MIT funded activities will be designed to eliminate (or minimize) the occurrence of displacement. The County will minimize displacement of persons or entities and assist persons or entities displaced as a result of implementing a project with CDBG-MIT funds. The County does not anticipate that any project will result in the displacement of people.

The County will ensure that the assistance and protections afforded to persons or entities under the Uniform Relocation Assistance and Real Property Acquisition Policies Act (URA), and Section 104(d) of the Housing and Community Development Act of 1974, are available. The URA provides that a displaced person is eligible to receive a rental assistance payment that covers a period of 42 months. Given its priority to engage in voluntary buy-outs and optional relocation activities to avoid repeated flood damage and improve floodplain management, the County will utilize the HUD waiver of the Section 104(d) requirements, which assures uniform and equitable treatment by setting the URA and its implementation regulations, as the sole standard for relocation assistance. Efforts to conduct voluntary buyouts for destroyed and extensively damaged buildings in a floodplain may not be subject to all

provisions of the URA requirements. All rental tenants that become displaced, as a result of the homeowner participating in the buyout program, will receive either \$5,000 in relocation assistance or full URA benefits – whichever is greater.

6.7 Uniform Relocation

The County does not anticipate engaging in any activities qualifying as uniform relocation eligible activities. All buyouts consist of voluntary owner-occupied structures and will not result in the displacement of any persons renting or leasing the property, structure or space within the structure. If a project does involve relocation then the following items become applicable.

Under the Uniform Relocation Act (URA) displaced persons are eligible to the following benefits:

- Advisory services;
- Offer of a comparable replacement unit;
- Replacement housing payments; and
- Moving expenses. Under the URA, the term "displaced person" means:
 - 1) A person who moves permanently from the real property after the property owner (or person in control of the site) issues a vacate notice to the person, or refuses to renew an expiring lease in order to evade the responsibility to provide relocation assistance, if the move occurs on or after:
 - a. The date the Grantee submits a project application for CDBG-MIT funds for the project that is later approved, if the Grantee has site control; or,
 - b. The date the Grantee obtains site control, if that occurs after the project application is submitted and approved.
 - 2) A person who moves permanently from the real property after the initiation of negotiations, unless the person is a tenant who was issued a written notice of the expected displacement prior to occupying the property (otherwise known as a "Notice of Eligibility for Relocation Assistance").
 - 3) A person who moves permanently and was not issued a Notice of Non-displacement after the application for CDBG-MIT funds is approved.

6.8 Broadband Infrastructure

P.L. 115-123 requires installation of broadband infrastructure for all new construction or substantial rehabilitation activities, as defined by 24 CFR 5.100, of a building with more than four rental units. At this time, the County will not be funding new construction or substantial rehabilitation programs and therefore this requirement will not be prompted.

7. Monitoring Standards & Reporting Requirements

The County of Lexington will continue to use the monitoring process established under the CDBG-DR funding allocation which includes several layers of approvals before funds are expended. This will continue to allow the County to, in essence, “monitor” the use of funds on an individual basis. This process includes multi-level review of the use of funds. These reviews occur throughout the organization, from the front-line contractor(s) up through the Community Development Director (CDD), the procurement office and ultimately the County’s Chief Financial Officer (CFO). The CDD and the CFO each answer directly to the County Administrator. At every level of the process, there is an evaluation made to determine that the use of funds is legitimate and in keeping with the requirements of the governing policies, procedures, rules, regulations, ordinances and laws. If any other determination is reached, the use of funds is delayed until further information is obtained. If the additional information does not result in a positive determination, the use of funds for that purpose will not be allowed. Because the County will be directly overseeing the delivery of all CDBG-MIT activities, monitoring will be an on-going effort. The CDBG-DR Administrator will also act as the CDBG-MIT Administrator for efficiency purposes and will personally monitor all contractors including direct review and approval of all contractor invoices. The CDBG-MIT Administrator will conduct periodic on-site monitoring and a County Building Inspector will conduct inspections for each property involved in potential housing programs involving construction. In addition, the CDBG-MIT Administrator will directly oversee quality control related to client application, file management, contractor relations with homeowners as well as the public reporting requirements described below.

7.1 Disaster Recovery Grants Reporting Database (DRGR)

HUD will utilize its existing online data reporting system, the Disaster Recovery Grants Reporting Database (DRGR). Use of this system is required by all CDBG-MIT grantees. The County will ensure staff has adequate training for the effective management of the DRGR Database.

7.2 Quarterly Performance Reports (QPRs)

Within DRGR, all grantees are required to produce Quarterly Performance Reports or QPRs. QPRs are due 30 days after the end of each calendar year quarter. Each quarterly report will include information about the uses of funds during the applicable quarter including (but not limited to) the project name, activity, location, and national objective; funds budgeted obligated, drawn down, and expended; the funding source and total amount of any non-CDBG Disaster Recovery funds to be expended on each activity; beginning and completion dates of activities; achieved performance outcomes; and the race and ethnic status of persons assisted under direct-benefit activities. Once approved by HUD, the County will publish all QPRs on its CDBG-MIT website.

A quarterly performance report (QPR) will be submitted to HUD no later than 30 days following the end of each quarter after grant award and continuing until all funds have been expended and all expenditures have been reported. No less than three (3) days prior to submitting to HUD, the County will post the QPR to the website for public comment. In addition to these required reports, the County will also post its procurement policies, executed CDBG-MIT contracts as well as the status of services or goods currently being procured by the County.

7.3 Program Income Reporting & Tracking

Program Income is defined as “gross income generated from the use of CDBG-MIT funds and received by the Unit of General Local Government (UGLG).” Examples of program income include, but are not limited to, the following: a) proceeds from the disposition by sale or lease of real property purchased or improved with CDBG-MIT funds, b) proceeds from the disposition of equipment purchased with CDBG-MIT funds, c) net income from the use of rental property owned by the UGGLG. The County does not anticipate generating any program income with the utilization of CDBG-MIT funds. However, should program income be generated, the County will track the receipts within the County’s financial records and report the receipts to HUD via the DRGR database as required in the regulations. All program income received prior to grant closeout shall be utilized for additional eligible CDBG-MIT activities. Any program income remaining after the CDBG-MIT program closeout will be transferred into the County’s CDBG entitlement program.

7.4 Disaster Recovery Program Website

The County of Lexington has created a website to keep the public informed about hazard mitigation activity and resources. The website will be maintained by the County’s Information Services Department. It will be accessible through the main page of the County Government website. The County will maintain this website throughout the period of ongoing CDBG-MIT activity. It will serve as the primary repository of information for the County’s disaster recovery actions and resources and will contain links to all action plans, action plan amendments, quarterly performance reports (QPRs), citizen participation plans, procurement policies, procurement notices/advertisements, notices of public meetings, executed contracts, activity/program information for activities described in the action plan and other information relevant to the CDBG-MIT program funds. Updates to the website will be made in conjunction with any new activity associated with the CDBG-MIT program action plan and funds. Constituents will be able to lodge complaints via an email link on the website. The email address will be monitored daily. The County will respond promptly within fifteen (15) days of receipt of each complaint. The CDBG-MIT Administrator will monitor the email address, log all complaints and coordinate to provide the response.

All documents will be made available in a language other than English upon request.

7.5 Internal Auditor

In conjunction with the administration and oversight of the CDBG-MIT programs, the County will contract with an independent internal auditor who will report directly to the County Administrator. The internal auditor will provide both programmatic and financial oversight of the CDBG-MIT program. The role of the internal auditor will be to conduct quarterly internal monitoring/audits of County administered CDBG-MIT programs and activities as required by HUD guidelines and P.L. 115-123. The internal auditor will also be responsible for the coordination of, and response to, external audits or monitoring by county, state and federal agencies. In addition, the internal auditor will be responsible for the detection and prevention of fraud, waste, and abuse in county- and contractor-administered programs as well as the coordination of investigations of alleged fraud with county, state and federal law enforcement agencies. This responsibility includes the presentation of cases to the Office of Inspector General for the H.S. Department of Housing and Urban Development and/or the U.S. Attorney’s office for prosecution if necessary.

7.6 Timely Expenditure of the Funds

Per Federal Register Notice, 84 FR 45838, 50% of CDBG-MIT funds must be expended within a six (6) year time frame beginning on the date the grant agreement is signed by HUD. The County must expend 100% of the CDBG-MIT funds within 12 years of HUD’s execution of the grant agreement absent a waiver. However, we understand that HUD will periodically review the County’s progress in drawing down funding

from its Line of Credit (LOC). The County of Lexington will review in-house expenditures and beneficiary expenditures to ensure that funds are spent on eligible costs and in a timely manner. Project funds and schedules will be monitored by the County of Lexington's Finance Department, the Department of Community Development and the County's planning and management consultant(s), and ultimately audited through the County's independent audit function.

As the County of Lexington is an entitlement community and recipient of CDBG-DR funds, County staff members already have experience with monitoring the expenditure rate of its annual CDBG allocation. With the County's current allocation of CDBG and CDBG-DR funds, the County of Lexington's Department of Community Development maintains detailed spreadsheets monitoring the expenditure of funds and project schedules. As part of its CDBG-DR allocation the County had made a variety of changes to adapt and enhance their internal grant management processes. These included establishing standard tracking mechanisms, processes and templates to ensure consistency and continuity among program activities. These changes will be incorporated into the management of the CDBG-MIT funds as well. The County of Lexington will also maximize its use of technology to support and augment any standard processes instituted to ensure timely expenditure of funds.

The County of Lexington will hold all contractors accountable through the establishment of benchmarks and other critical milestones. Contractors will be required to provide detailed reports concerning expenditure of funds and project progress to the County upon request. Frequency of reporting will be established on a per project basis given the potential varied nature of eligible activities that the County may choose. It is expected that the County will require contractors to provide monthly reports; however, due to the varying nature of each project, specific projects may be asked to provide those project updates more frequently.

Based on weekly expenditure tracking, the County will monitor the CDBG-MIT programs and specific projects to confirm program expenditures are on track and will be completed per the schedule. If any funds need to be reprogrammed, the County will discuss with advisory board and an amendment will be submitted. The Financial Coordinator will work alongside the Community Development Department to ensure timely expenditures.

The County expects, at this time, that it will directly administer all CDBG-MIT funds and will use contractor augmentation to execute implementation. When contracting with vendors, the County will establish certain benchmarks that must be achieved prior to the release of funding. As a part of their contractual obligations to the County, contractors will be required to present the County with a plan on how they will implement procedures to reach the determined benchmarks. Each contract with contractors will require that penalties be implemented for failure to reach benchmarks. In addition to ensuring that contractors are meeting project timelines, these benchmarks will allow the County to project expenditures for each individual project.

Per Federal Register Notice 84 FR 45838, The County of Lexington will submit a projection of expenditures and an outcomes plan to HUD with the Action P1an. Revised projections will be sent to HUD when program changes impact projected outcomes, funding levels and recovery timelines. We understand that HUD will use this information to track the County's proposed versus actual performance. It will serve as a tool to measure overall performance as well as project specific performance. The County will aggressively monitor its contractors, using benchmarks, milestones and projections to prevent bottlenecks in the process while also minimizing delays in expending funds for eligible project activities.

7.7 Expenditure Requirements

CDBG-MIT allocations have unique expenditure requirements that are different than both CDBG-DR and CDBG entitlement requirements. These requirements were defined in the CDBG-MIT Notice and require that 100% of the CDBG-MIT funds must be expended within 12 years of HUD’s execution of the grant agreement. Additionally, 50% of the funds must be expended within 6 years of HUD’s execution of the grant agreement.

Table 7-1 Expenditure Table

Project	Total Expended						
	Year 1 2020	Year 2 2021	Year 3 2022	Year 4 2023	Year 5 2024	Year 6 2025	Years 7- 12 2026- 2032
Administration	\$75,925 (10%)	\$227,775 (30%)	\$379,625 (50%)	\$531,475 (70%)	\$683,325 (90%)	\$759,250 (100%)	
Planning		\$10,000 (100%)					
Residential Buyouts	\$598,000 (10%)	\$2,093,000 (35%)	\$4,485,000 (75%)	\$5,980,000 (100%)			
South Central Lexington County Road Improvements		\$475,545 (10%)	\$2,377,725 (50%)	\$4,279,905 (90%)	\$4,755,450 (100%)		
Culler Rd. Improvements		\$145,515 (10%)	\$727,575 (50%)	\$1,309,635 (90%)	\$1,455,150 (100%)		
Charles Town Rd. Improvements		\$206,515 (10%)	\$1,032,575 (50%)	\$1,858,635 (90%)	\$2,065,150 (100%)		
Rescue Boats	\$16,000 (10%)	\$160,000 (100%)					
Total CDBG-MIT Expenditures	\$698,925 (4.5%)	\$3,318,350 (21.9%)	\$9,172,500 (60.4%)	\$14,129,650 (93.1%)	\$15,109,075 (99.5%)	\$15,185,000 (100%)	

7.8 Monitoring of Subrecipients

Although the County does not expect to have subrecipients under the CDBG-MIT program, the County will comply with its monitoring responsibilities of subrecipient projects funded under Title I of the Housing and Community Development Act of 1974, as amended, if needed. The Grants staff will utilize both “desk monitoring” and “internal/on-site” monitoring to assess the quality of program performance over the duration of the agreement or contract. The following Monitoring Plan will be utilized:

Subrecipient Monitoring Plan Objectives

The objectives are to ensure that subrecipients:

- Carry out their CDBG-MIT funded projects in a timely manner, as described in their agreements (as modified or amended).
- Comply with all regulations governing their administrative, financial, and programmatic operations.
- Achieve their performance objectives within schedule and budget.
- Have the capacity to carry out the approved program or project.

Subrecipient Monitoring Guidelines

The Lexington County Grant Programs staff will maintain frequent contact with subrecipient personnel in order to achieve the objectives cited above. An annual training will be conducted covering the applicable federal rules and regulations to be followed by each subrecipient in the administration of their CDBG-MIT projects. The training will cover administrative, financial and programmatic requirements. The training will also cover common monitoring findings and to prevent errors for future monitoring.

The following steps are the standard monitoring policies and procedures which will be followed:

- Review and analyze project budgets, national objectives, activity eligibility and other application details to determine potential projects.
- Prepare thorough and comprehensive subrecipient agreement providing details of the project and requirements.
- Evaluate environmental impact of project and implement required procedures.
- Review ongoing written status reports and other communications to monitor for adherence to timelines and compliance requirements.
- Visit project site before, during and after construction.
- Monitor all subrecipient projects at least once during the project to determine compliance with all applicable laws, regulations and policies.
- Review and approve payment requests.
- Prepare and coordinate monthly reports on project status, expenditures to date, and timeliness.
- Prepare monthly report of CDBG-MIT draws detailing funds drawn on each active project and overall progress made to meet HUD timeliness requirements.

The Lexington County Grant Programs Division staff will conduct desk and on-site monitoring of CDBG-MIT activities and subrecipients. The desk monitoring includes on-going review of reimbursement requests and monthly reports. The on-site monitoring utilizes a checklist to evaluate the compliance of the projects/activities with all aspects of the CDBG program. The subrecipient will be informed at least fourteen (14) days in advance of the time of an on-site visit, the purpose of the visit and the compliance areas to be covered.

The areas monitored may include:

- Overall Management System
- Program Benefit

- Record Keeping
- Progress in Activities
- National Objectives
- Environmental Review
- Financial Management
- Procurement
- Labor Standards
- Non-Construction Contracts
- Acquisition/Relocation
- Compliance with federal regulations

Subrecipient Monitoring Results

A letter reporting the results of monitoring will be sent to the subrecipient. The monitoring letter may contain the following:

- Contract number of grant monitored
- Date(s) of monitoring
- Names(s) of CDBG-MIT staff who monitored
- Scope of monitoring
- Names of local officials involved in the monitoring visit
- Monitoring conclusions supported by facts considered in reaching the conclusions
- Specific recommendations or required actions
- Due date of required action
- If appropriate, offer of technical assistance

The monitoring letter will be sent usually within 30 days of monitoring or earlier if possible, particularly if there are major findings. When a subrecipient is found to be out of compliance, they will have 30 days to correct deficiencies. Copies of supporting documentation demonstrating that corrective action has been taken will be required. Failure by the subrecipient to correct deficiencies may result in funds being withheld and possible restrictions on future grant. The County of Lexington shall have the same rights as the Secretary of HUD as to other remedies for noncompliance per 24 CFR 570.912 and 24 CFR 570.913.

7.9 Program Certifications

Each State or UGLG receiving a direct allocation under this notice must make the following certifications with its action plan:

- a. Lexington County certifies that it has in effect and is following a residential anti- displacement and relocation assistance plan in connection with any activity assisted with funding under the CDBG program.
- b. Lexington County certifies its compliance with restrictions on lobbying required by 24 CFR part 87,

together with disclosure forms, if required by part 87.

- c. Lexington County certifies that the action plan for Hazard Mitigation is authorized under State and local law (as applicable) and that Lexington County, and any entity or entities designated by Lexington County, and any contractor, subrecipient, or designated public agency carrying out an activity with CDBG-MIT funds, possess(es) the legal authority to carry out the program for which it is seeking funding, in accordance with applicable HUD regulations and this notice. Lexington County certifies that activities to be undertaken with funds under this notice are consistent with its action plan.
- d. Lexington County certifies that it will comply with the acquisition and relocation requirements of the URA, as amended, and implementing regulations at 49 CFR part 24, except where waivers or alternative requirements are provided for in this notice.
- e. Lexington County certifies that it will comply 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.
- f. Lexington County certifies that it is following a detailed citizen participation plan that satisfies the requirements of 24 CFR 91.105 or 91.115, as applicable (except as provided for in notices providing waivers and alternative requirements for this grant). Also, each UGLG receiving assistance from a State grantee must follow a detailed citizen participation plan that satisfies the requirements of 24 CFR 570.486 (except as provided for in notices providing waivers and alternative requirements for this grant).
- g. Each State receiving a direct award under this notice certifies that it has consulted with affected UGLGs in counties designated in covered major disaster declarations in the non- entitlement, entitlement, and tribal areas of the State in determining the uses of funds, including the method of distribution of funding, or activities carried out directly by the State.
- h. Lexington County certifies that it is complying with each of the following criteria:
 - (1) Funds will be used solely for mitigation activities conducted within Lexington County pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1974 (42 U.S.C. 5121 et seq.) related to findings and needs identified in the Mitigation Needs Assessment included in this Action Plan.
 - (2) With respect to activities expected to be assisted with CDBG-MIT funds, the action plan has been developed so as to give the maximum feasible priority to activities that will benefit low- and moderate-income families.
 - (3) The aggregate use of CDBG-MIT funds shall principally benefit low- and moderate- income families in a manner that ensures that at least 50 percent (or another percentage permitted by HUD in a waiver published in an applicable Federal Register notice) of the grant amount is expended for activities that benefit such persons.
 - (4) Lexington County will not attempt to recover any capital costs of public improvements assisted with CDBG-MIT grant funds, by assessing any amount against properties owned and occupied by persons of low- and moderate-income, including any fee charged or assessment made as a condition of obtaining access to such public improvements, unless:
 - (a) hazard mitigation grant funds are used to pay the proportion of such fee or assessment that relates to the capital costs of such public improvements that are financed from revenue sources other than under this title; or
 - (b) for purposes of assessing any amount against properties owned and occupied by persons of

moderate income, Lexington County certifies to the Secretary that it lacks sufficient CDBG funds (in any form) to comply with the requirements of clause (a).

- i. Lexington County certifies that the grant will be conducted and administered 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.
- j. Lexington County certifies that it has adopted and is enforcing the following policies, and, in addition, States receiving a direct award must certify that they will require UGLGs that receive grant funds to certify that they have adopted and are enforcing:
 - (1) A policy prohibiting the use of excessive force by law enforcement agencies within its jurisdiction against any individuals engaged in nonviolent civil rights demonstrations; and
 - (2) A policy of enforcing applicable State and local laws against physically barring entrance to or exit from a facility or location that is the subject of such nonviolent civil rights demonstrations within its jurisdiction.
- k. Each State or UGLG receiving a direct award under this notice certifies that it (and any subrecipient or administering entity) currently has or will develop and maintain the capacity to carry out disaster recovery activities in a timely manner and that Lexington County has reviewed the requirements of this notice and requirements of Pub. L. 115-123 applicable to funds allocated by this notice, and certifies to the accuracy of Risk Analysis Documentation submitted to demonstrate that it has in place proficient financial controls and procurement processes; that it has adequate procedures to prevent any duplication of benefits as defined by section 312 of the Stafford Act, to ensure timely expenditure of funds; that it has to maintain a comprehensive disaster recovery website to ensure timely communication of application status to applicants for disaster recovery assistance, and that its implementation plan accurately describes its current capacity and how it will address any capacity gaps.
- l. The grantee certifies that it considered the following resources in the preparation of its action plan, as appropriate: FEMA Local Mitigation Planning Handbook: https://www.fema.gov/media-library-data/20130726-1910-25045-9160/fema_local_mitigation_handbook.pdf; DHS Office of Infrastructure Protection: <https://www.dhs.gov/sites/default/files/publications/ip-fact-sheet-508.pdf>; National Association of Counties, Improving Lifelines (2014): https://www.naco.org/sites/default/files/documents/NACo_ResilientCounties_Lifelines_Nov2014.pdf; the National Interagency Coordination Center (NICC) for coordinating the mobilization of resources for wildland fire: <https://www.nifc.gov/nicc/>); the U.S. Forest Service's resources around wildland fire (<https://www.fs.fed.us/managing-land/fire/>); and HUD's CPD Mapping tool: <https://egis.hud.gov/cpdmaps/>.
- m. Lexington County certifies that it will not use CDBG-MIT funds for any activity in an area identified as flood prone for land use or hazard mitigation planning purposes by the State, local, or tribal government or delineated as a Special Flood Hazard Area in FEMA's most current flood advisory maps, unless it also ensures that the action is designed or modified to minimize harm to or within the floodplain, in accordance with Executive Order 11988 and 24 CFR part 55. The relevant data source for this provision is the State, local, and tribal government land use regulations and hazard mitigation plans and the latest-issued FEMA data or guidance, which includes advisory data (such as Advisory Base Flood Elevations) or preliminary and final Flood Insurance Rate Maps.
- n. Lexington County certifies that its activities concerning lead-based paint will comply with the requirements of 24 CFR part 35, subparts A, B, J, K, and R.

- o. Lexington County certifies that it will comply with environmental requirements at 24 CFR Part 58.
- p. Lexington County certifies that it will comply with applicable laws.

Unit of Local Government: County of Lexington, South Carolina

Name/Title of Certifying Official: Joe Mergo, III, County Administrator

Signature: _____

Date: _____

Appendix