



Town of

Lake Lure

est. 1927

North Carolina

**RESOLUTION NO. 20-03-10  
AMENDING THE TOWN OF LAKE LURE  
ANNEX TO THE SOUTH MOUNTAIN REGIONAL  
HAZARD MITIGATION PLAN**

**WHEREAS,** The Town of Lake Lure is vulnerable to an array of natural hazards that can cause loss of life and damages to public and private property; and

**WHEREAS,** The Town desires to seek ways to mitigate situations that may aggravate such circumstances; and

**WHEREAS,** The Town desires to participate in the Department of Homeland Security FY 2019 Rehabilitation of High Hazard Potential Dams Program (HHPD); and

**WHEREAS,** North Carolina Emergency Management's Hazard Mitigation Section and The Region IV Office of the Federal Emergency Management Agency have reviewed the currently adopted South Mountain Regional Hazard Mitigation Plan for compliance with HHPD program requirements and recommended amendments to the plan.

**NOW, THEREFORE, BE IT RESOLVED** that the Board of Commissioners of the Town of Lake Lure hereby:

1. Adopts Amendment One to the Lake Lure Annex to the South Mountain Regional Hazard Mitigation Plan
2. Agrees to take such other official action as may be reasonably required to carry out the proposed dam risk analysis and identified program of repairs to the extent that such are eligible under the FY 2019 HHPD
3. Agrees to incorporate the salient points of this amendment into the next update of the Lake Lure Annex to the South Mountain Regional Hazard Mitigation Plan

Adopted on March 10, 2020

Mayor Carol C. Pritchett

ATTEST (Seal)

Michelle Jolley, Town Clerk





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**Amendment to South Mountain Regional Hazard Mitigation Plan Annex C, Town of Lake Lure, NC**  
**July 20, 2015**

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Hazard Identification, Section 4; Hazard Profile, Section 5; Mitigation Goals, Section 8.2; Mitigation Action Plan, Section 9

Following adoption by The Town of Lake Lure on April 4, 2015 the following is an amendment to the above referenced Hazard Mitigation Plan to meet the planning requirements of the FEMA High Hazard Dam Repair Program. (See attached Adoption Notice)

**Background**

Dam and Levee Failure is identified as a hazard in section 4, page 4.5 Hydrologic Hazards, in the July 20, 2015 South Mountain Regional Hazard Mitigation Plan. The hazard evaluation process is identified in Table 4.3, pg 4:16. Section 5.13, pg 5:38 begins a hazard profile for dam and levee failure including location and spatial extent. Twenty high hazard dams are identified in Rutherford County on table 5.24, page 5:42 on the November, 2019 report from NCDEQ Dam Safety 19 high hazard dams are identified, including 3 in Lake Lure's jurisdiction. A priority Risk Index on page 5:42 describes how an index rating is calculated;  $PRI\ VALUE = [(PROBABILITY \times .30) + (IMPACT \times .30) + (SPATIAL\ EXTENT \times .20) + (WARNING\ TIME \times .10) + (DURATION \times .10)]$  Table 5.33 establishes a PRI score of 2.1 for dam and levee failure. The hazard is defined as low risk/high consequence. There are two recorded incidents of catastrophic dam failure in the planning area, neither was in Rutherford Co/Lake Lure, thus there is no description of Extent and no hazard history associated with dam failure for the County or Town.

The Dam Safety Program at NCDEQ has identified 20 dams in Rutherford County as high hazard. Lake Lure dam is identified as a high hazard. The Town of Lake Lure has an Emergency Action Plan for the Lake Lure Dam on file with the NC Department of Environmental Quality.

The PAR assessment looks at the following factors in classifying risk:

**Dam Hazards Classification**

**Low**

Interruption of road service, low volume roads Less than 25 vehicles per day Economic damage Less than \$30,000

**Intermediate**

Damage to highways, Interruption of service 25 to less than 250 vehicles per day Economic damage \$30,000 to less than \$200,000

**High**

Loss of human life\* Probable loss of 1 or more human lives Economic damage More than \$200,000

\*Probable loss of human life due to breached roadway or bridge on or below the dam. 250 or more vehicles per day

NOTE: Cost of dam repair and loss of services should be included in economic loss estimate if the dam is a publicly owned utility, such as a municipal water supply dam.

**Amendment 1**, A Section 4 Hazard Identification, Hydrologic Hazards Table 4.3 page 4:16 South Mountain Regional Hazard Mitigation Plan identifies 118 high hazard dams in the planning region. Current data supplied by NCDEQ Dam Safety as of November, 2019 identifies 105 high hazard classification dams in the planning area; 20 of these are in Rutherford County; 3 are situated within the jurisdiction of Lake Lure. ***The plan is hereby amended to reflect the number provided by DEQ in November of 2019 represented on the attached spreadsheet.***

Section 8.1.1, page 8:2 of the plan describes prioritization of mitigation actions.

Funding of mitigation actions and measures will be pursued as available. Specific dam failure mitigation actions or projects will be prioritized as follows:

**Attachment A:** NCDEQ Dam Safety developed a risk-based selection and prioritization process for addressing high hazard dams as funding becomes available. This process will be employed by NCEM and by communities that wish to participate in the HHDR program. The analysis complies with the latest practices in dam safety risk management and are compliant with FEMA's Federal Guidelines for Dam Safety Risk Management, FEMA publication P-1025. Initial screening steps include securing buy-in and support from the local government/dam owner(s) and assurance that cost-matching requirements can be met by the local government. The second level of screening involves confirming that a particular dam is identified as a High Hazard Dam and has of updated Emergency Action Plan.

Following initial screening, a relative risk evaluation will be conducted to compare dam-specific conditions and risks. Where failure modes are driven by hydrologic concerns (under-sized spillways, poor design or other features/factors that might suggest a higher risk of catastrophic failure) are ranked ahead of dams that exhibit more static problems such as seepage or scouring. Although such conditions are cause for concern, they do not necessarily suggest that a catastrophic failure could be imminent.

To complete the assessment, subject dams are plotted on a matrix comparing approximate/relative *likelihood* of failure to approximate/relative *consequence* of failure.

**Amendment 2**, High Hazard Dam Mitigation goals, measures and actions are identified in Section 8 of the South Mountain Regional Hazard Mitigation Plan, to wit: 8.3.1 Prevention including capital improvements programming; 8.3.2 Property Protection including retrofitting existing building or structures to help them better withstand the forces of natural hazards; 8.3.4 Structural Projects intended to lessen the impact of hazards by modifying the progression of an event through construction including, dams/levees; diversion/detention/retention; channel modification

Mitigation Actions for the Town of Lake Lure are described in Annex C page C:105-106 of the plan; there are 6 actions specific to Lake Lure, none directly related to dam failure: ***The following measures identified in Attachment B are hereby adopted as additional mitigation actions:***

Dam failure mitigation measures and plan amendments were developed in cooperation with NCEM, NCDEQ and local government agents

**Attachment B:**

PP-1 Apply for funding through the FEMA High Hazard Dam Repair Program for mitigation measures associated with high hazard dams to include:

- 1) Geotechnical investigation to establish data for risk analysis and development of engineering designs/solutions
- 2) Build upstream dam to reduce load on existing dam
- 3) Property Acquisition in inundation area(s) below dam
- 4) Raise crest of dam to increase storage capacity
- 5) Add additional spillways, widen or lower existing spillways to increase discharge capacity
- 6) Warning systems to alert downstream areas of potential dam failure
- 7) Improve flow path below dam to increase conveyance capacity
- 8) Encourage conservation or re-forestation of upstream land to reduce runoff
- 9) Development of community Stormwater Management Plans for upstream communities
- 10) Complete an Emergency Action Plan in conjunction with NCDEQ for all High Hazard Dams in the county

These amendments will be incorporated into the appropriate sections of the South Mountain Regional Hazard Mitigation Plan during the 2020 update.