HAZARD MITIGATION PLAN
ANNEX
FOR
LISBON, CONNECTICUT

An Annex of the
Southeastern Connecticut
Regional Hazard Mitigation Plan

PREPARED FOR:

Southeastern Connecticut
Council of Governments

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I. INTRODUCTION

A. Setting

The Town of Lisbon is approximately 16.5 square miles in area. It is located in northern New London County and is situated approximately 36 miles southwest of Providence, Rhode Island. Lisbon is bordered by the City of Norwich and the Town of Sprague to the west, the Town of Canterbury to the north, the Town of Griswold to the east, and the Town of Preston to the south.

The Town of Lisbon was first settled in 1698 and has a 2000 U.S. Census population of 4,069 people. The town center is located in the area referred to as Newent near the intersection of Routes 138 and 169. Several important buildings including the Town hall, fire station and senior center are located in this area. Lisbon is a predominantly rural community and is known for its historical sites such as the Bishop House Museum, Anshei Israel Synagogue, and the First Railroad Tunnel in America.

Commercial development in Lisbon is centered mainly along Route 12 with other commercial developments scattered throughout Lisbon. Lisbon Meadows Park is near the town center with recreational fields for soccer and baseball and many hiking trails.

Two main rivers flow through Lisbon and meet at the southern corporate boundary of Lisbon. These two rivers are the Quinebaug River and Shetucket River. Elevations in the community range from 30 feet at the confluence of the Shetucket and Quinebaug Rivers to 360 feet just northwest of the intersection of I-395 and Lisbon Road.

B. Purpose of Annex

The purpose of this annex is to provide hazard risk assessment, capability assessment, hazard mitigation measures, and a hazard mitigation project ranking for the Town of Lisbon. Hazards such as earthquakes and windstorms which affect the entire region are addressed in the Southeastern Connecticut Council of Governments Regional Hazard Mitigation Plan.

C. Plan Development Process and Public Involvement

The Regional Hazard Mitigation Plan and this annex were developed through a series of meetings and the completion of written questionnaires, personal interviews, and workshops. To provide oversight of the plan development process and maximize local involvement, all member communities in the region and the two tribal affiliate members were invited to appoint a representative to serve on the Hazard Mitigation Steering Committee. Committee members and chief elected officials received notices of all the committee meetings and were encouraged to attend. Meeting notices and agendas were also sent to area media and to town and city clerks for posting in each community. Steering committee meetings were held in public at the Southeastern Connecticut Council of Governments office in Norwich. Three steering committee meetings were held during the development of the hazard mitigation plan. Verbal reports on progress were given to monthly meetings of the Southeastern Connecticut Council of Governments, which are routinely attended and covered by area press in local newspapers. Articles describing the planning process have appeared in the three issues of the SCCOG Quarterly Newsletter since March, 2003. This newsletter is mailed to 285 officials, organizations, and media within the region.

II. HAZARD RISK ASSESSMENT

A meeting was held with local officials from the Town of Lisbon on September 2, 2003 to develop the risk assessment for the town. Based on the results of the meeting and additional risk assessment research, it was determined that a significant hazard in Lisbon is flooding.

The major rivers that contribute to flooding in Lisbon are the Shetucket River and the Quinebaug River. The Shetucket River is formed by the confluence of the Willimantic River and the Natchaug River below Willimantic, Connecticut. The river flows south to Norwich, Connecticut, where its confluence with the Yantic River forms the Thames River. The Shetucket River has a drainage area of approximately 1,264 square miles and is approximately 18 miles long. The main tributaries of the Shetucket River are the Quinebaug River, the Natchaug River, and the Willimantic River.

The Quinebaug River flows southwest from Massachusetts into Connecticut to its confluence with the Shetucket River where the corporate boundaries of Norwich, Preston, and Lisbon meet. The river forms the southern and eastern corporate boundaries of Lisbon. The Quinebaug River has an approximate drainage area of 744 square miles and length of 62 miles. Major tributaries to the Quinebaug River are the French, Five Mile, Moosup, and Pachaug Rivers.

Blissville Brook, a tributary of the Shetucket River, originates in west-central Lisbon and flows southwest to its confluence with the Shetucket River also at the corporate limits of Lisbon, Norwich, and Preston. Blissville Brook has a drainage area of 4.09 square miles.

The most severe floods have occurred during the summer and fall as a result of hurricanes. Flooding may occur in the early spring when the ground is frozen. Several major floods have occurred in Lisbon. Two severe floods occurred in March 1936 as a result of tropical storms. The flood of record for the Shetucket River occurred in September 1938 as the result of a hurricane. A major flood occurred on the Quinebaug River in August 1955 as a result of Hurricane Diane. Damage from the 1955 flood was reduced by the flood control dam at Mansfield Hollow Lake which was completed in March 1952.

Flooding along the Quinebaug River in Lisbon is reduced by U.S. Army Corps of Engineers (COE) dams which were built to form the following lakes: Hodges Village Lake, located at Oxford, Massachusetts; Buffumville Lake at Oxford and Charlton, Massachusetts; Westville Lake at Southbridge, Massachusetts; East Brimfield Lake at Fiskdale, Massachusetts; and West Thompson Lake at North Grosvenor Dale, Connecticut. West Thompson Lake, finished in October 1965, was the last of the major projects to be completed.

Flooding along the Shetucket River in Lisbon was reduced by the COE dam built to form Mansfield Hollow Lake. That project was completed in March 1952.

The Town of Lisbon is sparsely developed with areas consisting of fields or woodlands. There is residential development in the floodplains which are confined mostly to areas along the Shetucket River and around the confluence of Blissville Brook.

Buildings located in flood hazard areas are primarily residential but also include some commercial, industrial, and critical facility structures. Most of the structures that are threatened by flooding are located within the 100-year floodplain.

There is no formalized program currently in place to identify the location or the number of structures that are susceptible to flooding in Lisbon. Such information would be valuable in directing hazard mitigation efforts to locations with the greatest risk. A potential hazard mitigation project would involve the review of all existing available data regarding flood hazards and the preparation of an inventory and assessment of structures at risk in the flood hazard areas.

Such an inventory program would be the first step in completing a Flood Audit, which would provide early flood warning, guidance and technical information regarding flood risks to property owners, as well as prioritize future property protection projects. The completion of a Flood Audit would be an important step in the National Flood Insurance Program Community Rating System by which towns can qualify for a reduction in flood insurance rates.

A. Residential

Based on review of the Town of Lisbon Flood Insurance Rate Maps and topographic maps, residential structures that are subject to flooding during significant flood events are located along the Shetucket River.

There are several areas in the Town of Lisbon that have residential structures located in flood zones. These areas include Town House Road in the northern section of Lisbon, the confluence of the Shetucket River and the Quinebaug River off lower Blissville Road, and areas around Blissville Pond. These structures are located in potential flood zones and are susceptible to damage. Blissville Pond is a low-lying area and as a result the trailer park near the pond has been evacuated due to flooding.

B. Commercial/Industrial

The majority of the town's commercial and industrial development is located along Route 12 which runs parallel to the Quinebaug River. Scattered commercial and industrial developments are found along Ross Hill Road, South Burnham Highway, and Route 12-River Road. Based on a review of the Flood Insurance Rate Maps it does not appear that any commercial or industrial developments are in flood hazard areas.

C. Critical Facilities

A review of the Town of Lisbon's critical public facilities indicates that the majority of the critical facilities are located near the center of town. These areas surrounding the facilities are free from flooding and are generally protected from other potential hazards.

D. Transportation Corridors

Lisbon has several major transportation routes including Interstate 395, Route 138, Route 169, and Route 600. The Providence and Worcester Rail line runs through Lisbon and along the banks of the Quinebaug River, however, the railroad tracks are not located in any flood zones.

Blissville Brook has the potential to flood several roads in Lisbon during severe storms. Ames Road and Bundy Hill Road are two roads that have sections beneath the 100-year floodplain and are susceptible to flooding. Other roads that may be affected by flooding include Route 169-Newent Road and Mell Road. Blissville Brook, which flows north to south, crisscrosses over Route 169 in several areas with several sections of the road in flood zones. A section of Phillips Road near the Quinebaug River has also flooded in the past. Potential flooding of roads around Lisbon may cause the response of emergency vehicles to be delayed especially during severe storms.

Town officials have also expressed concern with increased thru-traffic in Lisbon. Specifically, the town is concerned with the transportation of hazardous materials over their roadways and their ability to respond to a major incident regarding a release of such materials.

III. HAZARD MITIGATION MEASURES

The following sections provide a brief description of the types of hazard mitigation measures and programs that are available to address the natural hazards that exist in the town

A. Prevention

Hazard prevention includes identification of risks and the use of land-use regulatory and other available management tools to prevent future damage. The Town of Lisbon has planning and zoning tools in place that incorporate floodplain management. The town's planning and zoning regulations, inland wetlands and watercourses regulations, and the building department's enforcement of the Connecticut Basic Building Code are all important existing regulatory mechanisms that address hazard prevention and incorporate floodplain management.

The following are examples of how hazard prevention can be accomplished through existing programs:

1. Planning and Zoning

   Planning and Zoning Regulations can be tailored to be consistent with hazard mitigation planning. Establishment of Flood Prone Conservancy Districts, Coastal Resource Zones, and River Corridor Preservation Zones are all techniques that can potentially be employed to limit additional development in hazardous locations.

2. Open Space Preservation

   Community planning that includes open space acquisition and preservation sections can be established or revised in a manner that is consistent with hazard mitigation planning. Acquisition of floodplain and river corridor properties should be encouraged as a municipal priority.

3. Floodplain Development Regulations

The modification of floodplain management regulations to include more restrictive development standards is consistent with hazard mitigation planning. The National Flood Insurance Program Community Rating System gives credit to communities that exceed the minimum floodplain management requirements of the National Flood Insurance Program. Requirements include elevating structures higher than the 100-year base flood elevation, which is an example of a more stringent standard.

4. Stormwater Management

Stormwater management regulations that limit any potential increase in the date of discharge of stormwater and that preserve floodplain storage are examples of the use of stormwater management in a manner consistent with hazard mitigation planning.

5. Wetlands Protection

Wetlands areas are generally also critical flood storage areas. By limiting wetlands development not only are important natural resource areas protected but additional floodplain development is also limited.

6. Erosion and Sediment Control Regulation

Effective implementation of sediment and erosion controls include utilization of detention basins and use of other Best Management Practices to slow the velocity and limit increase in runoff. Strict adherence to these requirements are effective hazard mitigation tools.

B. Property Protection

Property protection measures can address hazards at a single structure or can include multiple structures.

The following list identifies common property protection measures:

1. Relocation
2. Acquisition
3. Building Elevation
4. Utility Protection
5. Flood Proofing

Additional descriptions of property protection measures are provided in Appendix A in the Regional Hazard Mitigation Plan.

C. Emergency Services

Emergency communication is a critical aspect of the hazard response programs currently in place in Lisbon. Emergency Services hazard mitigation measures can be combined with other types of measures to form successful projects, or remain as stand-alone projects.

The major utilities that provide service to the town follow similar procedures. The Connecticut Light and Power Company has emergency operation centers which become operational in the event of any emergency that could impact the utilities.

The interagency communication between the town and independent utilities requires continued coordination to assure the critical communications link between the town operations and the utilities is effectively maintained. A need for improved and continued coordination has been identified during this study. Aspects of emergency services typically addressed in hazard mitigation include the following:

1. Emergency Communication
2. Flood Warning
3. Flood Response
4. Critical Facilities Protection

D. Structural Projects

Structural projects include utilization of the flood control strategies that have been and continue to be used throughout Connecticut. The potential environmental impacts of structural projects are often a concern.

Structural projects that can be included in hazard mitigation planning include the following:

1. Levees/Floodwalls
2. Bridge & Culvert Replacement
3. Channel Modifications
4. Storm Sewer Improvements
5. Structural Project Maintenance and Repair

Any prospective projects which were identified during the course of assembling this plan are included in the hazard mitigation matrix in Appendix A of this annex report. Additional information on some types of structural projects is provided in Appendix A in the Regional Hazard Mitigation Plan.

E. Public Information

Public Information is another type of hazard mitigation measure which, like prevention and resource protection, can be most effectively implemented in conjunction with other hazard mitigation projects.

The Hazard Mitigation Committee has identified the need for a continued and expanded program of public information. Such a program could include providing educational information to the homeowners and business owners in the flood hazard areas. A public education and information component should be included in all hazard mitigation projects undertaken by the Town of Lisbon. The following list includes some common types of Public Information measures:

1. <u>Map Information</u>

   Development of hazard maps for public distribution or posting in public locations. This type of information is easily understood and assists in raising the public's awareness of the natural hazards that exist in their community.

2. Flood Audits

For additional information regarding flood audits refer to Appendix F of the Regional Hazard Mitigation Plan.

3. Real Estate Disclosure

This is a procedure where buyers and sellers of real estate are compelled to provide notice of known hazards affecting the property to be conveyed.

4. Public Library

Libraries can be an effective location of a hazard information center. Town Halls and other public facilities can also serve as information centers. A wide range of hazard mitigation documentation should be compiled for review.

5. Technical Assistance

Local governments can provide technical assistance to homeowners and contractors regarding hazard resistant construction. An appropriate time for such assistance can be at the time of a building permit application.

6. Environmental Education

Private and public schools and adult education programs can offer environmental education classes that include hazard identification and hazard mitigation components.

IV. HAZARD MITIGATION PROJECT RANKING

Based on the hazard risk assessment analysis, the Hazard Mitigation Committee has developed a matrix of several hazard mitigation projects recommended to reduce Lisbon's vulnerability to natural hazards. A matrix depicting potential hazard mitigation projects and a prioritized ranking is included in Appendix A.

Projects identified in the matrix have been prioritized based on the following criteria:

- Safety of the population
- Historical damage
- New development in high risk areas
- Value of property at risk
- Consistency with plan goals and objectives

The projects were also considered on how they relate to potential health risks, structural damage, access/egress for evacuation, and protection of structures that house people with special needs and residential areas housing a large portion of the town's population. For additional information on projects listed in the matrix and for a complete list of criteria used in the prioritization process, please refer to the text and attachments of the Regional Hazard Mitigation Plan.

V. IMPLEMENTATION, MONITORING, AND EVALUATION

The Southeastern Connecticut Council of Governments Regional Hazard Mitigation Plan and this associated community annex report were prepared with the understanding that potential funding sources may not be available within the time frame necessary to implement the recommended actions on a specific schedule. It is therefore necessary to incorporate into the plan a system of monitoring its progress and making necessary adjustments. In addition, the goals and objectives may need to be modified over time in order to meet the demands of a changing community. Accomplished activities will be eliminated, and new ones added.

The staff of the Southeastern Connecticut Council of Governments (SCCOG) serves as coordinator of the Hazard Mitigation Committee that provided oversight of the plan preparations. In accordance with § 201.6 (c)(4)(i) of the Interim Final Rule, it is recommended that the Committee meet on or before the fifth anniversary of the adoption of the plan to review the implementation progress as well as the goals, objectives, and actions outlined in the plan. With input from the Committee, SCCOG staff should prepare a report on the status of plan implementation. The report should include the following: a review of the goals and objectives of the original plan; a review of any disasters or hazards that occurred during the period; a review of each element or objective of the original plan, including what was accomplished the previous year; and recommendations for new projects or revised objectives.

FEMA also recommends that each of the local communities name a person as a local coordinator for the implementation and monitoring of the progress of the plan. This person would act as a contact for the Southeastern Connecticut Council of Governments and the State of Connecticut National Flood Insurance Program Coordinators during the grant application and cost-benefit analysis process.

The Town of Lisbon Hazard Mitigation Projects			
Hazard	**Vulnerable Location**	**Mitigation Project**	**Priority**
Flooding	Town Wide	Develop a Flood Audit Program	High
Flooding	Blissville Pond	Evaluate Risk Exposure at Mobile Home Park	High
All Hazards	Town Wide	Evaluate the Hazard Resistant Nature of All Critical Facilities	High
All Hazards	Town Wide	Comprehensive Evaluation of Emergency Communication Capabilities Throughout Town	High
All Hazards	Town Wide	Review of TownTransportation Facilities to Identify Critical Risks	Medium

The Town of Lisbon Hazard Mitigation Projects			
Hazardous Materials Spills on Roadways	State Roads	Identify Appropriate Improvements to Traffic Infrastructure and Emergency Response Training and Equipment	Medium
Hazard	**Vulnerable Location**	**Mitigation Project**	**Priority**
All Hazards	Town Wide	Implement a Reverse 9-1-1 System to Automatically Call Telephones Throughout Town, Relaying Important Information During an Emergency	Low
All Hazards	Town Wide	Distribute or Post Public Information Regarding Hazards in the Town	Low
All Hazards	Town Wide	Evaluate Emergency Shelters, Update Supplies and Check Communication Equipment	Low

The Town of Lisbon Hazard Mitigation Projects			
All Hazards	Town Wide	Maintain Emergency Personnel Training as well as Maintaining and Updating Emergency Equipment and Response Protocols	Low
Wind Hazards	Town Wide	Evaluate and Consider Burying Power Lines Underground and Away From Possible Tree Damage	Low
Hazard	**Vulnerable Location**	**Mitigation Project**	**Priority**
Earthquake Hazards	Town Wide	Complete an Earthquake Survey of all Critical Facilities and Infrastructures	Low

The Town of Lisbon Hazard Mitigation Projects			
Flooding	Town Wide	1)Complete Catch Basin Surveys to Identify Catch Basins in need of Maintenance and/or Replacement 2) Complete Culvert Survey to Determine Priority for Maintenance and/or Replacement Plan	Low
Fire Hazards	Town Wide	Complete a Survey of Fire Hydrants to Assess Vulnerabilities and Capabilities for Fire Protection Dry Hydrants should be Considered as a means for Emergency Equipment	Low