

**HAZARD MITIGATION PLAN  
ANNEX  
FOR  
NORTH STONINGTON, CONNECTICUT**

**An Annex of the  
Southeastern Connecticut  
Regional Hazard Mitigation Plan**

**PREPARED FOR:**

**Southeastern Connecticut  
Council of Governments**

**DATE: June 2005**



## **COMMUNITY CONTACTS**

Nicholas H. Mullane II  
Arnold Perkins

First Selectman  
Director of Civil Preparedness

## **SOUTHEASTERN CONNECTICUT COUNCIL OF GOVERNMENTS STAFF**

James S. Butler, AICP  
Linda Parquette  
Colleen Bezanson  
Thomas Seidel

Executive Director  
Senior Planner  
GIS Specialist  
Senior Planner

## **CONSULTANTS**

DELTA Environmental Services, Inc., Branford, CT.  
Wilbur Smith Associates, New Haven, CT

**TABLE OF CONTENTS**

<b><u>SECTION</u></b>	<b><u>PAGE NUMBER</u></b>
I. INTRODUCTION .....	1
A. Setting .....	1
B. Purpose of Annex .....	2
C. Plan Development Process and Public Involvement .....	2
II. HAZARD RISK ASSESSMENT .....	3
A. Residential .....	4
B. Commercial/Industrial .....	4
C. Critical Facilities .....	4
D. Transportation Corridors .....	4
III. HAZARD MITIGATION MEASURES .....	6
A. Prevention .....	6
B. Property Protection .....	8
C. Emergency Services .....	8
D. Structural Projects .....	9
E. Public Information .....	10
IV. HAZARD MITIGATION PROJECT RANKING LOCATION .....	12
V. IMPLEMENTATION, MONITORING, AND EVALUATION .....	13

**APPENDICES**

- APPENDIX A - HAZARD MITIGATION PROJECT LOCATION / RANKING MATRIX
- APPENDIX B - HAZARD ASSESSMENT MAP

## **I. INTRODUCTION**

### **A. Setting**

The Town of North Stonington is 56.3 square miles in area and is located in the eastern portion of New London County. The town is situated approximately 16 miles northeast of New London, Connecticut, and approximately 40 miles southwest of Providence, Rhode Island. The town is bordered by the Towns of Griswold and Voluntown to the north; the Town of Hopkinton, Rhode Island to the east, the Town of Stonington to the south, the Town of Ledyard to the west, and the Town of Preston to the northwest.

The Town of North Stonington is a rural community incorporated in 1807 and has grown to a 2000 U.S. Census of 4,991. A relatively small area of North Stonington is developed and most of the town's land is used for agricultural and dairy farming. Commercial development is located primarily in the North Stonington Center. The Town Hall and Wheeler Library are located on Main Street and North Stonington High School / Middle School and Elementary School are located on Norwich-Westerly Road (Route 2). Several businesses are located in this area as well as scattered throughout North Stonington. North Stonington Walk-In Medical Center is available to residents with minor medical problems. Westerly Hospital in Westerly, Rhode Island and Lawrence & Memorial Hospital in New London are available for more severe medical problems and emergencies.

Pachaug State Forest and the Assekongk Swamp Wildlife Management Area are located in North Stonington as well as part of the Eastern Pequot Indian Reservation. Foxwoods Resort and Casino are located nearby in Ledyard off of Route 2 and many tourists travel through North Stonington along Route 2 to and from the Casino. Other important roads in North Stonington include Interstate 95, Route 201, Route 49, Route 627, and Route 184.

North Stonington has a large range of water bodies that include Lake of Isles, Spalding Pond, Wyassup Lake, Blue Billings Lake, Assekongk Pond, Phelps Brook, Shunock River, and Green Fall River.

## **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 North Stonington. 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. 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 since March, 2003. This newsletter is mailed to 285 officials, organizations, and media within the region.

## II. HAZARD RISK ASSESSMENT

Risk assessment research was conducted to develop a community risk assessment for the Town of North Stonington. Based on the results of the research, the most significant hazard in North Stonington is flooding.

Streamflow records collected in the vicinity of North Stonington by the U.S. Geological Survey (USGS) indicate that annual peak flow can occur during any season of the year. The highest peak flows usually occur during March or April because of runoff from spring rains, which is often increased by snowmelt; or during September or October, due to runoff from tropical storms.

There are no flood-control structures in the Town of North Stonington. The existing dams on the streams are old mill dams, and none of these structures regulate flow. However, storm runoff intensity is greatly moderated by large areas of swamp, numerous ponds, and low gradient streams in the town.

Buildings located in flood hazard areas are primarily residential. Most of the structures that are threatened by flooding are located within the 100-year floodplain.

The Town of North Stonington has no formalized program currently in place to identify the location or the number of structures that are susceptible to flooding. 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 a review of the Town of North Stonington Flood Insurance Rate Maps and topographic maps, residential structures are subject to flooding during significant flood events throughout the town.

Flooding of residential structures occurs at several locations throughout North Stonington including Grindstone Hill Road near Wyassup Brook and Yawbux Valley Road near Yawbucs Brook. Clark Falls Road floods in two locations near Pendleton Brook, and Glade Brook. Structures on Main Street are potentially flooded by the Shunock River.

## **B. Commercial/Industrial**

There are areas of commercial and industrial properties that have been identified as being located within the floodplain and are considered to be susceptible to damage.

One area of development that is situated in the floodplain is near the center of North Stonington. The Shunock River flows through sections of Main Street causing this area to become a potential risk for flooding during severe storms.

## **C. Critical Facilities**

A review of the critical public facilities in the Town of North Stonington indicates that the facilities are located in areas free from flooding and are generally protected from other potential hazards.

## **D. Transportation Corridors**

North Stonington has several major transportation routes including Interstate 95, Route 2, Route 49, Route 184, and Route 201. A series of crossings of the highway have been constructed to allow passage of roadways under and over the highway.

Flooding is a concern for many roadways throughout North Stonington. The potential flooding may affect emergency response. The following roads are susceptible to flooding during severe storms:

**Roadways at Risk of Flooding:**

Prentice Brook

Northwest Corner Road

Ashwillet Brook

Miller Road

Route 201 (Cossaduck Hill Road)

Yawbucs Brook

Route 2 (Norwich Westerly Road)

Lantern Hill Brook

Wintechog Hill Road

Wyassup Brook

Wyassup Road

Route 49 (Pendleton Hill Road)

Assekonk Brook

Route 201 (Mystic Road)

Jeremy Hill Road

Route 2 (Norwich Westerly Road)

Pendleton Hill Brook

Grindstone Hill Road

Route 49 ( Pendleton Hill Road)

Green Fall River

Putker Road

Glade Brook

Pine Woods Road

Town officials have also expressed concern with increased thru-traffic in North Stonington. 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 North Stonington.

#### **A. Prevention**

Hazard prevention includes identification of risks and the use of land-use regulatory and other available management tools to prevent future damage. North Stonington 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 state 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 of the Regional Hazard Mitigation Plan.

## **C. Emergency Services**

Emergency communication is a critical aspect of the hazard response programs currently in place in North Stonington. 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 applied 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 of 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 North Stonington.

The following list includes some common types of public information measures:

### 1. Map Information

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 North Stonington'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, 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 North Stonington Hazard Mitigation Projects**

<b>Hazard</b>	<b>Vulnerable Location</b>	<b>Mitigation Project</b>	<b>Priority</b>
Flooding	Structures in Center of North Stonington	Floodproofing, Relocation, or Building Elevation	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
Flooding	Town Wide	Develop a Flood Audit Program	High
All Hazards	Town Wide	Review of Town Transportation Facilities to Identify Critical Risks	Medium

**The Town of North Stonington Hazard Mitigation Projects**

Hazardous Materials Spills on Roadways	State Roads	Identify Appropriate Improvements to Traffic Infrastructure and Emergency Response Training and Equipment	Medium
<b>Hazard</b>	<b>Vulnerable Location</b>	<b>Mitigation Project</b>	<b>Priority</b>
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 North Stonington 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
<b>Hazard</b>	<b>Vulnerable Location</b>	<b>Mitigation Project</b>	<b>Priority</b>
Earthquake Hazards	Town Wide	Complete an Earthquake Survey of all Critical Facilities and Infrastructures	Low

**The Town of North Stonington 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