TOWN OF SUTTON

All-Hazards Mitigation Plan

Town of Sutton

P.O. Box 106
Sutton, VT 05488
(802) 467-3377

July 24, 2005

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This Plan is not eligible for FEMA approval unless Sutton becomes a member of the National Flood Insurance Program.

Prerequisites

Certificate of Local Adoption

Town of Sutton

A Resolution Adopting the All-Hazards Mitigation Plan

WHEREAS, the Town of Sutton has worked with the Northeastern Vermont Development Association to identify hazards, analyze past and potential future losses due to natural and human-caused disasters, and identify strategies for mitigating future losses; and

WHEREAS, the Sutton All-Hazards Mitigation Plan contains recommendations, potential actions and future projects to mitigate damage from disasters in the Town of Sutton; and

WHEREAS, a meeting was held by the Sutton Selectboard to formally approve and adopt the Sutton All-Hazards Mitigation Plan as an annex to the Northeastern Vermont Development Association's (NVDA) All-Hazards Mitigation Plan.

NOW, THEREFORE BE IT RESOLVED that the Sutton Selectboard adopts The Sutton All-Hazards Mitigation Plan Annex as well as the associated NVDA All-Hazards Mitigation Plan.

_____ _____
Date Selectboard Chair

_____
Selectboard Member

_____
Selectboard Member

_____
Selectboard Member

_____
Selectboard Member

_____
Attested to by Town Clerk

Section One - Planning Process

1.1 Introduction and Purpose

This Annex, when used with the appropriate sections of the basic NVDA All-Hazards Plan, is an All-Hazards Mitigation Plan for the Town of Sutton. The purpose of this plan is to assist the Town of Sutton to identify all hazards facing the community and identify strategies to begin reducing risks from identified hazards. A Pre-Disaster Mitigation Planning Grant to the Northeastern Vermont Development Association (NVDA) assisted the Town of Sutton in preparing this plan.

The impact of expected, but unpredictable natural and human-causes events can be reduced through community planning. The goal of this plan is to provide all-hazards local mitigation strategies that make the communities in northeastern Vermont more disaster resistant.

Hazard Mitigation is any sustained action that reduces or eliminates long-term risk to people and property from natural and human-caused hazards and their effects. Based on the results of previous efforts, FEMA and state agencies have come to recognize that it is less expensive to prevent disasters than to get caught in a repetitive repair cycle after disaster have struck. This plan recognizes that communities have opportunities to identify mitigation strategies and measures during all of the other phases of Emergency Management – Preparedness, Response, and Recovery. Hazards cannot be eliminated, but it is possible to determine what they are, where they might be most severe and identify local actions that can be taken to reduce the severity of the hazards.

Hazard mitigation strategies and measures alter the hazard by eliminating or reducing the frequency of occurrence, avert the hazard by redirecting the impact by means of a structure or land treatment, adapt the hazard by modifying structures or standards or avoid the hazard by stopping or limiting development and could include projects such as:

- Flood proofing structures
- Tying down propane/fuel tanks in flood prone areas
- Elevating structures
- Identifying high accident locations
- Monitor and protect drinking water supplies
- Enlarge or upgrade culverts and road standards
- Proactive local planning
- Ensuring that critical facilities are safely located
- Providing public information

1.2 About Sutton

Population: 1,034
Median Housing Value: $78,286
Caledonia County

Chartered: February 26, 1782 (Vermont Charter)
Area: 24,633 Acres / 38.49 Square Miles
Coordinates (Geographic Center): 72°02'W 44°38'N
Altitude ASL: 1,152 feet
Population Density (persons per square mile): 26.0
Tax Rate: $2.057 ('03)
Equalized Value: $51,763,776 ('03)

1.3 Community History and Background[1]

The Town of Sutton is located in northern Caledonia County in the Northeast Kingdom of Vermont. The town covers an area of about 24,000 acres, of which 20,000 acres is forested. The land is mountainous in the northern part of town and gradually changes to low rolling hills towards the south. There are three drainage basins in the town which feed the West Branch of the Passumpsic River, the Sutton River, and Calendar Brook. These streams flow to the Connecticut River and their headwaters are located in or near the town. The town also has several small lakes that are located in Willoughby State Park, which occupies its northwest corner.

The forests in Sutton can be classified as mixed northern hardwoods. The predominance of hardwoods is a result of past logging practices which selectively cut softwoods for the pulp and paper industry. The agricultural lands are good and the dairy farms which subsist on these lands make Sutton an important agricultural community in Caledonia County. The majority of the population commutes out of town to work. Occupations in town consist mainly of farming, logging, municipal services, education, working in the two local sawmills or in home occupations.

Sutton has its own volunteer fire department and has access to three dry hydrants in town and one additional dry hydrant in neighboring Sheffield. The Sutton fire department has verbal agreements for back up response with W. Burke, Lyndonville, East Burke, Newark, and Sheffield.

Sutton has a municipal water system with 22 hook-ups. The secured well is next to the school. There is no municipal sewer in Sutton and all residential and business occupations use on-site sewage systems.

The major transportation routes in Sutton are the railroad, Route 5, and Route 5A. The Portland Pipeline follows Vermont Route 5 and the rail line and there is a pump station on pipeline. There are two active pipes out of three and the pipeline is 8-10 feet deep in most places.

The North American Boarding School on King George Farm has 20-30 students, with up to 60 persons on-site including staff. The Sutton School has approximately 128 students in K-8. The 63 students in grades 9-12 go to the Lyndon Institute.

[1] Excerpts from the expired Sutton Town Plan 1994?

Critical Facilities and Resources in Sutton

DHART Landing Zone	Sutton LZ - 01
Electric Utility	Vermont Electric Coop (VEC)
Electric Utility	Village of Barton Electric
Electric Utility	Village of Lyndonville Electric
Emergency Shelter	Sutton Graded School
Emergency Shelter	Sutton Town Clerk's Office
Emergency Shelter	Sutton Firehouse
Emergency Shelter	Sutton Baptist Church
Emergency Shelter	Sutton Grange Hall
Municipal Office	Sutton Town Office
Pipeline	Portland Pipeline
Railway	Washington County Railroad Company, CT River Subdivision
Schools	Sutton Village School
State Highway	US Route 5
State Highway	US Route 5A
Water Supply	Sutton Water System
Water Supply	King George School I, Boys Dorms
Fire Department	Sutton Fire Dept.

Section Two - Risk Assessment

2.1 Identifying Hazards

Meeting Date: 8/26/04
Meeting Attendees: Doreen Devenger – Town Clerk, David McKee, Tim Simpson – Selectboard Chair, Erwin Weed, Rick Jackson - Road Commissioner

Sutton local officials identified several hazards that are addressed in this annex. These were identified through interviewing the Selectboard, the town clerk and a road commissioner. These individuals have a thorough working knowledge of the community through many years of living in the town and being familiar with local issues.

Table 2-A Hazard Identification and Risk Assessment

Possible Hazard	Likelihood	Impact	Community Vulnerability	Most Vulnerable
Tornado	Low	Low	Low	Structures
Flood	Low	Low	Low	
Flash Flood	Medium	Medium	Low	
Hazardous Materials	Low	Low	Low	Roads. Not many around railroad
Radiological Incident	Low	Low	Low	Residents
Structure Fire	Low	Low	Low	Downtown, residences
Power Failure	Low-Med	Low	Low	Residences. Depends on storm.
Winter Storm/Ice	Med/High	Low	Low	Residences.
High Wind	Low	Low	Low	Trees down, loss of power
Aircrash	Low	Low	Low	Site specific
Water Supply Contamination	Low	Low	Low	Public water supply.
Hurricane	Low	Low	Low	Power lines, residences
Earthquake	Low	Low	Low	Site specific
Dam Failures	Low	Low	Low	Residences, infrastructure.
Drought	Low	Low	Low	Water supply
Chemical or Biological Incident	Low	Low	Low	Site specific
Highway Incidents	Low	Low	Low	Site specific
Wildfire/Forest Fire	Low	Low	Low	Railroad, brush fire
Landslide	Low	Low	Low	Site specific
School Safety Issues	Low	Low	Low	Students, teachers, hostage issues
Terrorism	Low	Low	Low	Residents, businesses, local officials

Sutton is most vulnerable to: flash floods, power failures and winter storm/ice.

2.2 Profiling Hazards

Only those hazards that are considered as having the greatest vulnerability or likelihood of vulnerability in Sutton will be profiled below. While those not being profiled are still important, they are considered a lower threat to the community where damage would be minimal and unlikely.

Floods
There has been one flood event between 1989 and 2004 that has qualified for FEMA assistance. There are no properties that have been identified as repetitively damaged using FEMA funds. Several areas in town were affected with road washouts. The Town of Sutton is located high up on hill and all water drains to lower elevations so flooding is more likely in towns downstream.

Past FEMA Declarations and Funding

Town	NFIP	1184 Jul-97
Sutton	NO	$ 12,430

Hazardous Materials
Route s 5 and 5A have most of the high volume traffic in Sutton including large trucks carrying hazardous materials, mainly propane or fuel. The railroad has regular daily traffic, some of which is hazardous material. The Portland Pipeline has a pump station in Sutton and two of three pipes are active. The pipeline is buried 8-10 feet deep in most places.

Structure Fires
Structure fires occur on average one to two times per year. Most calls are for accidental fires or for chimney fires.

Power Failure
Lyndonville Electric, Barton Village, and the Vermont Electric Coop are the power suppliers for the Town of Sutton. There are occasional power outages, but this is not identified as a major problem. Power failures are typically due to high winds and heavy snow or ice causing power lines to collapse. Due to the remoteness of Sutton, it can take some time to get crew to the area to repair the lines. Most residences have back up heat and store water in preparation for these outages.

Winter Storm/Ice
High winds, large snowstorms, heavy rains and thick ice storms are common in Sutton. With high elevations and residents living in remote areas, this could be a very serious problem. With very cold winters and frequent power outages, local officials are on the alert for severe weather.

Highway Accidents
There are no particular high accident locations (HALs) although speed and drinking contribute to those local accidents that do occur.

2.3 Vulnerability: Overview

In terms of vulnerability, Sutton rated these potential hazards as most likely: Flash Floods, Power Failures and Winter Storms/Ice. Mitigation strategies are identified for the highest priority projects in Section Three. Only those hazards that were identified as a high risk to the town were profiled. While other types of hazards may cause smaller problems for the community, they pose a lower risk.

2.4 Identifying Structures

It is difficult to estimate the total number of structures in the 100-year limit of the FIRM identified floodplain as those maps do not accurately match up to the E911 maps that are based on the structures' geographical location (latitude and longitude). However, it can be estimated that there are approximately 10 structures in or near the flood areas depicted on the NFIP maps.

2.5 Estimating Potential Losses

Future losses should be lessened through mitigation of the repetitively flooded properties, most of which are roads, bridges and culverts. The FIRM maps are not compatible with the GIS maps containing contour, rivers, roads and structures and it is not possible to estimate the amount of potential loss at this time. It is recommended that the NFIP maps be redone using the Vermont Geographic Information System standards based on orthophoto mapping.

The Median Housing Value (MHV) for Sutton in 2003 was $78,286. The Equalized Value for all properties in Sutton in 2003 was $51,763,776. If one percent (1%) of all properties in Sutton were damaged, the value would be assessed at $51,764. The past FEMA damages over the last 16 years were $12,430.

2.6 Analyzing Development Trends

Sutton is a growing community and does have zoning in place to guide its growth. Sutton is not a member of the National Flood Insurance Program but they do address flood hazard areas in their local zoning regulations.

Population Increase 2000 to 2003

Town	Estimated Pop 2003	Census Pop 2000	Increase
Sutton	1034	1001	3.3%

Section Three - Mitigation Strategy

Hazard Mitigation Strategies and Measures **avoid** the hazard by stopping or limiting new exposures in known hazard areas, **alter** the hazard by eliminating or reducing the frequency of occurrence, **avert** the hazard by redirecting the impact by means of a structure or land treatment, **adapt** to the hazard by modifying structures or standards and could include tools or projects such as:

- **Town Plan** - this document contains goals and objectives for community growth, health, safety and welfare for public and private interests.
- **Zoning Status** – This is a snapshot of the current zoning tools in effect.
- **NFIP** – National Flood Hazard Insurance Program.
- **C & S = Highway Codes and Standards** – Most all Vermont communities have adopted the Vermont Transportation Agencies recommended Highway Codes and Standards. This is perhaps the one most beneficial mitigation program in Vermont and the NVDA region. By adopting these codes, all maintenance and new construction on roads,

highways, bridges and culverts must be enhanced to meet the new standards to withstand large flood events.

- **VTRC** – Sutton does have a Vermont Red Cross Shelter Pre-Agreement. When a Pre-Agreement is in effect, local representatives are trained to open a shelter if needed. This will allow for a more efficient use of the VT Red Cross if and when needed.

- **Emergency Operation Plan (EOP)** – Sutton is in the process of having its EOP updated to include all-hazards through a Homeland Security Grant to the NVDA. This plan will be substantially completed by July 2005 and will include this Plan as its risk assessment to all-hazards.

- **Rapid Response Plan (RRP**) – Sutton has updated its RRP as of October 28, 2004.

- **Emergency Training -** Fire and rescue personnel continue to participate in training offered for its volunteers, particularly with the equipment upgrades through the Dept. of Homeland Security.

Table 3-A Development Tools

Town	Town Plan	Zoning	NFIP	Flood Regs	Codes &Standards	Culvert Inv.	VT Red Cross	Maps FIRM
Sutton	NO	YES	NO	YES	NO	YES	YES	YES

3.1 Regional Hazard Mitigation Goals

- Reduce the loss of life and injury resulting from all hazards.
- Mitigate financial losses incurred by municipal, residential, industrial, agricultural and commercial establishments due to disasters.
- Reduce the damage to public infrastructure resulting from all hazards.
- Recognize the connections between land use, storm-water road design and maintenance and the effects from disasters.
- Ensure that mitigation measures are compatible with the natural features of community rivers, streams and other surface waters; historic resources; character of neighborhoods; and the capacity of the community to implement them.
- Encourage all-hazard mitigation planning as a part of the municipal planning process.

3.2 Community Preparedness Goals

Overall, Sutton is working to decrease its risk to flooding, water supply contamination and hazardous material incidents through proactive planning, policies and mitigation actions. Other lesser risks are being addresses through the same procedures and policies.

- Review this plan with essential town government.

- Review and study the need for additional capacity and capability in the Fire Department to minimize the impact of a HAZMAT incident.

- Ensure that all emergency response and management personnel receive HAZMAT Awareness training as a minimum.

3.3 Existing Hazard Mitigation Programs

Sutton has been proactive in planning its future as well as protecting its citizens from potential disasters. The fire department is well trained although there is a declining volunteer population. The shelter has been certified by the Vermont Red Cross. Sutton is located in such an area that is rural and not overly susceptible to severe hazards that could impact the community.

3.3.1 Emergency Management Planning

Sutton has recently updated their Rapid Response Plan. The fire department has actively sought funds for upgrading their response equipment through recent Homeland Security grants.

3.3.2 Codes and Standards

Sutton has not yet adopted the recommended Highway Codes and Standards that require regular upgrades on bridges, highways, ditching and culverts to avoid flood damage. A culvert inventory has been completed and the Selectboard are interested in adopting the Codes and Standards.

3.3.3 Local Planning and Zoning, NFIP

Sutton has local zoning. They are not a member of the National Flood Insurance Program. All development in or near the identified flood areas must conform to zoning standards.

3.3.4 Protection of Town Records

The town office has a vault to protect public records from fire, damage or theft/vandalism.

3.3.5 School Drills

The K-8 Sutton School practices regular evacuation drills.

3.4 Preparedness Tools

Public Awareness, Training, Education

- Conduct Emergency Drills involving all elements of the community to practice procedures associated with a simulated varies incidents.
- Use this plan for Hazard Identification and Mapping.

Public Protection

- Designate shelters.
- Emergency communications and information systems (NOAA weather receivers, Emergency Alert System (EAS)) are at the Command Center.
- Update Hazard Vulnerability Assessments as needed.

- Review and modify evacuation and sheltering plans based on the results of drills and exercises or procedures implemented in an actual incident.
- American Red Cross chapter may be contacted to assist with community education programs.
- Maintain current Rapid Response Plans and the Emergency Management Operations Plans.
- Regularly scheduled maintenance programs are ongoing (culvert survey & replacement, ditching along roadways, cutting vegetation to allow visibility at intersections).
- The town is proactive in preparing for potential disasters.
- Emergency response and management staff attend professional training sessions.

Financial and Tax Incentives.

- Use State and Federal funding for mitigation projects and activities.

Hazard Control and Protective Works.

- Utilize regular maintenance programs (culvert survey & replacement, ditching along roadways, cutting vegetation to allow visibility at intersections).

Insurance Programs.

- Participate in NFIP.

Land Use Planning/Management: Flood.

- Sutton has local zoning. They have established Flood Hazard Areas based on the Flood Insurance Rate Maps.

Protection/Retrofit of Infrastructure and Critical Facilities.

- A map of Critical Facilities is attached.

3.5 Analysis of Mitigation Actions

Priority Actions:

Local officials in Sutton have identified several mitigation actions to be included in the Hazard Mitigation Plan. Table 3-B, Implementation Strategy contains these actions, along with the responsible agency, the funding source, and implementation timeframe.

The Sutton local officials have prioritized the actions using the STAPLE+E criteria, a planning tool used to evaluate alternative actions. The following table explains the STAPLE+E criteria.

S – Social	Mitigation actions are acceptable to the community if they do not adversely affect a particular segment of the population, do not cause relocation of lower income people, and if they are compatible with the community's social and cultural views.
T – Technical	Mitigation actions are technically most effective if they provide long-term reduction of losses and have minimal secondary adverse impacts.
A – Administrative	Mitigation actions are easier to implement if the jurisdiction has the necessary staffing and funding.
P – Political	Mitigation actions can truly be successful if all stakeholders have been offered an opportunity to participate in the planning process and if there is public support for the action.
L – Legal	It is critical that the jurisdiction or implementing agency have the legal authority to implement and enforce a mitigation action.
E – Economic	Budget constraints can significantly deter the implementation of mitigation actions. Hence, it is important to evaluate whether an action is cost-effective, as determined by a cost benefit review, and possible to fund.
E – Environmental	Sustainable mitigation actions that do not have an adverse effect on the environment, that comply with Federal, State, and local environmental regulations, and that are consistent with the community's environmental goals, have mitigation benefits while being environmentally sound.

3.6 Implementation of Mitigation Actions

Flooding, power failures and severe weather are the main threats to Sutton. Local officials are proactive in preparing for the hazards for which they are most vulnerable. Their highest priority concern is the health safety and welfare of the local citizens and businesses. The mitigation action determined to have the highest priority was the most cost effective alternative to the community. Readiness and timeliness of project was also important.

The evaluating of the STAPLEE criteria is takes into consideration the best available information, any engineering evaluations, and best judgment. The action listed in Table 3-B is important to community, cost effective and feasibility to the community.

Table 3-B Mitigation Projects by Priority

Project/Priority	Mitigation Action	Who is Responsible	Time Frame and Potential Funding	Initial Implementation Steps
Consider becoming a member if the National Flood Insurance Program (NFIP) HIGH	Will provide insurance protection for residents and businesses.	The Selectboard	2005/6 – No funds needed	Contact NVDA for assistance to begin the flood hazard planning process. 802-748-5181.
One generator for the emergency shelter at the school.	Will provide back-up power at shelter. Needed due to frequent power outages.	Selectboard and local emergency management coordinator.	2005/6 – Homeland Security Grants, HMPG, EMPG	Contact Vermont Emergency Management for grant information. 800-347-0488
Need a new bridge in place of culvert on Road #3.	The culvert is not large enough and needs a bridge to alleviate problems.	Selectboard and road commissioner.	2005/6 – VTRANS, Vermont Local Roads Program.	Contact VTRANS and the VT. Local Roads Program to initiate grant request.
Adopt Codes and Standards as recommended by VTRANS - High	Adoption of standards will help improve roads, bridge and culvert upgrades and provide for additional grant funds in a disaster.	Selectboard	2005/6 – No funds needed.	Contact your VTRANS district manager - (802) 748-2911
GIS mapping of NFIP areas	Identify flood areas with vulnerable structures consistent with Vermont GIS mapping effort.	Northeastern Vermont Development Association	2006/7 – FEMA FMA funds, HMGP or EMPG funds	Coordinated statewide NFIP mapping effort for all towns.

Section Four - Plan Maintenance Process

4.1 Initial Approval Process

In addition to public involvement in the initial development of the plan, opportunities for public comment will include a warned adoption to review the plan prior to final adoption. The fire chief has been instrumental in participating in the review of the document with the local officials.

After local review and comment, the draft local annex is presented to the State Hazard Mitigation Committee through the State Hazard Mitigation Officer (SHMO) for review and comment. The SHMO will issue a recommendation for forwarding the plan to the FEMA Region I. After receipt of comments from FEMA Region I staff, final changes will be made and the resulting document adopted by the Sutton Selectboard. The final plan will be returned to FEMA Region I for formal approval.

4.2 Routine Plan Maintenance

The Hazard Mitigation Plan is dynamic and changing. To ensure that the plan remains current it is important that it be updated periodically. The plan shall be updated every five years, pending ongoing financial resources, in accordance with the following procedure:

4.2.1 The Sutton Selectboard will either act as the review committee or appoint a review committee.
4.2.2 The committee will discuss the process to determine if the evaluation criteria is still appropriate or modifications or additions are needed to the mitigation strategies based on changing conditions since the last update occurred. Data needs will be reviewed, data sources identified and responsibility for collecting information will be assigned to members.
4.2.3 A draft report will be prepared based on the evaluation criteria and in conformance with the FEMA Region I Local Hazard Mitigation Plan Crosswalk document.
4.2.4 The Selectboard will have the opportunity to review the draft report. Consensus will be reached on changes to the draft.
4.2.5 Changes will be incorporated into the document.
4.2.6 The plan will be reviewed by Vermont Emergency Management (SHMO) staff and then FEMA Region I staff.
4.2.7 VEM and FEMA comments will be incorporated into the plan.
4.2.8 The Selectboard will warn the plan for approval at its regular meeting.
4.2.9 The Selectboard will incorporate any community comments into the plan.
4.2.10 The Selectboard will finalize and adopt the plan and distribute to interested persons.

4.3 Programs, Initiatives and Project Review

Although the plan will be reviewed, pending ongoing financial resources, in its entirety every five years the town may review and update its programs, initiatives and projects more often based on the above procedure as changing needs and priorities arise.

4.4 Post-Disaster Review Procedures

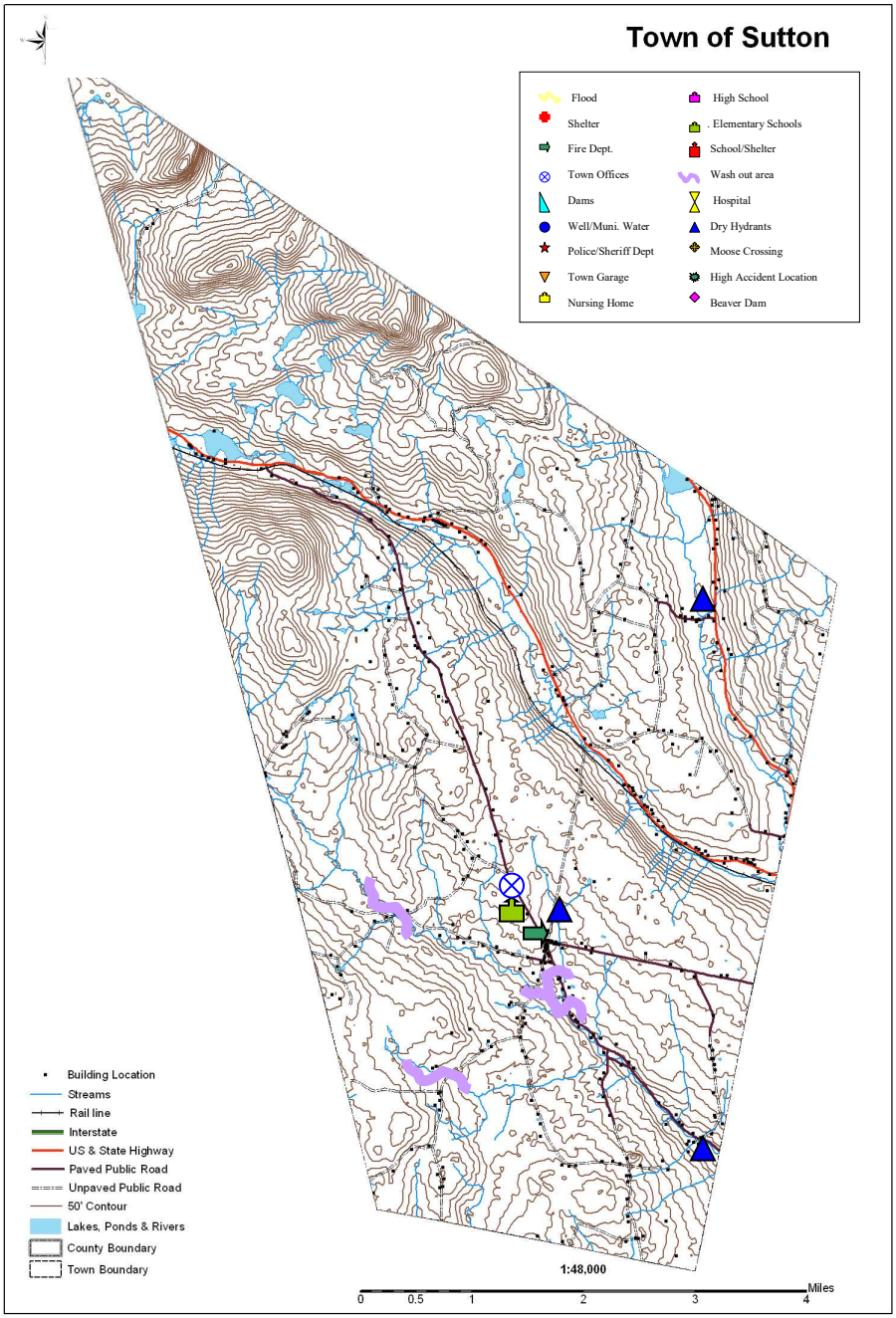
Should a declared disaster occur, a special review will occur in accordance with the following procedures:

1. Within six (6) months of a declared emergency event, the town will initiate a post-disaster review and assessment.
2. This post-disaster review and assessment will document the facts of the event and assess whether existing Hazard Modification Plans effectively addressed the hazard.
3. A draft report After Action Report of the assessment will be distributed to the Review/ Update Committee.

4. A meeting of the committee will be convened by the Selectboard to make a determination whether the plan needs to be amended. If the committee determines that NO modification of the plan is needed. Then the report is distributed to interested parties.
5. If the committee determines that modification of the plan IS needed, then the committee drafts an amended plan based on the recommendations and forwards it to the Selectboard for public input.
6. The Selectboard adopts the amended plan.

Section 5 - Maps

A. Essential Facilities Map and Areas of Local Concern


Town of Sutton
Flood
Shelter
Fire Dept.
Town Offices
Dams
Well/Muni. Water
Police/Sheriff Dept
Town Garage
Nursing Home
High School
. Elementary Schools
School/Shelter
Wash out area
Hospital
Dry Hydrants
Moose Crossing
High Accident Location
Beaver Dam
Building Location
Streams
Rail line
Interstate
US & State Highway
Paved Public Road
Unpaved Public Road
50' Contour
Lakes, Ponds & Rivers
County Boundary
Town Boundary
1:48,000
0 0.5 1 2 3 4 Miles