

Caledonia, Essex and Orleans Counties, VERMONT

REGION WIDE – All HAZARDS PRE-DISASTER MITIGATION PLAN For the Northeastern Vermont Development Association Volume I (Regional Plan)

Troy, Vermont Flooding 2002



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Acknowledgements

Two Pre-Disaster Mitigation (PDM) Grants and two Flood Mitigation Assistance Program (FMAP) Grants through the Federal Emergency Management Agency (FEMA) to the Northeastern Vermont Development Association funded this project. It was administered through Vermont Emergency Management. Specifically the grants were EMB-2002 GR-0692, EMB-2003 GR-0752, FMA-2002 GR-0713 and FMA 0790-2003-02. The Northeastern Vermont Development Association (NVDA) applied for the funds to develop this plan. Vermont Emergency Management, Vermont Agency of Transportation, Vermont Agency of Natural Resources, the North East States Emergency Consortium, Vermont Department of Housing and Community Affairs, the Northeastern Vermont Development Association staff, local officials, emergency responders as well as others were instrumental in supplying information needed for this plan.

Executive Summary

Volume I – Northeastern Vermont Development Association All Hazards Pre-Disaster Mitigation Plan – Regional Approach (Multi-Jurisdictional)

Hazard Mitigation is a sustained effort to permanently reduce or eliminate long-term risk to people and property from the effects of hazards. Floods, Winter Storms, High Winds, Severe Storms and Hazardous Material Spills are some of the hazards experienced by Vermont and the communities of Caledonia, Essex and Orleans Counties. The purpose of this plan is identify specific hazards that are common to the communities of Caledonia, Essex and Orleans Counties and those that are unique to each of those communities, and establish a framework for them to reduce the risks associated with these hazards. The Caledonia, Essex and Orleans Counties All Hazards Pre-Disaster Mitigation Plan is organized into five main sections preceded by a Prerequisite Section. Volume II includes **Local** All Hazards Pre-Disaster Mitigation Plans as separate appendices.

The [Prerequisite Section](#) addresses the applicable laws and rules that govern pre-disaster mitigation at the federal, state and local levels. This section also serves as an introduction, explaining the purpose and benefits of mitigation in general and the Caledonia, Essex and Orleans Counties Plan in particular. It will describe and document the multi-jurisdictional adoption procedure of this regional plan by local communities in the Northeastern Vermont Development Association region.

Section One - The Planning Process - documents the planning process used to develop the plan and documents resources, individuals, and community involvement. Fifty-Five communities are represented and nearly 300 local officials, responders, and volunteers participated in this planning process.

Section Two – Risk Assessment - is the hazard identification and risk assessment (HI/RA). This section provides a summary of the Vermont HI/RA, an overview of the history and demographics of Caledonia, Essex and Orleans Counties, a review of the recent disaster history of the county and a discussion of the types of hazards to which the communities that make up Caledonia, Essex and Orleans Counties are susceptible. The hazards identified by the Northeastern Vermont Development Association (NVDA) were Flood, High Wind, Heavy Snow, Ice Storm, Hazardous

Materials, and Power Outage Issues. As a special note, the NVDA region shares seven international border crossings with Quebec, Canada. Security issues, along with the hazardous materials on the roads and railroads that are traveling through the region are cause for extra planning precautions. It is important to note that there are some properties in the region that have suffered repetitive losses from past disasters. Vulnerability assessment, estimating potential losses, and reviewing development trends is included in this section.

Section Three - Mitigation Strategy - gives an overview of mitigation strategies and current and proposed future land use. It identifies current NVDA policies and guidance that support hazard mitigation, documents ongoing or planned hazard mitigation programs, projects and activities for the county and makes recommendations for initiatives that will benefit all of Caledonia, Essex and Orleans Counties. Also included in this section is a listing of communities in the county that participate in the National Flood Insurance Program (NFIP). This section identifies potential funding sources and the who, what, when, and how the plan will be implemented on the regional and local levels. It will discuss funding opportunities and integration with local plans. Many mitigation actions have already taken place over the last few years due to community awareness. These actions will be detailed along with planned mitigation actions, how will they get accomplished, the timing of them and how they will be financed.

Section Four – Plan Maintenance - details the ongoing review process of the plan pending continued funding levels through FEMA. Priority projects and a project list should be reviewed on an annual basis with a complete revision of the plan every five years, and with procedures for how it will be reviewed and updated to account for projects that are undertaken and completed, to consider the impact of future disasters and identify new needs, and to reflect changing local priorities.

Section Five – Resource Attachments - provides a list of resources available to the region and communities for mitigation related information and/or grant funds.

Section Six – Full HAZUS Analysis

Maps – Four maps of each Caledonia, Essex and Orleans Counties prepared by NVDA

1. Topographic maps
2. Major Drainage Basins
3. Transportation Network, Rail and Portland Pipeline Corridors
4. Electrical Transmission Lines

Volume II – Local All Hazard Pre-Disaster Mitigation Plans - Accompanying the plan are annexes with individual community Pre-Disaster Mitigation Plans that contain a community background and recent disaster history with a discussion of the unique vulnerabilities for each town/village/city. For the initial draft submittal and review to Vermont Emergency Management, only two local communities of the 55 in the NVDA region will be submitted. The two communities attached with this draft are Hardwick and Wheelock. The remaining local plans will be forthcoming once they are assured consistency with DMA 2000 guidelines.

Table of Contents

Acknowledgements	3
Executive Summary	3
<i>Prerequisites</i>	7
Local Jurisdiction Plan Adoption	8
Multi-Jurisdiction Plan Adoption	9
<i>Section I – Planning Process</i>	10
1.1 Purpose	10
1.2 Background	10
1.3 Documentation of the Planning Process	11
1.4 Public Involvement	12
Tab 1-A List of Participants	15
Tab 1-B Community Questionnaire administered verbally at meetings	20
Tab 1-C Hazard Inventory Matrix.....	21
<i>Section 2 - Risk Assessment</i>	22
2.1 Identifying Hazards	22
2.1.1 NVDA HI/RA	22
2.1.2 Significant Hazards.....	23
Tab 2-A Priority Hazards	24
2.1.3 Overall Weather Threats	24
2.2 Profiling Hazards	26
Tab 2-B Past FEMA Damage	28
Tab 2-C Repetitive Damage	29
Tab 2-D Vermont Non-Participating NFIP Communities	29
Tab 2-E HAZMAT Incidents	35
Tab 2-F HAZMAT Storage Sites	38
Tab 2-G Power Utility Outages	59
Tab 2-H Dams	65
<i>Section 3 - Mitigation Strategies</i>	71
3.1 Overall Hazard Mitigation Goals	71
3.2 NVDA Goals Supporting Hazard Mitigation	72
3.3 State Hazard Mitigation Goals	73
3.3.1 State Plan Goal 1: Avoidance of Hazards	73
3.3.2 State Plan Goal 2: Prioritize Public Safety	74
3.3.3 State Plan Goal 3: Utilize Federal Funding to Support Hazard Mitigation Initiatives	75
3.3.4 State Plan Goal 4: Integrate Plans.....	77
3.4 Mitigation Actions	78
3.5 Implementation of Mitigation Actions	84
3.6 Community Hazard Mitigation Project Application Process and Evaluation Criteria	85

3.7	Administration of Projects.....	86
Tab 3-A	Project Application Form (Likely to be updated)	87
Tab 3-B	Repetitive Losses	90
Tab 3-C	Projects/Activities for Flood/Flash Flood Mitigation Strategy.....	90
Tab 3-D	Maintenance for Electric Utilities.....	93
3.8	Local Planning Efforts	94
Tab 3-E	Status of Local Planning Tools	95
3.9	Incorporation of Mitigation Strategies and Goals into Local Planning Efforts.....	96
3.10	Development Trends	96
3.11	Building Design, Codes, Use Regulations.....	98
3.12	How to Prepare for ALL HAZARDS.....	106
<i>Section 4 - Plan Maintenance Process</i> 113		
4.1	Initial Plan Approval Procedures.....	113
4.2	Evaluation and Updates.....	113
4.3	Programs, Initiatives and Projects Review	114
4.4	Post-Disaster Review Procedures.....	114
<i>Section 5 - Resources</i> 114		
Tab 5-A	Description of Potential Funding Sources by Hazard.....	121
<i>Section 6 - Full HAZUS Analysis</i> 138		
VOLUME II – LOCAL APPENDICES 139		

MAPS – Four maps of each Caledonia, Essex and Orleans Counties prepared by NVDA

1. Topographic maps
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4. Electrical Transmission Lines

Northeastern Vermont Development Association Regional All Hazards Pre-Disaster Mitigation Plan December 20, 2004

Prerequisites

This plan is being adopted through Multi-Jurisdictional Planning Participation. It has been advised by Vermont Emergency Management planning staff to wait for final adoption by the local jurisdictions until all state and FEMA reviews have taken place. This avoids adoption then amendment procedures at the local level. This document was initially prepared for review in October 2004. A review period through VEM and FEMA will allow time in the schedule to adopt the plans at the local level after to the November 1, 2004 date. The State of Vermont has prepared an Pre-Disaster Mitigation Plan that will cover public assistance needs for all Vermont communities should a Presidential disaster declaration be necessary prior to the final adoption of the NVDA Regional All Hazards Pre-Disaster Mitigation Plan and the local PDM plans.

Federal Enabling Language -

The Disaster Mitigation Act of 2000 (DMA 2000) (P.L. 106-390) provides an opportunity for States, Tribes, and local governments to take a new and revitalized approach to mitigation planning. DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the Act) by repealing the previous Mitigation Planning section (409) and replacing it with a new Mitigation Planning section (322). This new section emphasizes the need for State, Tribal, and local entities to closely coordinate mitigation planning and implementation efforts. It continues the requirement for a State mitigation plan as a condition of disaster assistance, and creates incentives for increased coordination and integration of mitigation activities at the State level through the establishment of requirements for two different levels of State plans: "Standard" and "Enhanced." States that demonstrate an increased commitment to comprehensive mitigation planning and implementation through the development of an approved Enhanced State Plan can increase the amount of funding available through the Hazard Mitigation Grant Program (HMGP). Section 322 also established a new requirement for Local Mitigation Plans, and authorized up to 7% of HMGP funds available to a State to be used for development of State, Tribal, and Local Mitigation Plans.

To implement the DMA 2000 planning requirements, FEMA published an Interim Final Rule (**the Rule**) in the Federal Register on February 26, 2002. This Rule (44 CFR Part 201) established the mitigation planning requirements for States, Tribes, and local communities. Normally FEMA publishes a proposed rule for public comment before publishing a final rule. This process can result in a lengthy comment and response period, during which the proposed rule is not legally effective or enforceable. Because certain types of Stafford Act assistance are conditioned on having an approved mitigation plan, FEMA wanted to publish an effective rule providing the DMA 2000 planning requirements in order to position State and local governments to receive these mitigation funds as soon as possible.

Even though it is an Interim Final Rule, FEMA will still publish a proposed rule for public comment, to be followed eventually by a final rule. FEMA is assessing the utility and practicality of these interim final requirements based on the experience of States, Tribes, and local governments, and will draw on this experience in preparing the future Proposed and Final Rules for Mitigation Planning. Until then, the Rule serves as the governing set of requirements for DMA 2000 planning implementation.

DMA 2000 MITIGATION PLANNING PROVISIONS

As a result of FEMA's previous mitigation planning requirements, such as State planning under Section 409 of the Stafford Act, and plan requirements associated with the Flood Mitigation Assistance (FMA)

Program of the National Flood Insurance Program (NFIP), States and many communities have developed hazard mitigation plans. The most successful of these plans—where practical, meaningful mitigation actions have been the result—have two common elements:

- Comprehensive risk and capability assessments that form a solid foundation for decision making; and
- Input from a wide range of stakeholders who would play a role during implementation of recommended mitigation actions at the Federal, State, and local levels.

Accordingly, the Disaster Mitigation Act of 2000 emphasizes greater interaction between State and local mitigation planning activities, and highlights the need for improved linkage of hazard and capability analyses to State and local hazard mitigation strategies. At the same time, FEMA has a continuing interest in streamlining the mitigation planning and implementation process. The implementation of planned, pre-identified, cost-effective mitigation actions based on a sound hazard identification and assessment of risk will make a major contribution to such streamlining.

The DMA 2000 mitigation planning provisions, along with other sections of the Act, provide a significant opportunity to reduce the Nation’s disaster losses. The language in the Act, taken as a whole, emphasizes the importance of strong State, Tribal, and local planning processes, and comprehensive mitigation program management at the State level. FEMA strongly believes that with hazard mitigation planning, as with most other planning efforts, the actual process of planning is as important as the resultant plan. Therefore, we consider the plan as the written record, or documentation, of the planning process. This is why some of the plan requirements ask for a “discussion” or “description” of a process or development of a planning product (such as goals, or hazard identification).

Specifically, DMA 2000 enacted the following provisions relative to mitigation planning that are applicable to Vermont and the Northeastern Vermont Development region:

- **Enhanced State Mitigation Plans** (§201.5 of the Rule): States with an approved Enhanced State Mitigation Plan will qualify for HMGP funding based on 20% of the total estimated eligible Stafford Act disaster assistance. Generally, States are required to coordinate mitigation planning with Tribal and local jurisdictions, and document funding and technical assistance they will provide to these jurisdictions. More specifically, §201.5 requires that plans meet the following requirements to receive approval:
 - ✓ describe how the State coordinates with local mitigation planning efforts;
 - ✓ develop a mitigation strategy based on local and State vulnerability analyses and risk assessments;
 - ✓ describe how the State provides funding or technical assistance to local governments;
 - ✓ discuss how the State prioritizes jurisdictions that will receive mitigation planning and project grants and other State assistance; and
 - ✓ establish a plan maintenance process.
 - ✓ Demonstrate a broad, programmatic mitigation approach; and
 - ✓ Demonstrate a systematic and effective administration and implementation of existing mitigation programs.

Local Jurisdiction Plan Adoption

The local governing bodies within the 55 local jurisdiction, three county region, have participated in the development of their All Hazards plans. They will be in the review process of the first drafts of the All Hazards Regional Multi-Jurisdictional Plan along with their respective individual town annexes in late 2004. Edits required by the FEMA Region I review of the draft along with

the letter of conditional approval will be forwarded to the jurisdictions and necessary changes to the both the All Hazards Pre-Disaster Mitigation Plan for the NVDA region Plan the local annexes will be made prior to a vote of adoption by the governing body of each jurisdiction. The jurisdictions' governing bodies will consider resolutions of adoption after FEMA Region 1 has provided their review of the local plans and offered suggestions for improvement. Copies of supporting resolutions will be forwarded to FEMA Region I along with revised final drafts.

Multi-Jurisdiction Plan Adoption
All Hazards Pre-Disaster Mitigation Plan
Resolution

WHEREAS the Northeastern Vermont Development Association (NVDA), representing the 55 towns, city, gores and unorganized towns in the rural region of northeastern Vermont, has experienced severe damage from flooding, icestorms, hazardous material spills and tropical storms in the last century, resulting in property loss, loss of life, economic hardship, and threats to public health and safety;

WHEREAS an All Hazards Pre- Disaster Mitigation Plan (the Plan) has been developed after more than one year of research and work by the NVDA Emergency Preparedness Program and the people of the NVDA 55 communities;

WHEREAS the Plan recommends many hazard mitigation actions that will protect the people and property affected by the natural and man-made hazards that face the NVDA region;

WHEREAS a public meeting was held to review the Plan as required by law on _____;

NOW THEREFORE BE IT RESOLVED by the Board of Directors of the Northeastern Vermont Development Association that:

1. The All Hazards Pre-Disaster Mitigation Plan is hereby adopted as an official plan of NVDA.
2. The respective local officials identified in the strategy of the Plan are in the process of implementing the recommended actions assigned to them. These officials will report regularly on their activities, accomplishments, and progress to the NVDA Emergency Preparedness Program.
3. The NVDA Emergency Preparedness program will provide annual progress reports on the status of implementation of the plan to the 55 communities in its region by December 31 of each year as part of its annual report in preparation of Town Meeting.

PASSED by the Northeastern Vermont Development Association, this _____ day of _____ in 2004.

Chairperson

ATTESTED and FILED in my office this _____ day of _____, 2004.

Clerk

Section I – Planning Process

1.1 Purpose

The purpose of this All Hazards Pre-Disaster Mitigation Plan is to assist local governments to identify all hazards facing the region and their community. The impact of expected yet unpredictable natural and human-caused events can be reduced through community planning to make the communities of Caledonia, Essex and Orleans Counties more disaster resistant. This Plan identifies and outlines strategies to begin reducing risks from those identified hazards through avoidance and other protective measures.

1.2 Background

This plan is an All-Hazards Pre-Disaster Mitigation Plan (referred to hereafter as the Plan) for the Northeastern Vermont Development Association region comprised of Caledonia, Essex and Orleans Counties with annexes for each of the 55 communities within the jurisdiction of the Northeastern Vermont Development Association (NVDA). There are 7 international border crossings shared with Quebec, Canada that present special mitigation challenges with people, watersheds and hazardous materials flowing through, especially at the busiest crossing in Derby Line on Interstate Route 91. The region is bound by the Connecticut River to the east, the Canadian Border to the north and the northern Green Mountains to the west.

Averill *	(* Unorganized town/gore)	
Albany	Avery's Gore *	Barnet
Barton	Bloomfield	Brighton
Brownington	Brunswick	Burke
Canaan	Charleston	Concord
Coventry	Craftsbury	Danville
Derby	East Haven	Ferdinand *
Glover	Granby	Greensboro
Groton	Guildhall	Hardwick
Holland	Irasburg	Jay
Lowell	Lunenburg	Lewis *
Lyndonville	Maidstone	Lyndon
Newark	Newport City	Morgan
Norton	Orleans	Newport Center
Ryegate	Sheffield	Peacham
Stannard	Sutton	St. Johnsbury
Victory	Walden	Troy
Warren Gore *	Waterford	Warner's Grant *
Westmore	Wheelock	Westfield

The area is predominately rural, with several larger community centers including St. Johnsbury, Newport and Lyndonville. There are three main watersheds that encompass the NVDA region. They include drainage into the St. Lawrence River, the Connecticut River and the Lamoille River (Lake Champlain) waters.

There are 2,027 square miles with an estimated 2003 population of 63,612. This translates to a population density averaging 31 persons per square mile. The region's three most heavily populated communities, St. Johnsbury, Newport and Lyndonville, comprise over 32% of the total population. The region is one of the slowest growing regions in Vermont and has one of the highest unemployment rates in the state. There are two major underground pipeline corridors owned by Portland Pipeline. The first one traverses through Orleans and Caledonia Counties and the second is just a small area through the far northeastern section of the Town of Canaan in Essex County.

1.3 Documentation of the Planning Process

The approach for determining the threats to the NVDA region followed the Hazard Mitigation protocol established by FEMA for the conduct of this study according to the following plan:

- Gather initial available data & conduct interviews by meeting with local officials, responders, emergency management coordinators and Local Emergency Planning Committee (LEPC #9 and LEPC #10) members in participating communities, reviewing their town plans, zoning bylaws, town reports and any other pertinent information on past history as it related to disasters, and affected properties. It should be noted that the NVDA region is the largest in the state with the vast majority of communities considered very rural in nature. Populations ranged from 0 to 7,571 according to the 2000 Census data.
- Gather additional relevant data through state, federal and private resources such as a list of public assistance funds spent on past disasters in the region through FEMA and the Department of Housing and Community Affairs, a list of state and privately owned dams in the region through the Vermont Agency of Natural Resources, a HAZUS study of the area, high accident locations from the Vermont Agency of Transportation, major power transmission lines from utility companies serving the region, underground pipelines, Tier II Hazardous Materials inventory through Vermont Emergency Management, municipal water and waste water facilities from the Agency of Natural Resources and maps from the Northeastern Vermont Development Association.
- Analyze interview information and all pertinent data gathered according to FEMA Hazard Analysis Protocol
- Produce draft report w/recommendations and supporting data
- Obtain feedback from NVDA, towns, and Local Emergency Planning Committees (LEPC) #9 and LEPC #10
- Present Findings and Submit Final Report to Vermont Emergency Management for comments.
- Upon review by VEM, the document is forwarded to FEMA Region I after modifications at the regional level for FEMA's review. If there are not additional comments from FEMA, the NVDA Regional-Wide All Hazards Pre-Disaster Mitigation Plan will be approved by the local jurisdictions involved in this process.

During the conduct of the study, the following steps were reviewed in the Hazards Inventory/Risk Analysis:

1. Determine past hazards
2. Determine possible future hazards
3. Determine likely hazards
4. Determine community vulnerability (Human & Economic) for each hazard. Each identified hazard was analyzed with respect to the following criteria:
 - a. Probability of occurrence
 - b. Effect of the potential disaster on people and property
 - c. Predictability of the hazard
 - d. Frequency of occurrence
 - e. Speed of onset of the potential disaster
 - f. Duration of the disaster
 - g. Scope and intensity of the potential disaster
 - h. Controllability of the incident
 - i. Protective Action Options
5. Determine any in-place or planned hazard reduction or mitigation efforts.
6. Make recommendations for proposed actions to undertake to alleviate or lessen potential future damage due to natural and manmade disasters that are most likely in the NVDA region. More specifically, the local jurisdictions will determine what projects are to be undertaken, who is responsible for the oversight of the project, when will the project be completed, and how much it will cost.

1.4 Public Involvement

During the plan development process, representatives from all 55 communities in the NVDA region were interviewed over the course of eight months. In most cases, the interviewees included the community emergency management director, the fire chief, selectboard members, town clerk and the road foreman or public works director. The complete list of participants by town can be located in Table 1-A. Of the 55 communities, a system was developed to prioritize the scheduling of meetings to take place based on historical disaster patterns. FEMA disaster declaration public assistance data was used for the last 14 years to determine communities with the highest probable need. The criteria used to determine high priority status were:

- Damage over \$20,000 for any one disaster and/or two or more disaster declarations from 1989-2003. This data was obtained from the FEMA Region I Boston office and from the Vermont Department of Housing and Community Affairs.

The planning process and updates were discussed at the monthly Local Emergency Planning Committee #9 and #10 (LEPC) meetings during the development process. The members of the LEPC represented individual local jurisdictions, hospitals, police - fire - rescue, media, Ham operators, CERT volunteers, and the Vermont Department of Public Health.

The Executive Committee of the NVDA reviewed an executive summary in March, August a draft plan in October 2004 and a presentation on the Plan in December 2004. Continuing public involvement in the approval, adoption and review/update of the plan is contained in Section 4. The meetings with the individual communities were publicly warned and often members of the general public were present to voice their opinions or offer insight into the plan development. Once the plan is reviewed by VEM and FEMA and conditional approval received, the plan will be available for review and comment at the regional and local levels prior to final approval.

The Plan was developed by a contractor with a mitigation and disaster planning background who was hired by NVDA to help prepare the Plan with the 55 local jurisdictions and two LEPCs. Drafts of the Plan were reviewed by NVDA staff, the Chief of the St. Johnsbury Fire Department, and the chairs of both LEPC #9 and #10.

Data was collected from various state and federal agencies to develop this plan. The list below indicates the type of information collected and the contact source. These entities participated in the plan development by providing information that was critical to the identification of the hazards effecting the region.

1. Dams – Agency of Natural Resources

- Size of impoundment
- Type of dam (earthen berm, concrete, etc.)
- Function of dam
- Ownership of dam, address, phone number
- Town/s
- Emergency notification process in place?
- Early warning system?
- Date of installation
- Inspection – latest and how frequently
- Improvements needed or identified – source of funding

2. FEMA Region 1 – Data on costs per Federal Declaration, NFIP repetitive damages in the region

3. Vermont Emergency Management – Mitigation grants data, Tier II Hazardous Materials and Incidents

4. Schools - Vt. Dept. of Ed.

- E911 addresses of schools
- Emergency Plans adopted or on file with Vt. Dept. of Ed.
- Current contact personnel, numbers, fax, email

- Are they considered a local shelter?
- Are they in the floodplain?

5. Municipal Water Systems - ANR

- Capacity
- Number of hookups
- Ownership/town/village
- Contacts (name, address, numbers, email)
- E911 address
- Security system in place?
- Location and/or number of fire hydrants
- Generator?

6. Municipal Wastewater Treatment Facilities - ANR

- Capacity
- Number of hookups
- Ownership/town/village
- Contacts (name, address, numbers, email)
- E911 address
- Security system in place?
- Backup system/Generator?

7. Underground Tanks - ANR

- E911 address, contact info
- Ownership and contacts
- Contamination? Tested soils?

8. Pipelines – Vt. Public Service

- Ownership, contact info
- Map of location
- Usage – Types of oil/propane, quantities, year round?
- Emergency plan – early warning notification, response time

9. Registered Nursing Homes – Dept. of Aging and Disabilities

- E911 address
- Ownership and contact info
- Generators?
- Emergency evacuation plan?
- Shelter location?

10. Electric Utility Companies – Public Service Board

- Ownership/town/village
- Contact (name, address, numbers, email)
- E911 address
- Back up system?
- Generator?
- Response time for repairs

- Maintenance schedule
- Upgrade schedule
- Map or areas of coverage

11. Major power lines and sub-stations – VT. Public Service Board

- Need map/s ownership and contact info.

12. High Accident Locations (HAL) - VTRANS

13. Red Cross Shelters – VT Red Cross

- Communities with pre-agreements
- Contact info in each town (name, address, numbers, email)
- Sample pre-agreement and any other data

14. Map of conservation lands and public property – NVDA

15. Vermont Department of Taxes – Grand list info

16. HAZUS Analysis – Vermont Agency of Natural Resources

Tab 1-A

List of Participants

The following table lists the local officials, community volunteers and interested citizens who had input into this overall plan. Their participation was invaluable at the local meetings. They helped describe the threats to their community and offered ideas for mitigation methods that would be best applied to their town.

Date	Town	First Name	Last Name	Position
11/11/2003	Hardwick	Dan	Hill	Town Manager
11/11/2003	LEPC #10 (Orleans)	Bronson	Randy	VEM
11/11/2003	LEPC #10 (Orleans)	Barbara	Thompson	VDPH
11/11/2003	LEPC #10 (Orleans)	Ralph	Stetson	VTRC
11/11/2003	LEPC #10 (Orleans)	Pete	Krauss	Citizen Corp
11/11/2003	LEPC #10 (Orleans)	J. Paul	Duquette	Newport Chief/Police
11/11/2003	LEPC #10 (Orleans)	Lawrence	Burdick	Barton EMD
11/11/2003	LEPC #10 (Orleans)	Sandra	Leonard	Hospital
11/11/2003	LEPC #10 (Orleans)	Joseph	D'Eufemia	Chair - LEPC
11/11/2003	LEPC #10 (Orleans)	Farr	Barbara	NVDA
11/18/2003	Lowell	Richard	Pion	Selectboard
11/18/2003	Lowell	Dwight	Richardson	Selectboard
11/18/2003	Lowell	Alden	Warner	Fire Chief
11/18/2003	Lowell	Pam	Tatreault	
11/18/2003	Lowell	Nannette	Bonneau	
11/19/2003	LEPC #9	Tina	Wood	VTRC
11/19/2003	LEPC #9	Jay	Wood	LEPC Chair
11/19/2003	LEPC #9	George	Hacking	State Police
11/19/2003	LEPC #9	Dan	Hill	Hardwick Town Mngr.
11/19/2003	LEPC #9	Mike	Oliver	
11/19/2003	LEPC #9	Richard	Fisher	
11/19/2003	LEPC #9	Marc	Brown	Sheffield/Wheelock
11/19/2003	LEPC #9	Ronald	Morse	Barnet rep.
11/19/2003	LEPC #9	Colleen	Sinon	
11/20/2003	Albany	Debbie	Geoffrey	Town Clerk
11/20/2003	Albany	Tony	Daniels	Selectboard Chair
11/20/2003	Albany	Mike	Nelson	EMC
11/20/2003	Barnet	Theodore	Faris	Health Officer
11/20/2003	Barnet	William	Hoar	Town Clerk
11/20/2003	Barnet	Ronald	Morse	Fire Chief
12/8/2003	Canaan	Linda	Hikel	Town Clerk
12/8/2003	Canaan	Joseph	Robbason	
12/8/2003	Canaan	Thomas	Moody	
12/8/2003	Canaan	David	Gray	
12/8/2003	Canaan	Jeffery	Noyes	
12/8/2003	Canaan	Ray	Bryant	
12/8/2003	Canaan	Steve	Young	Fire Chief
12/8/2003	Canaan	Harland	Crawford	EMD
12/8/2003	Canaan	MaryLou	Lovering	
12/9/2003	LEPC #10 (Orleans)	Arnold	Uttin	Hamm Operator

12/9/2003 LEPC #10 (Orleans)	Tom	Hanlon	State Police
12/9/2003 LEPC #10 (Orleans)	Lucy	Cannon	Hollaand rep
12/9/2003 LEPC #10 (Orleans)	Joe	Cannon	Holland rep.
1/8/2004 Burke	Ken	Sanderson	Selectboard
1/8/2004 Danville	Merton	Leonard	EMD
1/8/2004 Danville	Reginald	Guertin	Asst. EMD
1/21/2004 Cabot	Ted	Birmingham	
1/21/2004 Craftsbury	Pat	Forest	Special needs
1/21/2004 Craftsbury	Randi	Calderwood	
1/21/2004 Craftsbury	David	Stember	
1/21/2004 Craftsbury	Jim	Lambert	
1/21/2004 Craftsbury	Bruce	Urie	Selectboard Chair
1/21/2004 Craftsbury	Stephen	Williams	
1/21/2004 Craftsbury	Jack	Cabaness	
1/21/2004 Craftsbury	John	Cole	
1/21/2004 Craftsbury	Ariel	Cochran	
1/21/2004 St. Johnsbury	Darlene	Ahrens	VDPH
1/21/2004 St. Johnsbury	Twyla	deNeergaard	VDPH
1/21/2004 St. Johnsbury	Bob	Swartz	
1/21/2004 St. Johnsbury	Colleen	Sinon	
1/21/2004 St. Johnsbury	Troy	Ruggles	St. J. Fire Chief
1/26/2004 Morgan	Brian	Gray	Selectboard Chair
1/26/2004 Morgan	Richard	Lafoe	Selectboard
1/26/2004 Morgan	Tommy Lee	Morin	Town Clerk/Treas.
1/26/2004 Morgan	Samuel	Curtis, Jr.	EMD
1/26/2004 Morgan	Stephen	Matson	
1/26/2004 Morgan	Kathleen	Blindow	
1/26/2004 Morgan	James	Jordan	
1/26/2004 Newport City	Robert	George	Fire Chief
1/30/2004 Kirby	Brian	Bunnington	Selectboard
1/30/2004 Kirby	Kenneth	Hayes	Selectboard Chair
1/30/2004 Kirby	Wood	Bob	Road Foreman
1/30/2004 Kirby	Wanda	Grant	Town Clerk
1/30/2004 Kirby	Reg	Lussier	Selectboard
1/30/2004 Lyndonville	Gregory	Hopkins	
1/30/2004 Lyndonville	Justin	Smith	
1/30/2004 Lyndonville	Arthur	Sanborn	Town Mngr.
1/30/2004 Sheffield/Wheelock	Brown	Marc	EMD
2/10/2004 Granby	Frederick	Hodgdon	Selectboard Chair
2/10/2004 Granby	Robert	Peters	EMD
2/10/2004 Granby	Nellie	Noble	Town Clerk
2/10/2004 Victory	Walter	Metelli	Selectboard
2/10/2004 Victory	Greg	Hinz	Selectboard
2/10/2004 Victory	Walter	Neborsky	Selectboard
2/10/2004 Victory	Howard	Lynaugh	Selectboard
2/12/2004 Groton	Brent	Smith	Fire Chief
2/12/2004 Groton	Phillip	Palmer	

2/12/2004 Peacham	Jeffrey	Berwick	Fire Chief
2/12/2004 Ryegate	Gene	Perkins	Fire Chief
2/17/2004 Walden	Lina	Smith	Town Clerk
2/17/2004 Walden	Butch	Greaves	Emergency Mgmt.
3/17/2004 Barton	Kathy	White	Town Clerk
3/17/2004 Barton	Larry	Burdick	EMD
3/22/2004 Guildhall	Pat	Rogers	Selectboard
3/22/2004 Guildhall	Helen	Martin	Selectboard
3/22/2004 Guildhall	Albert	Tetreault	Town Clerk
3/22/2004 Guildhall	Robert	Decker	Road Foreman
5/8/2004 East Haven	Franklin	Higgins	Town Clerk
5/8/2004 East Haven	Raymond	Richard	Selectboard
5/8/2004 East Haven	Dennis	Higgins	Fire Chief/EMC Constable
5/8/2004 East Haven	Dana	Caron	Selectboard
5/8/2004 East Haven	Kerwin	Flanders	Selectboard Chair
5/8/2004 East Haven	Eugene (Truman)	Austin	Roads Commissioner
5/8/2004 East Haven	Kimberly	McAllister	
5/13/2004 Westfield	Yves	Daigle	Selectboard Chair
5/13/2004 Westfield	Hilda	Daigle	Clerk
5/13/2004 Westfield	Romeo	Myott	Emergency Mgmt.
5/13/2004 Westfield	Jacques	Couture	
6/22/2004 Brownington	Armand	Brunelle	
6/22/2004 Brownington	Michael	Glodgett	Selectboard Chair
6/22/2004 Brownington	John	Kudla	
6/22/2004 Brownington	Cheryl	Perry	Town Clerk
6/22/2004 Brownington	Shelia	Martin	
6/22/2004 Brownington	Maria	Perry	
6/22/2004 Brownington	April	Bapp	
6/22/2004 Brownington	Bob	Walker	
6/22/2004 Brownington	Betty	Glodgett	
6/22/2004 Brownington	Francis	Davignon	
6/22/2004 Brownington	Edwin	Burdick	EMD
6/22/2004 Brownington	Walter	Paige?	
6/22/2004 Glover	Mark	Mudgett	Asst. Fire Chief
6/22/2004 Glover	Nicholas	Ecker-Raez	Select Board, Ambulance, EMC
6/22/2004 Glover	Donna	Sweeney	
7/8/2004 Charleston	Rudolph	Gratton	Selectboard Chair
7/8/2004 Charleston	Floyd	Brown	Selectboard
7/8/2004 Charleston	Sherm	Allen, Jr.	Selectboard
7/8/2004 Charleston	Allen	Carpenter	Road Foreman
7/8/2004 Charleston	Duane	Moulton	Fire Chief
7/12/2004 Lunenburg	Richard	Bryer	Selectboard/EMD
8/3/2004 Waterford	Robert	Payeur	Emergency Mgmt.
8/3/2004 Waterford	Brent	Beck	
8/3/2004 Waterford	Freddie	Kenney	Selectboard Chair
8/3/2004 Waterford	Edward	Bates	Selectboard
8/3/2004 Waterford	Joanne	Jurentkuff	Town Clerk/Treas.

8/10/2004 Holland	Monica	Yeamans	Town Clerk/Treas.
8/10/2004 Holland	Winston	Dowland	EMC/Select Chair
8/10/2004 Holland	Howard	Nelson	EMC
8/10/2004 Newport Center	Denise	Daigle	Town Clerk
8/13/2004 Concord	Thomas	Hale	Select Board
8/13/2004 Concord	Connie	Quimby	Town Clerk/Treas.
8/13/2004 Concord	Richard	Fisher	Fire Chief
8/16/2004 Bloomfield	Gerald	Routhier?	Select Board
8/16/2004 Bloomfield	Lance	Walling	Select Board
8/16/2004 Bloomfield	Sherry	Belknap	Select Board Chair
8/16/2004 Bloomfield	Paulette	Routhier	Town Clerk/Treas.
8/16/2004 Brunswick	Sharon	Graham	Town Clerk
8/16/2004 Brunswick	Brendan	Whittaker	Select Board Chair
8/16/2004 Maidstone	Walter	Kruger	Emerg. Town Officer
8/16/2004 Maidstone	Bradley	McVetty	Select Board
8/16/2004 Newport Center	Steven	Barrup	Select Board Chair
8/18/2004 Lemington	Norman	Tallmage	Town Clerk
8/18/2004 Lemington	Murray	Duke	Fire Dept.
8/18/2004 Lemington	Joe	Daley	Select Board
8/19/2004 Greensboro	Mike	Metcalf	Select Board
8/19/2004 Greensboro	Dave	Brochu, Sr.	Fire Chief
8/19/2004 Greensboro	Erwin	Salls, Jr.	Capt. Fire Dept.
8/19/2004 Greensboro	Edward	Keene	Road Foreman
8/19/2004 Greensboro	Peter	Gebbie	Select Board
8/19/2004 Greensboro	Hall	Valdine	Asst. Town Clerk
8/24/2004 Newark	Don	Morrill	Fire Chief
8/24/2004 Newark	Thomas	Girard	Select Board
8/24/2004 Newark	Mike	Channon	Road Commissioner
8/24/2004 Newark	Ben	Bangs	Select Board
8/24/2004 Newark	Tommie	Rodger	Select Chair
8/24/2004 Norton	Michael	Lienau	Science Teacher
8/24/2004 Westmore	John	Alexander	Select Board
8/24/2004 Westmore	Diane	Parenteau	Town Clerk/Treas.
8/24/2004 Westmore	Anne	Alexander	Png/Zoning/Schoolbd.
8/24/2004 Westmore	Richard	Simpson	Dir., Westmore Assn
8/24/2004 Westmore	Kimball	Johnson	Fire Chief
8/24/2004 Westmore	Gerald	Sander??	
8/24/2004 Westmore	Roy	Perkins	
8/24/2004 Westmore	Vincent	Dotoli	
8/24/2004 Westmore	Laura	Dotoli	
8/24/2004 Westmore	Dennis	Desmarais	
8/24/2004 Westmore	Michelle	Horter	
8/26/2004 Sutton	Dorreen	Devenger	Town Clerk/Treas.
8/26/2004 Sutton	David	McKee	Select Board
8/26/2004 Sutton	Tim	Simpson	Select Board
8/26/2004 Sutton	Erwin	Weed?	Select Board
8/26/2004 Sutton	Rick	Jackson	Road Foreman

8/26/2004 UTG - Island Pond	Dave	LaFoe	Chair - Bd. Of Gov.
8/26/2004 UTG - Island Pond	Ellen	Ramsdell	Town Clerk
8/30/2004 Derby	Richard	Creaser	Journalist
8/30/2004 Derby	Craig	Ellam	Fire Chief
8/30/2004 Derby	Ed	Canny	Insurance
8/30/2004 Derby	Patricia	Thomas	Teacher
8/30/2004 Derby	Gary	Thomas	Levi Manager
8/30/2004 Derby	Jim	Budance	
8/30/2004 Derby	Nichole	Daigle	Town Clerk
8/30/2004 Derby	Brian	Smith	Select Board
8/30/2004 Derby	Chester	Perry	
8/30/2004 Derby	Bailey	Tom	Select Board
8/30/2004 Derby	Beula-Jean	Shattuck	Select Board
8/30/2004 Jay	Douglas	James	Fire Chief
8/30/2004 Jay	Sandra	Leonard	LEPC/Jay E.C.
8/30/2004 Jay	Emeline	Harmon	Town Clerk
8/30/2004 Jay	Chris	Young	Select Board
9/13/2004 Stannard	Miles	Sherts	Select Board
9/13/2004 Stannard	Toni	Hartrich	Select Board
9/13/2004 Stannard	Drex	Wright	Select Board
9/13/2004 Stannard	Connie	Withers	Town Clerk
9/13/2004 Stannard	Regina	Troiario	Town Treasurer
9/27/2004 Irasburg	Roger	Gagnon	Select Board
9/27/2004 Irasburg	Charles	Jaquish	Select Board
9/27/2004 Irasburg	David	Turner	Select Board
9/27/2004 Irasburg	Randall	Wells	Fire Chief
9/27/2004 Irasburg	Betsy	Inkel	Asst. Town Clerk
10/12/2004 Coventry	Michael	Marcotte	Select Board Chair
10/12/2004 Coventry	Brad	Maxwell	Select Board
10/12/2004 Coventry	Barry	Allen, Jr.	Select Board
10/12/2004 Coventry	David	Gallup	Road Commissioner
10/12/2004 Coventry	Cynthia	Diaz	Town Clerk

In addition to participating in the local meetings, each community's plan, goals, and land use patterns were evaluated as a part of this overall regional Plan.

Tab 1-B

Community Questionnaire administered verbally at meetings

NVDA ALL HAZARDS MITIGATION PLAN - LOCAL
COMMUNITY QUESTIONNAIRE

1. Is your community a member of the National Flood Insurance Program and do you have an existing hazard analysis?
2. Do you have a Town Plan and Zoning Bylaws?
3. Has your community adopted the Vermont Codes and Standards from the Vermont Agency of Transportation?
4. Where are the most vulnerable areas in your town? What types of events happen there and how many properties have received damage?
5. Do you have designated shelters? Are they in the flood plain? Do you have back-up power? Do you have a Pre-Agreement with the Vermont Red Cross?
6. Do your critical facilities have back-up power and are they in the flood plain? Are they monitored regularly and secure?
7. Does your community have high accident locations and where are they?
8. Have you updated your Rapid Response Plan?
9. What communities respond for Mutual Aid?
10. What other types of hazards do you feel your community is susceptible to?
11. Of the listed hazards, which one(s) have or could affect your community?
12. What is the frequency of the occurrence of these hazards in your community?
13. Which of these hazards is a significant threat to your community (how bad can it get, where is it likely to strike, how large an area is it likely to affect, how long will it last, how fast is it likely to occur, how much warning time is there and does a warning system exist)?
14. What is your community's biggest challenge if you were to have an emergency situation of disaster status?
15. What is your best estimate of the total population (private homes & businesses) that could be seriously affected by this hazard?
16. What is your best estimate of the total infrastructure (public buildings, roads, bridges, access, water & sewage treatment facilities, power sources, etc.) that could be seriously affected by this hazard?
17. What programs have you taken advantage of to reduce your likelihood of future disasters (NFIP, Codes and Standards, VT Local Roads Program, Hazard Mitigation Grant Program (HMGP) funds, Community Development Block Grants (CDBG) or Disaster Relief Initiative (DRI) funds, etc.)?
18. What programs will you consider to proactively protect your community from future disasters (existing or planned local ordinances, transport routes, culvert sizes, facility relocation)? What is the timeline, how much will it cost, how will it be funded and who is the contact?
19. Do any of the hazards listed trigger other hazards that could affect the community?

Tab 1-C Hazard Inventory Matrix

HAZARD INVENTORY/VULNERABILITY ASSESSMENT

*The following is a list of possible hazards for your community. Do the hazards have a **high, medium, low or low** likelihood of being a threat to your community? What is the impact on your community as a whole - **high, medium or low**?*

What is the vulnerability of your jurisdiction to this hazard? Given all you know about the vulnerability of your community, does the hazard present the threat of a disaster or just a routine emergency?

*In the final column provided, check those hazards that represent the worst threats to your community. The "worst threats" are those hazards with threats that have **high or medium (a) Likelihood of happening, or (c) Community Vulnerability.***

Possible Hazard	Likelihood	Impact	Community Vulnerability	Most Vulnerable
Tornado				
Flood				
Flash Flood				
Hazardous Materials				
Radiological Incident				
Structure Fire				
Power Failure				
Winter Storm/Ice				
High Wind				
Aircrash				
Water Supply Contamination				
Hurricane				
Earthquake				
Dam Failures				
Drought				
Chemical or Biological Incident				
Highway Incidents				
Wildfire/Forest Fire				
Landslide				
School Safety Issues				
Terrorism				

Section 2 - Risk Assessment

2.1 Identifying Hazards

An analysis of each town/city vulnerability begins with an inventory of possible hazards and an assessment of the risk that they pose. The table below is a general representation of the risks to the three counties in the NVDA region. Questions included: What hazards can affect your community? How bad can it get? How likely are they to occur? What will be affected by these hazards? How will these hazards affect you? The magnitude (percentage of the community affected) of the impact of the hazard can be classed as follows:

How ***likely or frequent*** is the occurrence ?

- Unlikely: < 1% probability in the next 100 years.
- Possible: 1% to 10% probability in the next year, or at least one chance in the next 100 years.
- Likely: 10% to 100% probability in the next year, or at least one chance in the next 10 years.
- Highly Likely: Near 100% probability in the next year.

How ***much damage*** might the hazard cause?

- Negligible: < 10% of properties damaged/Minimal disruption to quality of life.
- Limited: 10% to < 25% of properties damaged/Loss of essential facilities/services for up to 7 days/Few (< 1% of population) injuries possible.
- Critical: 25% to 50% of properties damaged/Loss of essential facilities/services for > 7 days < 14 days/Major (< 10% of population) injuries/few deaths possible.
- Catastrophic: > 50% of properties damaged/loss of essential facilities/services for > 14 days/Severe (> 10% of population) injuries/multiple deaths possible.

Additionally, seasonal patterns that may exist are considered, what areas are likely to be affected most, the probable duration of the hazard, the speed of onset (amount of warning time, considered with existing warning systems).

The combination of the impact of the hazard and the frequency was used to determine the Community Vulnerability as HIGH, MODERATE or LOW. For example, if a flood event is highly likely (nearly 100% probability in the next year) in many communities of Caledonia, Essex and Orleans Counties but the degree of impact varies so a highly likely flood with a moderate impact rates the community vulnerability as MODERATE. The vulnerability of a community having the occurrence of an event as possible or unlikely with limited or negligible impact would be LOW.

These guidelines were used to assess the risk for the state HI/RA that is summarized below. Because Vermont is such a small state and a previous hazard inventory had not been accomplished for the county, a modified state HI/RA was considered in the development of the Caledonia, Essex and Orleans Counties HI/RA.

2.1.1 NVDA HI/RA

Possible Hazard	Likelihood/ <i>Frequency</i>	Impact/ <i>Damage</i>	Community Vulnerability
Tornado	Possible	Limited	Low
Flood/Flash Flood	Highly Likely	Limited	Moderate-High
Hazardous Materials	Possible	Negligible	Moderate-High
Radiological Incident	Unlikely	Negligible	Low
Structure Fire	Likely	Limited	Low-Moderate
Power Failure	Highly Likely	Limited	Moderate
Winter Storm/Ice	Highly Likely	Negligible	Moderate
High Wind	Highly Likely	Limited	Low-Moderate
Air crash	Possible	Negligible	Low
Water Supply Contamination	Possible	Limited	Low
Hurricane	Possible	Limited	Low (see flooding)
Earthquake	Possible	Negligible	Low (HAZUS Study)
Dam Failures	Possible	Limited-Critical	Moderate * (While the likelihood is low, the results could be catastrophic)
Drought	Possible	Negligible	Low
Chemical or Biological Incident	Possible	Limited	Low
Highway Incidents	Likely	Limited	Low
Wildfire/Forest Fire	Possible	Negligible	Low
Landslide	Possible	Limited	Low
School Safety Issues	Possible	Limited	Low
Terrorism	Possible	Limited	Low

Of the risks identified above, those that will be addressed in depth in this plan will be limited to those threats that are considered a moderate to high threat.

2.1.2 Significant Hazards

Based on the results of local community interviews and the history of disasters in the State and counties, the following hazards were identified consistently as significant threats to the three counties in the following priority order:

- Flood/Flash Flood
- Hazardous Materials (Fixed Site & Transport)
- Structure Fires
- Winter/Ice Storm
- High Winds (Sustained winds of 40mph or more with gusts of 58mph or greater) – Hurricanes, tropical storms, nor'easters, thunderstorms, tornadoes and localized downbursts were included in this category, mainly resulting in power outages.

Tab 2-A Priority Hazards

Hazard	How Identified	Why Identified
Flood/Flash Flood	Past FEMA declarations Public input Annual road damage Flooding in unexpected areas NFIP repetitive flood losses News reports	Region is hit annually with flooding and flash flooding due to large amounts of rain in short time periods.
Hazardous Material Incidents	Officials/emergency response teams Public concern Past hazmat incidents	Hazardous materials on the highways and international border crossings. Accidents occur frequently with hilly, narrow roads. Winter driving conditions. Moose can be a problem.
Structure Fires	Local officials/responders	Historic properties could be damaged due to old construction, wiring.
Winter Storm/Ice	Local officials, news media	Roads blocked, slippery. Power outages. Seniors and special needs populations/Lifeline.
High Winds	Local input Power companies	Trees down, power outages, roads blocked. Seniors and special needs populations/Lifeline.
Earthquakes <i>Note: Probability is low/moderate and severe damage is unlikely.</i>	HAZUS Historical information	The HAZUS report analyzes historical information and damage estimates are low.
Dam Failure <i>Note: Probability is low/moderate but if a dam breaches it could be devastating.</i>	Local, state officials Private utility companies	Many dams in region could breach if severe enough flooding takes place or if a dam is damaged.
Terrorism <i>Note: While communities are prepared for an incident the probability is low.</i>	Proximity to Canada and international trade routes. Local officials.	Communities along borders and main transportation corridors may experience an unintentional terrorist impact but probability is low.

Considered high priority hazards likely to effect region.

2.1.3 Overall Weather Threats

The National Weather Service (NWS) in Burlington describes the weather affecting Caledonia, Essex and Orleans Counties in the following manner. The weather across Caledonia, Essex and Orleans Counties can be quite variable and each season has its' own particular hazards. Moisture from the Atlantic Ocean, Gulf of Mexico and Great Lakes combines with warm air from the southern USA and bitter cold air from Canada to form a volatile mix.

During the winter months, roughly from November through March, heavy snow frequents the area. Storms in the early and late part of the season exhibit a tendency for heavy, wet snow.

This can lead to power outages. Also, early season storms may be elevation dependent, with snow in mountainous areas and rain in the valleys.

Another aspect of winter is ice jam flooding. After substantial ice forms on the rivers, several days of unusual warmth (resulting in snow melt) coupled with rainfall can lead to ice breakup. The chunks of ice form jams which cause localized flooding on rivers. Ice jams are most prevalent during the January thaw (late January) and in March and April. Hardwick in Caledonia County has been most affected with flooding due to ice jams. However, fairly recent (<10 years) mitigation measures involving cement blocks in the Lamoille River have eliminated ice jams since then.

Finally, while ice storms can be anticipated annually, a large ice storm event such as the January 1998 storm that wreaked havoc with northern New England and Quebec, Canada is fairly rare. When the lower levels of the atmosphere and ground are at or below freezing with rain falling through warmer air aloft the water freezes in the lower levels on trees, power lines and roads and causes power outages and disruptions in everyday life. More common are light events of freezing rain or mixed precipitation. Local town road crews are very efficient with sand and salt when weather warnings trigger extra attention to roads.

In spring (roughly April into June), the counties may have flooding due to heavy rain. Toward the end of spring, the convective season is likely to begin and severe thunderstorms are a possibility.

During summer (roughly late June to early September), convective weather is the main threat. This includes locally strong straight line or downburst winds from thunderstorms. Also lightning can be a killer, and can strike up to 15 miles outside the parent storm. It does NOT have to be raining in your area to be at risk for a lightning strike. Tornadoes, while very rare in Vermont, can occur. Vermont tornadoes tend to be small, weak and short-lived. Typical damage includes downed trees and power outages.

During the summer months, flooding tends to be more of the flash flood type of event. Water on rivers and streams rises rapidly in a period of six hours or less. Thunderstorms may form or move over mountainous areas or river basins and drop copious amounts of precipitation. The main stem rivers can flood as well as the smaller streams.

During the fall (roughly mid September-early November), there are several weather threats. Strong storm systems move from the Ohio Valley through the Great Lakes and into Canada. As these storms move into Canada, the associated cold front then moves across our area with strong west or northwest winds and colder air. Heavy rain may accompany these storms.

Another threat in the fall is the remnants of Tropical Storms. These systems, while not impacting us with Hurricane force winds, do result in strong winds (40-60 mph) and very heavy rains (more than 3 inches). These conditions can lead to power outages as trees and power lines are blown down. Also major flooding may result. Tropical Storm Chantal in 89, Tropical Storm Dean in the mid 90s and Tropical Storm Floyd in 1999 all impacted our area.

The two hazards that can happen anytime of year would be flooding and high winds. The weather hazards mentioned above may combine with a manmade disaster (hazardous material spill, for example).

Other threats would include extreme heat and cold conditions. This especially affects the very young and old. Frost and freeze conditions impact agricultural interests.

In addition, while discussing natural hazards, one should not forget the possibility of earthquakes. A HAZUS Analysis was completed by the Vermont Agency of Natural Resources, Department of Environmental Conservation. While earthquakes are not uncommon in Vermont and the surrounding geographic areas, the likelihood that a large earthquake would cause major havoc with the NVDA region is slight. The full report is on file with the NVDA.

2.2 Profiling Hazards

Other hazards were identified as locally significant and will be discussed and identified in the respective community appendix.

A. Flood/Flash Flood

1. Description:

The overflowing of rivers, streams, drains and lakes due to excessive rain, rapid snow melt or ice.

Flooding of land adjoining the normal course of a stream or river has been a natural occurrence since the beginning of time. If these floodplain areas were left in their natural state, floods would not cause significant damage. Development has increased the potential for flooding because rainfall that used to soak into the ground or take several days to reach a river or a stream via a natural drainage basin now quickly runs off streets, parking lots and rooftops and through man-made channels and pipes.

Floods can damage or destroy public and private property, disable utilities, make roads and bridges impassable, destroy crops and agricultural lands, cause disruption to emergency services, and result in fatalities. People may be stranded in their homes for a time without power or heat or they may be unable to reach their homes. Long-term collateral dangers include the outbreak of disease, loss of livestock, broken sewer lines or wash out of septic systems causing water supply pollution, downed power lines, loss of fuel storage tanks, fires and release of hazardous materials.

Major roads and highways, Class One and Two, are governed and maintained by the Vermont Agency of Transportation, or VTRANS. Many of these Class Two roads experience flooding during flash floods. Maintenance and repair of infrastructure has been ongoing. The two VTRANS highway districts that cover the region are #7 and

#9. Their staff have worked with the towns in the NVDA region to adopt Local Codes and Standards as a best practice. The standards require upgrades on new roads, culverts and bridges to help alleviate local flood related damages.

Flood prone areas are found throughout Caledonia, Essex and Orleans Counties are rivers, bogs, and lake areas. The type of development that exists within the floodplain will determine the extent of damage that flooding will cause. Of all types of natural hazards experienced in Vermont, flash flooding has historically resulted in the greatest magnitude of damage suffered by private property and public infrastructure. Most communities have undertaken significant mitigation measures in recent years, although flash floods can strike at any time in areas that are not identified as typical flood hazard areas, continuing to cause public and private damage.

The one major flood event in recent history where all other events are judged is the Flood of 1927. Severe loss of life and property was experienced. More than 50% of bridges and roads were damaged in the flood that occurred on November 27th of that year. Flooding was statewide. Most bridge over roads were installed after that flood and are now being methodically replaced by the Vermont Transportation Agency on state roads and highways.

<p>The Federal Emergency Management Agency (FEMA) and the State of Vermont reports that since 1989, the three counties in the NVDA region have been involved in 10 Presidentially Declared Disasters (one of which was a snowstorm). \$ 6.574 million has been spent to repair the publicly owned infrastructure (Public Assistance) in Caledonia, Essex and Orleans Counties due to damage that has occurred during these ten Presidentially Declared Disasters.</p>

The National Weather Service issues flood watches and warnings when conditions are right for flooding. A flood watch indicates that meteorological conditions are conducive to flooding. People in the watch area are instructed to stay tuned to local radio or television stations for updates on flooding and weather conditions. When flooding is imminent, a flood warning is issued. The warning will identify the anticipated time, level and duration of flooding. Persons in areas that will be flooded are instructed to take appropriate protective actions, up to and including evacuation of family members and removal or elevation of valuable personal property.

Flood risk information presented on FIRMs is based on historic, meteorological, hydrologic, and hydraulic data, as well as open-space conditions, flood control works, and development. To prepare FIRMs that illustrate the extent of flood hazard in a flood prone community, FEMA conducts engineering studies referred to as Flood Insurance Studies (FISs). Using information gathered in these studies, FEMA engineers and cartographers delineate Special Flood Hazard Areas (SFHAs) on FIRMs. SFHAs are those areas subject to inundation by a flood that has a 1-percent or greater chance of being equaled or exceeded during any given year. This type of flood is referred to as a base flood. A base flood has a 26-percent chance of occurring during a 30-year period, the length of many mortgages. The base flood is a regulatory

standard used by Federal agencies, and most states, to administer floodplain management programs, and is also used by the National Flood Insurance Program as the basis for insurance requirements nationwide.

Inundation-related flood loss is a significant component of flood disasters, the more common mode of damage is associated with the dynamic, and oftentimes catastrophic, physical adjustment of stream channel dimensions and location during storm events. These adjustments are often due to bed and bank erosion, debris and ice jams, or structural failure of or flow diversion by man-made structures.

1. History of Occurrences:

In Caledonia, Essex and Orleans Counties, there is a history of flooding along the Lamoille River, the tributaries of the Missisquoi River, and tributaries of the Connecticut River. Presidential Disaster Declarations¹ for floods (with the exception of FEMA 3167 which was a snow emergency) occurred for Caledonia, Essex and Orleans Counties on the following dates:

Tab 2-B Past FEMA Damage

Fed. Declaration	Date	Caledonia	Essex	Orleans	Total
840	9/89	\$97,852	\$52,876		\$150,728
875	6/90	\$139,874			\$139,874
938	3/92	\$83,680			\$83,680
1063	8/95	\$507,049	\$181,485	\$101,729	\$790,263
1101	1/96			\$167,684	\$167,684
1184	7/97	\$426,361		\$2,677,145	\$3,103,506
1228	8/98	\$479,521	\$54,176	\$114,773	\$648,470
1307	9/99	\$99,816	\$21,732	\$37,626	\$159,174
1428	7/02	\$273,773	\$404,937	\$459,047	\$1,137,757
3167	3/01	<u>0</u>	<u>0</u>	<u>\$63,123</u>	<u>\$63,123</u>
Totals		\$2,107,926	\$715,206	\$3,621,127	\$6,444,259

¹ The data was obtained in part through the FEMA Region 1 office and in part from the Vermont Department of Housing and Community Affairs. There was a slight discrepancy between the two data sets.

Tab 2-C Repetitive Damage

Since 1978, there have been nineteen repetitive property claims totaling \$825,500.²

County	Community Name	Losses	Total Paid
CALEDONIA	BARNET, TOWN OF	2	\$32,836
CALEDONIA	HARDWICK, TOWN AND VILLAGE OF	2	\$54,810
CALEDONIA	HARDWICK, TOWN AND VILLAGE OF	2	\$7,591
CALEDONIA	HARDWICK, TOWN AND VILLAGE OF	3	\$8,344
CALEDONIA	LYNDON, TOWN OF	2	\$38,907
CALEDONIA	LYNDONVILLE, TOWN OF	2	\$145,544
CALEDONIA	LYNDONVILLE, TOWN OF	4	\$339,126
CALEDONIA	LYNDONVILLE, TOWN OF	2	\$11,440
CALEDONIA	LYNDONVILLE, TOWN OF	2	\$4,785
CALEDONIA	LYNDONVILLE, TOWN OF	2	\$5,103
CALEDONIA	LYNDONVILLE, TOWN OF	2	\$9,978
CALEDONIA	LYNDONVILLE, TOWN OF	2	\$5,131
CALEDONIA	ST. JOHNSBURY, TOWN OF	2	\$38,101
ORLEANS	BARTON, VILLAGE OF	2	\$11,685
ORLEANS	DERBY, TOWN OF	2	\$14,830
ORLEANS	DERBY, TOWN OF	2	\$30,020
ORLEANS	DERBY, TOWN OF	2	\$5,886
ORLEANS	NEWPORT, CITY OF	3	\$26,488
ORLEANS	NORTH TROY, VILLAGE OF	2	\$34,895
		42	\$825,500

Towns in Caledonia, Essex and Orleans Counties **NOT** participating in the NFIP are:

Tab 2-D Vermont Non-Participating NFIP Communities³

CID #	Community	Status	Current Map Date	Date of Sanction
<u>Caledonia County</u>				
No # or Map	Peacham	Never Joined	None	None
No # or Map	Walden	Never Joined	None	None
500188	Kirby	Never Joined	12/13/74	12/13/75
500190A	Newark	Never Joined	01/10/75	01/10/76
500194A	Sheffield	Suspended	09/27/85	11/01/85
500198A	Sutton	Never Joined	12/13/74	12/13/75
500204	Wheelock	Never Joined	11/15/74	11/15/75
<u>Essex County</u>				
500306	Averill	Never Joined	None	None

² The data was compiled from FEMA data and forwarded by R. Doherty of VEM.

³ The data was compiled from FEMA data and forwarded by R. Doherty of VEM.

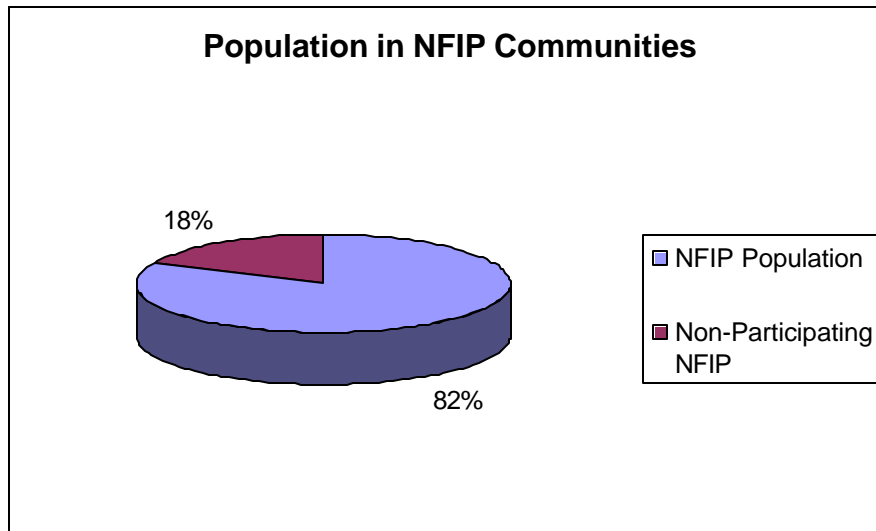
No# or Map	Community	Status	Current Map Date	Date of Sanction
500209B	Avery's Gore	Never Joined	None	None
	East Haven	Suspended	09/27/85	11/05/85
500211	Granby	Never Joined	12/13/74	12/13/75
500048A	Lunenburg	Never Joined	06/28/74	06/28/75
500213	Maidstone	Never Joined	12/13/74	12/13/75
500214	Norton	Never Joined	03/28/75	03/28/76
500215	Victory	Never Joined	12/13/74	12/13/75
No #	Warner's Gore	Never Joined	None	None
No #	Warren's Gore	Never Joined	None	None

Orleans County

No # or Map	Community	Status	Current Map Date	Date of Sanction
500245A	Holland	Never Joined	None	None
500038A	Brownington	Never Joined	12/13/74	12/13/75
500249	Charleston	Never Joined	08/09/74	08/09/75*
500252A	Derby Center, V.	Never Joined	03/28/75	03/28/76
500255	Irasburg	Never Joined	12/20/74	12/20/75
500311A	Morgan	Never Joined	01/31/75	01/31/76
	Westmore	Never Joined	01/03/75	01/03/76

*Applying for Reinstatement

The total population represented in NFIP communities is 51,147 or 82% of the total NVDA three-county population of 62,438.



3. Impact on Infrastructure:

Because many historic communities in Vermont and this region were developed around nearby waterways, many village centers are located in or near floodplains. Several communities have public buildings and critical infrastructure that is located in these flood areas as well. However, the communities in the NVDA region that are most susceptible to flood hazards are members of the National Flood Insurance Program, or are developing regulations that will make them eligible to be in the program. Any future development and

buildings will be required through permits to either avoid the flood area altogether, or to elevate and flood proof structures by raising them above the base flood elevation, tying down fuel tanks, tying down mobile homes, and using techniques that would eliminate the risk of damages. Section 3.6, Page 94 discusses recommendations for communities to adopt in their land use regulations that would lessen the risk from a variety of hazards for new development. Section 3.7 on page 96 recommends goals for local planning. Tab 3-C on page 92 refers to the need for GIS mapping of the FIRM maps in order to accurately address identified flood hazard areas as a tool to avoid future development.

- Public buildings
- Roads/Highways/Bridges/Railroads
- Water/Sewer
- Utilities

4. Primary Effects of the Hazard:

- Disrupted Transportation
- Hazmat Incident
- Disruption of Government Services
- Economic Loss
- Loss of power
- Toxic Release
- Loss of Utilities

5. Secondary Effects of the Hazard:

- Building/Structure Collapse/Contamination
- Communications Failure
- Isolated Areas
- Power Outage
- Landslide/Mudslide/Erosion
- Transportation Interruption
- Water Pollution
- Water Supply Contamination/Disruption

6. Impact of the Hazard on the Jurisdiction:

People:

- Displaced Families, loss of homes
- Loss of Sanitation Services
- Loss of Water Services
- Agricultural loss

Property/Environment:

- Historic infrastructure

- Water Pollution
- Soil Contamination
- Bridges/Roads
- Fire/Explosion

Economy:

- Business Interruptions (Permanent/Temporary)
- Loss of Tax Base
- Unemployment (Long/Short Term)

In order to determine most precise potential loss estimates in flood hazard prone areas, a detailed GIS map overly of the FIRM Rate Maps and the E911 data layer needs to be digitized for analysis. The data results will be dependent on the quality of the FIRM Rate Maps and their alignment with the geographic attributes of ground truthing. Because flash floods frequently occur in non-identified flood hazard areas, a rough estimate of loss can be found in the following tables.

Tab 2-E Property Values and Potential Loss⁴

Type of Property	County	Number of Properties	2003 Equalized Grand List Value
Residential (all kinds)	Caledonia	12100	\$ 1,138,130,890
	Essex	4488	\$ 295,221,019
	Orleans	12086	\$ 1,123,850,483
Commercial (all kinds)	Caledonia	933	\$ 207,555,719
	Essex	146	\$ 26,766,784
	Orleans	806	\$ 178,905,878
Utilities	Caledonia	106	\$ 150,136,211
	Essex	66	\$ 63,933,422
	Orleans	69	\$ 48,451,944
Farm/woodland	Caledonia	960	\$ 62,476,763
	Essex	841	\$ 53,948,022
	Orleans	1228	\$ 100,922,448
Other/Miscellaneous	Caledonia	2655	\$ 87,435,828
	Essex	814	\$ 16,752,221
	Orleans	3445	\$ 202,926,717
Grand Total		40743	\$ 3,757,414,349

Type of Property	County	1% Loss	10% Loss
Residential (all kinds)	Caledonia	\$ 11,381,308	\$ 113,813,089
	Essex	\$ 2,952,210	\$ 29,522,109
	Orleans	\$ 11,238,505	\$ 11,238,048
Commercial (all kinds)	Caledonia	\$ 2,075,557	\$ 20,755,571
	Essex	\$ 267,668	\$ 2,676,678
	Orleans	\$ 1,789,059	\$ 17,890,588
Utilities	Caledonia	\$ 1,501,362	\$ 15,013,621
	Essex	\$ 639,334	\$ 6,393,342
	Orleans	\$ 484,519	\$ 4,845,194
Farm/woodland	Caledonia	\$ 624,768	\$ 6,247,676
	Essex	\$ 539,480	\$ 5,394,802
	Orleans	\$ 1,009,224	\$ 10,092,245
Other/ Miscellaneous	Caledonia	\$ 874,358	\$ 8,743,583
	Essex	\$ 167,522	\$ 1,675,222
	Orleans	\$ 2,029,267	\$ 20,292,672
Grand Total		\$ 37,574,143	\$ 375,741,435

It is unlikely that even 1% of properties in Caledonia, Essex and Orleans Counties would be damaged by any type of disaster because there has been no historical data to suggest an event of destruction of this magnitude. That said, in the unlikely event that one of the large dams

⁴ Grand List Data from the Vermont Department of Taxes

breach along the Connecticut River, severe loss of life and property would result. Counting properties in the Flood Hazard areas on the FIRM maps is not accurately representative of estimating property loss because most times with flash floods, areas outside of designated flood hazard areas are impacted. For this reason, a flat rate of 1% and 10% property loss figures were used to calculate loss estimates. It also applies across the board to all types of hazards. Comparatively speaking, the total public assistance damages from all Federally Declared FEMA disasters since records have been made available from 1989 to date, has been nearly \$6.5 million dollars in damage or not even 2/100 of a percent (.00017) of the total 2003 assessed value of all property in the NVDA, three county region. The FEMA data includes public assistance dollars only and does not include special grants, private properties (including repetitive damage), or mitigation measures taken.

B. Hazardous Materials (Fixed Site and Transport)

1. Description:

Hazardous materials accidents can occur anywhere there is a road, rail line, pipeline or fixed facility storing hazardous materials. Almost the entire county is at risk to an unpredictable accident of some type. Most accidents are small spills and leaks, but some result in injuries, property damage, environmental contamination and other consequences. These materials are poisonous, corrosive, flammable, and radioactive or pose other hazards.

Emergencies involving hazardous materials can be expected to range from a minor accident with no off-site effects to a major accident that may result in an off-site release of hazardous or toxic materials. The overall objective of chemical emergency response planning and preparedness is to minimize exposure for a wide range of accidents that could produce off-site levels of contamination in excess of Levels of Concern (LOC) established by the U.S. Environmental Protection Agency. Minimizing this exposure will reduce the consequences of an emergency to people in the area near facilities which manufacture, store and process hazardous materials.

Large volumes of hazardous materials are transported to and through the county by railroad and highway daily. Within Caledonia, Essex and Orleans Counties, there are a number of public and private fixed facilities that produce or use hazardous materials.

Mishandling and improper disposal or storage of medical wastes and low-level radioactive products from medical use are also a hazard to Caledonia, Essex and Orleans Counties.

Community vulnerability is difficult to assess due to the nature of the incident. The next section lists the incidents that have occurred since 2000. Most are considered minor fuel spills that are most likely to happen in the region. There is the potential of a more serious event that could involve the transport of hazardous

materials on the rail or interstate system. The location of a possible incident would determine the impact on the community, infrastructure, residents, and environment. A best case large hazardous spill would occur on the interstate in a remote area, of which there are many, where cleanup and environmental concerns would be a top priority. A worst-case scenario would be a railroad incident in downtown Barton, Orleans, Brighton, or Troy where evacuation plans would need to take place immediately and risk to larger populations would be a main concern. Local responders and mutual aid groups have undertaken exercises in order to plan for such worst-case events and they are well prepared.

Major roads and highways, Class One and Two, are governed and maintained by the Vermont Agency of Transportation, or VTRANS. Many of these Class Two roads experience flooding during flash floods. Maintenance and repair of infrastructure has been ongoing. The two VTRANS highway districts that cover the region are #7 and #9. Their staff have worked with the towns in the NVDA region to adopt Local Codes and Standards as a best practice. The standards require upgrades on new roads, culverts and bridges to help alleviate local flood related damages.

Significant traffic flows through the Derby Line customs crossing on Interstate 91. This is a major north-south corridor between Quebec and New England.

NVDA Region transportation network –

Interstates: 91 and 93

Vermont Highways: 2, 5, 5A, 14, 15, 16, 58, 100, 102, 105, 111, 114, 232, 302.

A highway map accompanies this report. See attached maps of each counties transportation network.

2. History of Occurrences:

There have been 105 incidents reported by the Vermont Department of Emergency Management involving hazardous materials since 2000 in Caledonia, Essex and Orleans Counties as listed below. This amounts to an average of just over 25 incidents per year.

Tab 2-E HAZMAT Incidents⁵

Date	Product Involved	Town ID	Type of Incident
7/6/2000	Gasoline	Lyndonville	Hazardous Materials
4/24/2001	Diesel Fuel	Lyndonville	Hazardous Materials
5/3/2001	Gasoline	St. Johnsbury	Hazardous Materials
5/26/2001	Gasoline	Ryegate	Motor Vehicle Accid.
6/11/2001	Mercury	St. Johnsbury	Hazardous Materials

⁵ Date from the Vt. Dept. of Public Safety.

8/2/2001	#2 Heating Oil	St. Johnsbury	Hazardous Materials
8/13/2001	Methane	Lyndonville	Hazardous Materials
8/28/2001	"azinphos Methyl"	Peacham	Decon drill
9/21/2001		Ryegate	Drought Related
9/21/2001		Walden	Drought Related
10/9/2001		Peacham	Drought Related
10/29/2001	Lack of Water	Groton	Drought Related
10/31/2001	Suspicious Package	St. Johnsbury	Terrorism
10/31/2001	Suspicious Person	Lyndon	Terrorism
11/13/2001		Lyndonville	Drought Related
11/14/2001	White Powder	St. Johnsbury	Terrorism
12/4/2001	suspicious package	Wells River	Terrorism
12/4/2001	Rodents	Lyndonville	Health
1/10/2002	Water	Lunenburg	Drought Related
1/15/2002	white powder	Danville	Terrorism
1/17/2002	N/A	Danville	Power Outage
2/4/2002	Diesel Fuel	St. Johnsbury	Hazardous Materials
2/18/2002	Diesel Fuel	St. Johnsbury	Hazardous Materials
3/10/2002		Peacham	Flash Flood
3/11/2002		Newark	Flash Flood
7/5/2002		Westmore	Septic Leakage
7/21/2002	Vandalism	St. Johnsbury Ctr	Terrorism
8/1/2002		East Burke	Motor Vehicle Accid.
12/10/2002	Diesel Fuel	Lyndonville	Hazardous Materials
12/10/2002	Diesel Fuel	Lyndonville	Hazardous Materials
1/28/2003	Gasoline	St. Johnsbury	Hazardous Materials
2/11/2003	Diesel Fuel	Danville	Hazardous Materials
2/14/2003	#2 Heating Oil	Barnet	Hazardous Materials
6/12/2003		Lyndon	Terrorism Related
6/28/2003	Petroleum	Ryegate	Hazardous Materials
8/25/2003	Used Motor Oil	Barnet	Structure Fire
12/2/2003	Diesel Fuel	Hardwick	Hazardous Materials
1/1/2004	Diesel Fuel	St. Johnsbury	Hazardous Materials
3/26/2004	Unknown	st johnsbury	Hazardous Materials
5/10/2004	Diesel Fuel	Danville	Hazardous Materials
6/25/2000	Hydrogen Peroxide	Brighton	Train Derailment
12/17/2000	#2 Heating Oil	Lunenburg	Hazardous Materials
4/26/2001	N/A	Brighton	Unknown
5/4/2001	Unknown	Norton	Motor Vehicle Accid.
5/11/2001	Rubbish and Sewage	Concord	Waste Water/Solid
5/20/2001	N/A	Brighton	Aircraft Incident
7/30/2001	Railroad Ties	Brighton	Hazardous Materials
2/6/2002		Brighton	Truck through ice
2/10/2002	Diesel Fuel	Brighton	Hazardous Materials
3/10/2002		Brighton	Flood Watch
4/19/2002	Electricity on Farm	Sutton Falls	Power Outage
5/20/2002	Diesel Fuel	Port Henry NY	Hazardous Materials

7/3/2002	Potential of Release	Gilman	Hazardous Materials
7/3/2002	Fuel Oil / various acids	Gillman	Hazardous Materials
10/30/2002	crude oil	Lunenburg	Hazardous Materials
8/15/2003	Diesel Fuel	Bloomfield	Hazardous Materials
8/27/2003	Calcium Carbonate	Norton	Hazardous Materials
1/28/2004	Unknown	Barton	Unknown
4/27/2004	Transformer Oil (Non pcb)	Island Pond	Hazardous Materials
6/7/2000	Kerosene	Derby	Hazardous Materials
6/23/2000	#2 Heating Oil	Craftsbury	Hazardous Materials
8/31/2000	Diesel Fuel	Coventry	Hazardous Materials
9/22/2000	Gasoline	Newport Center	Small oil/ trans. spill
1/20/2001		Charleston	Aircraft Signal
2/15/2001	Mercury	Beebe	Hazardous Materials
3/8/2001	N/A	Coventry	Train Derailment
3/28/2001	Transmission Fluid	Westmore	Hazardous Materials
5/8/2001	Motor Oil	Derby	Motor Vehicle Accid.
5/14/2001	Commercial Fertilizer	Glover	Hazardous Materials
5/25/2001	Crap	Barton	Unsanitary living cond.
6/25/2001	Diesel Fuel	Coventry	Motor Vehicle Accid.
7/3/2001	Milk	Derby	Hazardous Materials
7/11/2001	Urea Fertilizer	Lowell	Hazardous Materials
9/13/2001	home waste - old paint cans	Derby	Hazardous Materials
9/16/2001		Newport Town	Earthquake
9/19/2001	Asbestos	Newport City	Hazardous Materials
9/20/2001	Unknown	Barton	Poss. oil in well water
10/3/2001	#2 Heating Oil	Coventry	Hazardous Materials
<u>Date</u>	<u>Product Involved</u>	<u>Town ID</u>	<u>Type of Incident</u>
10/5/2001	Gasoline	Derby	Hazardous Materials
10/13/2001	Anthrax Scare	North Troy	Terrorism
10/24/2001	Gasoline	Newport City	Hazardous Materials
11/6/2001	Suspicious Letter	Derby	Terrorism
11/12/2001	White Powder	Derby Line	Terrorism
12/5/2001	White powder	Coventry	Terrorism
12/6/2001		Orleans, Village of	AirCRAFT Incident
12/14/2001	Mercury	Newport City	Hazardous Materials
12/19/2001	Sulphuric Acid	Greensboro	Hazardous Materials
1/7/2002	Lost Skier	Derby	Search and Resuce
2/19/2002	Diesel Fuel	Barton	Hazardous Materials
2/27/2002		Albany	Drought Related
4/30/2002		Brownington	Earthquake
5/4/2002	Mercury	Newport City	Hazardous Materials
5/10/2002	Brush, grass, and trees	North Troy	Forest Fire
6/18/2002	Diesel Fuel	Charleston	Hazardous Materials
7/17/2002	N/A	Various	Weather Warning
8/28/2002		Newport City	Home mold
10/17/2002	Milk	Barton	Hazardous Materials
10/23/2002	Kerosene	Derby	Hazardous Materials

10/24/2002	#2 Heating Oil	Troy	PATH Related
4/11/2003	#2 Heating Oil	Barton	Hazardous Materials
7/11/2003	Water	Morgan	Flash Flood
1/10/2004	Diesel Fuel	Derby	Hazardous Materials
2/11/2004	#2 Heating Oil	Greensboro	Hazardous Materials
4/29/2004	old car batteries	Irasburg	Hazardous Materials
5/5/2004	Cyanide	Newport City	Hazardous Materials

Tab 2-F HAZMAT Storage Sites⁶

The following list is a list of registered hazardous materials filed through the Tier II data collection program through the Vermont Department of Public Safety. More indepth information can be obtained through that office. Responders in every community have access to this information and are well prepared to address any incidents that may arise due to accidents or human intention.

Town	FacilityName	ChemName
BARNET	BARNET SCHOOL	FUEL OIL, [NO. 2]
BARNET	BARNET SCHOOL	PROPANE
BARNET	VERIZON CENTRAL OFFICE (4791-06)	SULFURIC ACID
BARNET	WAYNE FEARON	OIL, [FUEL, 1-D]
BURKE	BURKE MOUNTIAN OPERATING CO	GASOLINE
BURKE	BURKE MOUNTIAN OPERATING CO	OIL, [FUEL, 1-D]
BURKE	BURKE MOUNTIAN OPERATING CO	FUEL OIL, [NO. 2]
BURKE	BURKE MOUNTIAN OPERATING CO	PROPANE
BURKE	BURKE MOUNTIAN OPERATING CO	OTHER, MOTOR OIL
BURKE	EAST BURKE GARAGE	OXYGEN
BURKE	EAST BURKE GARAGE	ACETYLENE
BURKE	EAST BURKE GARAGE	OTHER, MOTOR OIL
BURKE	MIKE'S GAS & REDEMPTION, INC	FUEL OIL, [NO. 2]
BURKE	MIKE'S GAS & REDEMPTION, INC	OTHER, MOTOR OIL
BURKE	VERIZON CENTRAL OFFICE (4797-06)	SULFURIC ACID
CONCORD	VERIZON CENTRAL OFFICE (4792-06)	SULFURIC ACID
DANVILLE	CALKINS OIL & EXCAVATING, INC	OIL, [FUEL, 1-D]
DANVILLE	CALKINS OIL & EXCAVATING, INC	KEROSENE
DANVILLE	CALKINS OIL & EXCAVATING, INC	FUEL OIL, [NO. 2]
DANVILLE	MARTY'S 1ST STOP	GASOLINE
DANVILLE	VERIZON CENTRAL OFFICE (4793-06)	SULFURIC ACID
DANVILLE	VTRANS	ACETYLENE
DANVILLE	VTRANS	CALCIUM CHLORIDE
DANVILLE	VTRANS	FUEL OIL, [NO. 2]
DANVILLE	VTRANS	OXYGEN
DANVILLE	VTRANS	ETHANE
DANVILLE	VTRANS	PROPANE
DANVILLE	VTRANS	PROPYLENE
DANVILLE	VTRANS	BUTANE

⁶ Data from Vt. Dept. of Public Safety

DANVILLE	VTRANS	BUTANE
GREENSBORO	VERIZON CENTRAL OFFICE (4844-06)	SULFURIC ACID
HARDWICK	GATES SALVAGE	OIL, [FUEL, 1-D]
HARDWICK	GATES SALVAGE	FUEL OIL, [NO. 2]
HARDWICK	GATES SALVAGE	PROPANE
HARDWICK	GATES SALVAGE	OXYGEN GAS,, N.O.S.
HARDWICK	HARDWICK MOTORS, INC.	GASOLINE
HARDWICK	D & L BEVERAGE	GASOLINE
HARDWICK	LTD DBA D & L BEVERAGE	OIL, [FUEL, 1-D]
HARDWICK	MIKE'S GULF SERVICE CTR, INC.	GASOLINE
HARDWICK	MIKE'S GULF SERVICE CTR, INC.	FUEL OIL, [NO. 2]
HARDWICK	PERRY'S OIL SERVICE, INC.	GASOLINE
HARDWICK	RURAL GAS	PROPANE
HARDWICK	RURAL GAS	METHANOL
HARDWICK	TOWN OF HARDWICK	OTHER, GEAR OIL
HARDWICK	TOWN OF HARDWICK	OTHER, ANTIFREEZE
HARDWICK	TOWN OF HARDWICK	OTHER, MULTIGRADE OIL
HARDWICK	TOWN OF HARDWICK	OIL, [FUEL, 1-D]
HARDWICK	TOWN OF HARDWICK	CALCIUM CHLORIDE
HARDWICK	TOWN OF HARDWICK WWTF	SODIUM HYPOCHLORITE SOLUTION
HARDWICK	TOWN OF HARDWICK WWTF	SODIUM BISULFITE, [LIQUID]
HARDWICK	TOWN OF HARDWICK WWTF	FUEL OIL, [NO. 2]
HARDWICK	ULTRAMAR ENERGY INC.	FUEL OIL, [NO. 2]
HARDWICK	ULTRAMAR ENERGY INC.	KEROSENE/PETROLEUM DISTILLATE
HARDWICK	VERIZON CENTRAL OFFICE (4845-06)	SULFURIC ACID
LYNDON	BOB'S WELDING	OXYGEN GAS, N.O.S.
LYNDON	BOB'S WELDING	ACETYLENE
LYNDON	BRADFORD OIL CO	PROPANE
LYNDON	CALKINS ROCK PRODUCTS, INC.	FUEL OIL, [NO. 2]
LYNDON	CUMBERLAND FARMS INC.	GASOLINE
LYNDON	FENTON CHESTER ARENA	CHLORODIFLUOROMETHANE
LYNDON	FENTON CHESTER ARENA	ETHYLENE GLYCOL
LYNDON	FENTON CHESTER ARENA	PROPANE
LYNDON	FRED'S PROPANE & HEATING OIL	FUEL OIL, [NO. 2]
LYNDON	FRED'S PROPANE & HEATING OIL	KEROSENE
LYNDON	FRED'S PROPANE & HEATING OIL	OIL, [FUEL, 1-D] LOW SULFER DIESEL
LYNDON	Great Falls Hydro	TURBINE OIL
LYNDON	GREAT FALLS HYDRO	OTHER, TURBINE OIL
LYNDON	GREENFIELD INDUSTRIES, INC.	NITROGEN
LYNDON	GREENFIELD INDUSTRIES, INC.	AMMONIA (ANHYDROUS)
LYNDON	GREENFIELD INDUSTRIES, INC.	PROPANE
LYNDON	GREENFIELD INDUSTRIES, INC.	SULFURIC ACID
LYNDON	GREENFIELD INDUSTRIES, INC.	OTHER, DIATOMACEOUS EARTH
LYNDON	GREENFIELD INDUSTRIES, INC.	BARIUM CHLORIDE
LYNDON	GREENFIELD INDUSTRIES, INC.	PETROLEUM DISTILLATE
LYNDON	GREENFIELD INDUSTRIES, INC.	SODIUM HYDROXIDE
LYNDON	GREENFIELD INDUSTRIES, INC.	HYDROCHLORIC ACID

LYNDON	GREENFIELD INDUSTRIES, INC.	STODDARD SOLVENT
LYNDON	GREENFIELD INDUSTRIES, INC.	OTHER, SODIUM SULFATE
LYNDON	GREENFIELD INDUSTRIES, INC.	OXYGEN
LYNDON	GREENFIELD INDUSTRIES, INC.	ACETYLENE
LYNDON	GREENFIELD INDUSTRIES, INC.	ARGON
LYNDON	GREENFIELD INDUSTRIES, INC.	HELIUM
LYNDON	GREENFIELD INDUSTRIES, INC.	HYDROGEN PEROXIDE
LYNDON	GREENFIELD INDUSTRIES, INC.	EDTA
LYNDON	HOPKINS & SONS, INC.	FUEL OIL, [NO. 2]
LYNDON	IRVING OIL CORP	OIL, [FUEL, 1-D]
LYNDON	IRVING OIL CORP	FUEL OIL, [NO. 2]
LYNDON	IRVING OIL CORP	KEROSENE
LYNDON	IRVING OIL CORP	GASOLINE
LYNDON	LYNDON FURNITURE INC	2-PROPANONE
LYNDON	LYNDON FURNITURE INC	AMYL METHYL KETONE
LYNDON	LYNDON FURNITURE INC	BUTYL ACETATES
LYNDON	LYNDON FURNITURE INC	NITROCELLULOSE, SOLUTION, FLAM
LYNDON	LYNDON FURNITURE INC	OIL, [FUEL, 1-D]
LYNDON	LYNDON FURNITURE INC	FUEL OIL, [NO. 2]
LYNDON	LYNDON FURNITURE INC	ISOPROPANOL
LYNDON	LYNDON FURNITURE INC	2-PROPANONE
LYNDON	LYNDON FURNITURE INC	ISOBUTYL ISOBUTYRATE
LYNDON	LYNDON FURNITURE INC	ISOBUTYL ACETATE
LYNDON	LYNDON FURNITURE INC	BUTYL ACETATES
LYNDON	LYNDON FURNITURE INC	NITROCELLULOSE, SOLUTION, FLAM
LYNDON	LYNDON FURNITURE INC	OTHER, DI-ISONYL PHTHALATE
LYNDON	LYNDON FURNITURE INC	OIL, [FUEL, 1-D]
LYNDON	LYNDON FURNITURE INC	FUEL OIL, [NO. 2]
LYNDON	LYNDONVILLE IRVING HOME HEAT	DIESEL
LYNDON	LYNDONVILLE IRVING HOME HEAT	FUEL OIL
LYNDON	LYNDONVILLE IRVING HOME HEAT	KEROSENE
LYNDON	LYNDONVILLE MAINWAY	GASOLINE
LYNDON	LYNDONVILLE WATER FACILITY	CARBON, ACTIVATED
LYNDON	LYNDONVILLE WATER FACILITY	SODIUM HYPOCHLORITE
LYNDON	LYNDONVILLE WATER FACILITY	SODIUM BISULFITE, [SOLID]
LYNDON	NORTHEAST AGRICULTURAL SALES	OTHER, BICEP LITE II MAGNUM BULK
LYNDON	NSA INDUSTRIES	OTHER, CASTROL-RUSTILO
LYNDON	NSA INDUSTRIES	OTHER, RANDO HD32
LYNDON	NSA INDUSTRIES	OTHER, TEXACO WALL LUBRICANT
LYNDON	NSA INDUSTRIES	CARBON DIOXIDE
LYNDON	NSA INDUSTRIES	OTHER, CASTROL RUSTILO
LYNDON	NSA INDUSTRIES	OTHER, ALMACUT 86NA
LYNDON	NSA INDUSTRIES	OXYGEN GAS, REFRIGERATED, N.O.S.
LYNDON	NSA INDUSTRIES	ARGON
LYNDON	NSA INDUSTRIES	NITROGEN
LYNDON	NSA INDUSTRIES	OTHER, HYDRAULIC OIL
LYNDON	NSA INDUSTRIES	HB FULLER (WHITE POWDER COATING)

LYNDON	NSA INDUSTRIES	HB FULLER (YELLOW POWDER COATING)
LYNDON	NSA INDUSTRIES	MORTON COMET (BLACK POWDER COATING)
LYNDON	NSA INDUSTRIES	OTHER, MORTON MIDNIGHT BLACK
LYNDON	NSA INDUSTRIES	OTHER, MORTON RAVEN BLACK
LYNDON	NSA INDUSTRIES	OTHER, MORTON (PACH GRAY)
LYNDON	NSA INDUSTRIES	OTHER, FLAT BLACK POWDERCOAT
LYNDON	NSA INDUSTRIES	OTHER, WRINKLE BLACK
LYNDON	NSA INDUSTRIES	OTHER, IRON BLACK
LYNDON	NSA INDUSTRIES	OTHER, MORTON PUMPKIN POWDERCOAT
LYNDON	THE PINES HEALTH AND REHAB CENTER	FUEL OIL, [NO. 2]
LYNDON	THE PINES HEALTH AND REHAB CENTER	PROPANE
LYNDON	THE PINES HEALTH AND REHAB CENTER	OXYGEN
LYNDON	TOWN OF LYNDON	CALCIUM CHLORIDE
LYNDON	TOWN OF LYNDON	OXYGEN
LYNDON	TOWN OF LYNDON	ARGON
LYNDON	TOWN OF LYNDON	SODIUM HYPOCHLORITE
LYNDON	TOWN OF LYNDON	SODIUM BISULFITE, [LIQUID]
LYNDON	TOWN OF LYNDON	ACRYLAMIDE POLYMER
LYNDON	UNITED PARCEL SERVICE	GASOLINE
LYNDON	UNITED PARCEL SERVICE	ETHYLENE GLYCOL
LYNDON	UNITED PARCEL SERVICE	METHANOL
LYNDON	UNITED PARCEL SERVICE	PROPANE
LYNDON	VERIZON CENTRAL OFFICE (4794-06)	SULFURIC ACID
LYNDON	Vermont Army National Guard Shop #5	Heating Fuel Oil
LYNDON	Vermont Army National Guard - Shop #5	Diesel Fuel
LYNDON	Vermont Army National Guard - Shop #5	Sheet metal for welding
LYNDON	VERMONT FLEXIBLE TUBING CO	NAPHTHA, PETROLEUM
LYNDON	VERMONT FLEXIBLE TUBING CO	SILVER
LYNDON	VILLAGE OF LYNDONVILLE	POTASSIUM HYDROXIDE, SOLUTION
LYNDON	VILLAGE OF LYNDONVILLE	SULFURIC ACID
LYNDON	VILLAGE OF LYNDONVILLE	OTHER, CATALYZED SULFITE
LYNDON	VILLAGE OF LYNDONVILLE	SODIUM HYDROXIDE
LYNDON	VILLAGE OF LYNDONVILLE	OTHER, BIOXIDE
LYNDON	Lyndonville Electric Department Garage	TRANSFORMER OIL
LYNDON	Lyndonville Electric Department Garage	MOTOR OIL
LYNDON	Lyndonville Electric Department Garage	Hydraulic Oil
LYNDON	VTARNG SHOP #5	FUEL OIL, [NO. 2]
LYNDON	VTARNG SHOP #5	OIL, [FUEL, 1-D]
LYNDON	VTARNG SHOP #5	OTHER, SHEET METAL
LYNDON	VTRANS	ACETYLENE
LYNDON	VTRANS	CALCIUM CHLORIDE
LYNDON	VTRANS	FUEL OIL, [NO. 2]
LYNDON	VTRANS	OXYGEN
LYNDON	VTRANS	ETHANE
LYNDON	VTRANS	PROPANE
LYNDON	VTRANS	PROPYLENE
LYNDON	VTRANS	BUTANE

LYNDON	VTRANS	METHANOL
LYNDON	VTRANS	CALCIUM CHLORIDE
LYNDON	VTRANS	GASOLINE (AVIATION)
LYNDON	VTRANS	ETHANE
LYNDON	VTRANS	PROPANE
LYNDON	VTRANS	PROPYLENE
LYNDON	VTRANS	BUTANE
LYNDON	WINTERSET, INC.	ETHYLENE GLYCOL
LYNDON	WINTERSET, INC.	FUEL OIL, [DIESEL]
LYNDON	WINTERSET, INC.	GASOLINE
LYNDON	WINTERSET, INC.	OTHER, USED MOTOR OIL
LYNDON	WINTERSET, INC.	SULFURIC ACID
LYNDON	WINTERSET, INC.	CALCIUM CHLORIDE
LYNDON	WINTERSET, INC.	OTHER, LIGHT ALIPHATIC NAPHTHA
PEACHAM	TOWN OF PEACHAM	OTHER, CALCIUM CHLORIDE
PEACHAM	TOWN OF PEACHAM	IRON, [POWDERED]
PEACHAM	TOWN OF PEACHAM	FUEL OIL, [NO. 2]
RYEGATE	ALLEY'S MARKET	GASOLINE
RYEGATE	ALLEY'S MARKET	KEROSENE
RYEGATE	GANDIN BROS., INC.	FUEL OIL, [NO. 2]
RYEGATE	Ryegate Associates	Antifreeze
RYEGATE	Ryegate Associates	SODIUM HYDROXIDE
RYEGATE	Ryegate Associates	SODIUM HYPOCHLORITE SOLUTION
RYEGATE	Ryegate Associates	SULFURIC ACID
RYEGATE	Ryegate Associates	MURIATIC ACID
RYEGATE	Ryegate Associates	Urea
RYEGATE	Ryegate Associates	LPG (LIQUEFIED PETROLEUM GASES)
RYEGATE	Ryegate Associates	Nalco 8365 plus Cooling water treatment
RYEGATE	Ryegate Associates	ActiBrom 7334 (Sodium Bromide)
RYEGATE	Ryegate Associates	Nalco 7330 (Biocide)
RYEGATE	Ryegate Associates	Nalco 7208 - Boiler Water Treatment
RYEGATE	Ryegate Associates	Sodium Bisulfite
RYEGATE	Ryegate Associates	Tanner Gas (Methanol)
RYEGATE	Ryegate Associates	Electrical Insulating Oil
RYEGATE	Ryegate Associates	Diesel Fuel
RYEGATE	Ryegate Associates	R&O32 Oil, HD32 Hydraulic Oil, 10w&30w oils.
SHEFFIELD	RAYMOND BERRY	OTHER, TOVEX
SHEFFIELD	RAYMOND BERRY	GASOLINE
SHEFFIELD	RAYMOND BERRY	OIL, [FUEL, 1-D]
SHEFFIELD	TOWN OF SHEFFIELD	CALCIUM CHLORIDE
SHEFFIELD	TOWN OF SHEFFIELD	FUEL OIL, [DIESEL]
SHEFFIELD	TOWN OF SHEFFIELD	GASOLINE
ST JOHNSBURY	A CLEANER GLOBE, INC.	PERCHLOROETHYLENE
ST JOHNSBURY	BRADFORD OIL CO	GASOLINE
ST JOHNSBURY	BRADFORD OIL CO	OIL, [FUEL, 1-D]
ST JOHNSBURY	BRADFORD OIL CO	FUEL OIL, [NO. 2]
ST JOHNSBURY	BRADFORD OIL CO	KEROSENE

ST JOHNSBURY	BRADFORD OIL CO	PROPANE
ST JOHNSBURY	BRADFORD OIL CO	PROPANE
ST JOHNSBURY	BRADFORD OIL CO	GASOLINE
ST JOHNSBURY	BRADFORD OIL CO	OIL, [FUEL, 1-D]
ST JOHNSBURY	Caledonia (St. Johnsbury) District Court	#2 fuel oil
ST JOHNSBURY	Caledonia Community Work Camp	#2 fuel oil
ST JOHNSBURY	Caledonia KILN CORPORATION	OTHER, BUNKER OIL
ST JOHNSBURY	Caledonia KILN CORPORATION	OIL, [FUEL, 1-D]
ST JOHNSBURY	CENTER TOWER	GASOLINE
ST JOHNSBURY	CENTRAL VERMONT PUBLIC SERVICE	FUEL OIL, [NO. 2]
ST JOHNSBURY	CENTRAL VERMONT PUBLIC SERVICE	OIL, [FUEL, 1-D]
ST JOHNSBURY	CUMBERLAND FARMS INC.	GASOLINE
ST JOHNSBURY	DOWNS RACHLIN MARTIN PLLC	FUEL OIL, [NO. 2]
ST JOHNSBURY	ECH, LC	FUEL OIL, [NO. 2]
ST JOHNSBURY	EHV-WEIDMANN INDUSTRIES, INC.	SODIUM HYDROXIDE (RENEW SC7 160)
ST JOHNSBURY	EHV-WEIDMANN INDUSTRIES, INC.	2,2-DIBROMO-3-NITRILOPROPIONAMIDE
ST JOHNSBURY	EHV-WEIDMANN INDUSTRIES, INC.	MAGNESIUM SULFONATE
ST JOHNSBURY	EHV-WEIDMANN INDUSTRIES, INC.	CALCIUM HYDROXIDE (30W CASEIN GLUE)
ST JOHNSBURY	EHV-WEIDMANN INDUSTRIES, INC.	STYRENE (POLYESTER RESIN - "NEAT")
ST JOHNSBURY	EHV-WEIDMANN INDUSTRIES, INC.	ACETONE
ST JOHNSBURY	EHV-WEIDMANN INDUSTRIES, INC.	BENZOYL PEROXIDE (SUPEROX (R) 46-744-0)
ST JOHNSBURY	EHV-WEIDMANN INDUSTRIES, INC.	STYRENE (VINYL ESTER RESIN - NEAT)
ST JOHNSBURY	EHV-WEIDMANN INDUSTRIES, INC.	CUMYL HYDROPEROXIDE (TRIGONOX 239A)
ST JOHNSBURY	EHV-WEIDMANN INDUSTRIES, INC.	FUEL OIL, [NO. 2]
ST JOHNSBURY	EHV-WEIDMANN INDUSTRIES, INC.	FUEL OIL, [NO. 6]
ST JOHNSBURY	EHV-WEIDMANN INDUSTRIES, INC.	SODIUM BISULFITE SOLUTION (CL-19)
ST JOHNSBURY	EHV-WEIDMANN INDUSTRIES, INC.	SODIUM NITRITE (CL 34)
ST JOHNSBURY	EHV-WEIDMANN INDUSTRIES, INC.	SODIUM HYDROXIDE AND POTASSIUM HYDROXIDE
ST JOHNSBURY	EHV-WEIDMANN INDUSTRIES, INC.	SODIUM METABISULFITE (BW 48)
ST JOHNSBURY	FAIRBANKS SCALES	FUEL OIL, [NO. 6]
ST JOHNSBURY	FAIRBANKS SCALES	NITRIC ACID, 40% OR LESS
ST JOHNSBURY	FAIRBANKS SCALES	PHOSPHORIC ACID
ST JOHNSBURY	FAIRBANKS SCALES	OTHER, AMTEX-CCR SILICONE
ST JOHNSBURY	FAIRBANKS SCALES	CYCLOHEXYLAMINE
ST JOHNSBURY	FAIRBANKS SCALES	ISOPROPYL ALCOHOL
ST JOHNSBURY	FAIRBANKS SCALES	POLYOXYPROPYLENEDIAMINE
ST JOHNSBURY	FAIRBANKS SCALES	OTHER, POTASSIUM CARBONATE
ST JOHNSBURY	FAIRBANKS SCALES	PROPANE
ST JOHNSBURY	FAIRBANKS SCALES	SODIUM NITRATE
ST JOHNSBURY	FAIRBANKS SCALES	SODIUM SULFITE
ST JOHNSBURY	FAIRBANKS SCALES	OTHER, TETRASODIUM PYROPHOSPHATE
ST JOHNSBURY	FAIRBANKS SCALES	ARGON, COMPRESSED GAS
ST JOHNSBURY	FAIRBANKS SCALES	NITROGEN, COMPRESSED GAS
ST JOHNSBURY	FAIRBANKS SCALES	HELIUM, COMPRESSED GAS
ST JOHNSBURY	FAIRBANKS SCALES	OXYGEN, COMPRESSED GAS
ST JOHNSBURY	FAIRBANKS SCALES	PROPYLENE GAS

ST JOHNSBURY	FIRST STUDENT, INC	DIESEL FUEL
ST JOHNSBURY	FRED W. LEWIS OIL CO, INC	FUEL OIL, [NO. 2]
ST JOHNSBURY	FRED W. LEWIS OIL CO, INC	KEROSENE
ST JOHNSBURY	FRED W. LEWIS OIL CO, INC	FUEL OIL, [NO. 2]
ST JOHNSBURY	GILMOUR FORD CHRYSLER	MOTOR OIL
ST JOHNSBURY	GILMOUR FORD CHRYSLER	#2 FUEL OIL
ST JOHNSBURY	GILMOUR FORD CHRYSLER	KEROSENE
ST JOHNSBURY	IRVING OIL CORP	OIL, [FUEL, 1-D]
ST JOHNSBURY	IRVING OIL CORP	GASOLINE
ST JOHNSBURY	MERRIAM-GRAVES CORP	ACETYLENE
ST JOHNSBURY	MERRIAM-GRAVES CORP	ARGON
ST JOHNSBURY	MERRIAM-GRAVES CORP	CARBON DIOXIDE, REFRIGERATED LIQUID
ST JOHNSBURY	MERRIAM-GRAVES CORP	NITROGEN
ST JOHNSBURY	MERRIAM-GRAVES CORP	OXYGEN
ST JOHNSBURY	Northeast Regional Correctional Center	#2 fuel oil
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	FUEL OIL, [DIESEL]
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	FUEL OIL, [NO. 4]
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	LPG
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	NITROGEN
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	NITROUS OXIDE
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	OXYGEN
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	ETHOXYLATED NONYLPHENOL
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	POTASSIUM HYDROXIDE
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	ETHYLENE OXIDE
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	MORPHOLINE
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	POTASSIUM HYDROXIDE, SOLUTION
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	CAUSTIC SODA, SOLUTION
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	SODIUM METABISULFITE
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	PROPANE
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	#2 DIESEL FUEL
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	FUEL OIL, [NO. 2]
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	ETHOXYLATED NONYLPHENOL
ST JOHNSBURY	NEVT REGIONAL HOSPITAL	OTHER, POTASSIUM HYDROXIDE
ST JOHNSBURY	PALMER BROTHERS INC	FUEL OIL, [NO. 2]
ST JOHNSBURY	PARTY TYME IRVING	GASOLINE
ST JOHNSBURY	QUALITY CONTROLLED STITCHING	OIL, [FUEL, 1-D]
ST JOHNSBURY	SANEL AUTO PARTS CO	XYLENES
ST JOHNSBURY	ST. JOHNSBURY ACADEMY	FUEL OIL, [NO. 2]
ST JOHNSBURY	ST. JOHNSBURY ACADEMY	PROPANE
ST JOHNSBURY	ST. JOHNSBURY ACADEMY	OXYGEN
ST JOHNSBURY	ST. JOHNSBURY ACADEMY	OTHER, MG GAS
ST JOHNSBURY	ST. JOHNSBURY ACADEMY	ACETYLENE
ST JOHNSBURY	ST. JOHNSBURY ACADEMY	SODIUM HYPOCHLORITE SOLUTION
ST JOHNSBURY	ST. JOHNSBURY ACADEMY	OTHER, SUPER CHEMZIME III
ST JOHNSBURY	ST. JOHNSBURY MAINWAY	DIESEL
ST JOHNSBURY	ST. JOHNSBURY MAINWAY	GASOLINE
ST JOHNSBURY	State Police Field Station, St. Johnsbury	#2 fuel oil

ST JOHNSBURY	THE ST JOHNSBURY SCHOOL	FUEL OIL, [NO. 2]
ST JOHNSBURY	TOWN OF ST. JOHNSBURY	FUEL OIL, [NO. 2]
ST JOHNSBURY	VELCO ST JOHNSBURY SUBSTATION	MINERAL OIL
ST JOHNSBURY	VELCO ST JOHNSBURY SUBSTATION	BATTERY ACID
ST JOHNSBURY	VERIZON CENTRAL OFFICE (4795-06)	SULFURIC ACID
ST JOHNSBURY	VERIZON CENTRAL OFFICE (4795-06)	FUEL OIL, [NO. 2]
ST JOHNSBURY	VERIZON GARAGE (4795-03)	ETHYLENE GLYCOL
ST JOHNSBURY	VERIZON GARAGE (4795-03)	OTHER, GEAR LUBE OIL
ST JOHNSBURY	VERIZON GARAGE (4795-03)	OTHER, USED OIL
ST JOHNSBURY	VTRANS	ACETYLENE
ST JOHNSBURY	VTRANS	ETHYLENE GLYCOL
ST JOHNSBURY	VTRANS	CALCIUM CHLORIDE
ST JOHNSBURY	VTRANS	FUEL OIL, [NO. 2]
ST JOHNSBURY	VTRANS	OTHER, BOILED LINSEED OIL
ST JOHNSBURY	VTRANS	OXYGEN
ST JOHNSBURY	VTRANS	ETHANE
ST JOHNSBURY	VTRANS	PROPANE
ST JOHNSBURY	VTRANS	PROPYLENE
ST JOHNSBURY	VTRANS	BUTANE
ST JOHNSBURY	VTRANS	CALCIUM CHLORIDE
ST JOHNSBURY	VTRANS	OTHER, PORTLAND CEMENT
ST JOHNSBURY	VTRANS	CALCIUM SULFATE
ST JOHNSBURY	VTRANS	CALCIUM CARBIDE
ST JOHNSBURY	WESCO, INC.	GASOLINE
WATERFORD	PIKE INDUSTRIES, INC. - P706/702/C603	AC LIQUID
WATERFORD	PIKE INDUSTRIES, INC. - P706/702/C603	OIL, [FUEL, 1-D] - HIGH SULFUR
WATERFORD	PIKE INDUSTRIES, INC. - P706/702/C603	OIL, [FUEL, 1-D] - LOW SULFUR
WATERFORD	S.T. Griswold and Company, Inc.	Hydrocarbons & additives
WATERFORD	S.T. Griswold and Company, Inc.	Cement
WATERFORD	THE WATERFORD SCHOOL	FUEL OIL, [NO. 2]
WATERFORD	THE WATERFORD SCHOOL	PROPANE
WATERFORD	TOWN OF WATERFORD	OIL, [FUEL, 1-D]
BRIGHTON	ISLAND POND FEED STORE	OXYGEN GAS, OXIDIZING, N.O.S.
BRIGHTON	ISLAND POND FEED STORE	ACETYLENE
BRIGHTON	JOHN'S MARKET	GASOLINE
BRIGHTON	MARCOUX'S FUEL STOP	FUEL OIL, [DIESEL]
BRIGHTON	MARCOUX'S FUEL STOP	OTHER, MOTOR OIL (USED)
BRIGHTON	VERIZON CENTRAL OFFICE (4814-06)	SULFURIC ACID
CANAAN	CANAAN GULF	OXYGEN GAS, OXIDIZING, N.O.S.
CANAAN	CANAAN GULF	ACETYLENE
CANAAN	CANAAN SCHOOLS	FUEL OIL, [NO. 2]
CANAAN	CANAAN SCHOOLS	PROPANE
CANAAN	ETHAN ALLEN INC	ETHANOL
CANAAN	ETHAN ALLEN INC	ISOPROPANOL
CANAAN	ETHAN ALLEN INC	ACETONE
CANAAN	ETHAN ALLEN INC	ISOBUTANOL
CANAAN	ETHAN ALLEN INC	ETHYL METHYL KETONE

CANAAN	ETHAN ALLEN INC	ISOBUTYL ISOBUTYRATE
CANAAN	ETHAN ALLEN INC	ISOPROPYL ACETATE
CANAAN	ETHAN ALLEN INC	PROPYLENE GLYCOL 1-METHYL ETHER
CANAAN	ETHAN ALLEN INC	TOLUENE
CANAAN	ETHAN ALLEN INC	N-PROPYL ACETATE
CANAAN	ETHAN ALLEN INC	ISOBUTYL ACETATE
CANAAN	ETHAN ALLEN INC	AMYL METHYL KETONE
CANAAN	ETHAN ALLEN INC	ETHYLENE GLYCOL MONOBUTYL ETHER
CANAAN	ETHAN ALLEN INC	BUTYL ACETATES
CANAAN	ETHAN ALLEN INC	ETHYL ACETATE
CANAAN	ETHAN ALLEN INC	ZINC STEARATE
CANAAN	ETHAN ALLEN INC	XYLENES
CANAAN	ETHAN ALLEN INC	CARBON BLACK OIL
CANAAN	ETHAN ALLEN INC	OTHER, 2-PROPANOL, 1-BUTOXY
CANAAN	ETHAN ALLEN INC	KEROSENE
CANAAN	ETHAN ALLEN INC	PETROLEUM ETHER (NAPHTHA, VM&P)
CANAAN	ETHAN ALLEN INC	STODDARD SOLVENT
CANAAN	ETHAN ALLEN INC	NITROCELLULOSE
CANAAN	ETHAN ALLEN INC	1,6-HEXANEDIOL DIACRYLATE
CANAAN	ETHAN ALLEN INC	OTHER, SILICA, CRYSTALLINE
CANAAN	ETHAN ALLEN INC	OTHER, TRIPROPYLENE GLYCOL DIACRYLATE
CANAAN	ETHAN ALLEN INC	OTHER, MEDIUM MINERAL SPIRITS
CANAAN	ETHAN ALLEN INC	ALIPHATIC, LIGHT HYDROCARBON SOLVENT
CANAAN	ETHAN ALLEN INC	OTHER, SILICA-PRECIPIATED
CANAAN	ETHAN ALLEN INC	OTHER, ACRYLATED AMINE
CANAAN	ETHAN ALLEN INC	OTHER, ACRYLATED EPOXY RESIN
CANAAN	ETHAN ALLEN INC	OTHER, ACRYLATED OIL
CANAAN	ETHAN ALLEN INC	#4 FUEL OIL
CANAAN	ETHAN ALLEN INC	OIL, [FUEL, 1-D]
CONCORD	LYNDON FURNITURE INC	2-PROPANONE
CONCORD	LYNDON FURNITURE INC	AMYL METHYL KETONE
CONCORD	LYNDON FURNITURE INC	BUTYL ACETATES
CONCORD	LYNDON FURNITURE INC	NITROCELLULOSE, SOLUTION, FLAMMABLE
CONCORD	LYNDON FURNITURE INC	FUEL OIL, [NO. 2]
CONCORD	LYNDON FURNITURE INC	OIL, [FUEL, 1-D]
EAST HAVEN	TOWN OF EAST HAVEN	FUEL OIL, [NO. 2]
EAST HAVEN	TOWN OF EAST HAVEN	PROPANE
EAST HAVEN	TOWN OF EAST HAVEN	SODIUM HYPOCHLORITE
EAST HAVEN	TOWN OF EAST HAVEN	FUEL OIL, [NO. 2]
EAST HAVEN	TOWN OF EAST HAVEN	FUEL OIL, [NO. 2]
EAST HAVEN	TOWN OF EAST HAVEN	GASOLINE
EAST HAVEN	TOWN OF EAST HAVEN	OIL, [FUEL, 1-D]
GUILDHALL	CARROLL CONCRETE CO, INC	OIL, [FUEL, 1-D]
GUILDHALL	CARROLL CONCRETE CO, INC	TURPENTINE SUBSTITUTE
LUNENBURG	AMERICAN PAPER MILLS OF VT	SODIUM HYDROXIDE
LUNENBURG	AMERICAN PAPER MILLS OF VT	SULFURIC ACID
LUNENBURG	AMERICAN PAPER MILLS OF VT	OIL, [FUEL, 1-D]

LUNENBURG	AMERICAN PAPER MILLS OF VT	OTHER, #6 FUEL OIL
LUNENBURG	AMERICAN PAPER MILLS OF VT	ALUMINUM SULFATE, SOLUTION
LUNENBURG	AMERICAN PAPER MILLS OF VT	CYCLOHEXYLAMINE
LUNENBURG	AMERICAN PAPER MILLS OF VT	SODIUM PERSULFATE
LUNENBURG	AMERICAN PAPER MILLS OF VT	POTASSIUM HYDROXIDE
LUNENBURG	AMERICAN PAPER MILLS OF VT	TRIETHANOLAMINE
LUNENBURG	AMERICAN PAPER MILLS OF VT	OTHER, STARCH
LUNENBURG	AMERICAN PAPER MILLS OF VT	SODIUM BISULFITE
LUNENBURG	AMERICAN PAPER MILLS OF VT	OTHER, FAST RED 9 BL
LUNENBURG	AMERICAN PAPER MILLS OF VT	SODIUM HYDROSULFITE
LUNENBURG	AMERICAN PAPER MILLS OF VT	STODDARD SOLVENT
LUNENBURG	AMERICAN PAPER MILLS OF VT	ACETIC ACID
LUNENBURG	AMERICAN PAPER MILLS OF VT	OTHER, CALCIUM CARBONATE
LUNENBURG	AMERICAN PAPER MILLS OF VT	OTHER, SODIUM BROMIDE
LUNENBURG	AMERICAN PAPER MILLS OF VT	OTHER, BRILLIANT VIOLET GB
LUNENBURG	AMERICAN PAPER MILLS OF VT	OTHER, MINERAL OIL
LUNENBURG	AMERICAN PAPER MILLS OF VT	OTHER, ISO PARAFINIC PETROLEUM DISTILLATE
LUNENBURG	AMERICAN PAPER MILLS OF VT	OTHER, BERBOND 8200
LUNENBURG	AMERICAN PAPER MILLS OF VT	OTHER, DIAMMONIUM PEROXYDISULFATE
LUNENBURG	AMERICAN PAPER MILLS OF VT	HEXYLENE GLYCOL
LUNENBURG	AMERICAN PAPER MILLS OF VT	OTHER, HEXADECENYLSUCCINIC ANHYDRIDE
LUNENBURG	AMERICAN PAPER MILLS OF VT	METHANOL
LUNENBURG	AMERICAN PAPER MILLS OF VT	OTHER, SPECTRUM RX5080
LUNENBURG	AMERICAN PAPER MILLS OF VT	OTHER, QUARTZ SILICA
LUNENBURG	AMERICAN PAPER MILLS OF VT	UREA (CARBONYL DIAMIDE)
LUNENBURG	LUNENBURG VARIETY	GASOLINE
LUNENBURG	VERIZON CENTRAL OFFICE (4798-06)	SULFURIC ACID
LUNENBURG	VTRANS	ACETYLENE
LUNENBURG	VTRANS	CALCIUM CHLORIDE
LUNENBURG	VTRANS	FUEL OIL, [NO. 2]
LUNENBURG	VTRANS	OXYGEN
LUNENBURG	VTRANS	ETHANE
LUNENBURG	VTRANS	PROPANE
LUNENBURG	VTRANS	PROPYLENE
LUNENBURG	VTRANS	BUTANE
LUNENBURG	VTRANS	CALCIUM CHLORIDE
NORTON	NORTON COUNTRY STORE	GASOLINE
NORTON	NORTON COUNTRY STORE	OIL, [FUEL, 1-D]
NORTON	NORTON GAS STATION	GASOLINE
BARTON	BARTON MAINWAY	DIESEL
BARTON	BARTON MAINWAY	GASOLINE
BARTON	BARTON MOTOR CO., INC.	GASOLINE
BARTON	BARTON MOTOR CO., INC.	FUEL OIL, [NO. 2]
BARTON	Barton Village Electric Inc.	TRANSFORMER OIL
BARTON	Barton Village Water Plant	Sodium Hypochlorite
BARTON	Barton Village Water Plant	Sodium Hydroxide
BARTON	Barton Village Water Plant	Propane

BARTON	Barton Wastewater Plant	SODIUM BISULFITE
BARTON	Barton Wastewater Plant	Sodium Hypochlorite
BARTON	BOB'S GAS PLUS	GASOLINE
BARTON	BOB'S GAS PLUS	OIL, [FUEL, 1-D]
BARTON	BUTLER'S BUS SERVICE, INC	GASOLINE
BARTON	CARL'S EQUIPMENT INC.	GASOLINE
BARTON	COLLINS FARM & GARDEN	OXYGEN
BARTON	CROTEAU AUTO PARTS	GASOLINE
BARTON	D & C TRANSPORTATION, INC.	FUEL OIL, [NO. 2]
BARTON	D & C TRANSPORTATION, INC.	GASOLINE
BARTON	D & C TRANSPORTATION, INC.	KEROSENE
BARTON	D & C TRANSPORTATION, INC.	OIL, [FUEL, 1-D]
BARTON	D & C TRANSPORTATION, INC.	LOW SULPHUR DIESEL W/KEROSENE
BARTON	D & C TRANSPORTATION, INC.	GASOLINE
BARTON	ETHAN ALLEN INC	ETHANOL
BARTON	ETHAN ALLEN INC	ISOPROPANOL
BARTON	ETHAN ALLEN INC	ACETONE
BARTON	ETHAN ALLEN INC	N-BUTYL ALCOHOL
BARTON	ETHAN ALLEN INC	PROPANE
BARTON	ETHAN ALLEN INC	ISOBUTANOL
BARTON	ETHAN ALLEN INC	ETHYL METHYL KETONE
BARTON	ETHAN ALLEN INC	ISOBUTYL ISOBUTYRATE
BARTON	ETHAN ALLEN INC	ISOPROPYL ACETATE
BARTON	ETHAN ALLEN INC	PROPYLENE GLYCOL ETHER ACETATE
BARTON	ETHAN ALLEN INC	TOLUENE
BARTON	ETHAN ALLEN INC	N-PROPYL ACETATE
BARTON	ETHAN ALLEN INC	ISOBUTYL ACETATE
BARTON	ETHAN ALLEN INC	AMYL METHYL KETONE
BARTON	ETHAN ALLEN INC	ETHYLENE GLYCOL MONOBUTYL ETHER
BARTON	ETHAN ALLEN INC	BUTYL ACETATES
BARTON	ETHAN ALLEN INC	ETHYL ACETATE
BARTON	ETHAN ALLEN INC	IRON OXIDE, SPENT
BARTON	ETHAN ALLEN INC	XYLENES
BARTON	ETHAN ALLEN INC	IRON OXIDE, SPENT
BARTON	ETHAN ALLEN INC	2-PROPANOL, 1-BUTOXY
BARTON	ETHAN ALLEN INC	OILS, MISCELLANEOUS: LINSEED
BARTON	ETHAN ALLEN INC	KEROSENE
BARTON	ETHAN ALLEN INC	PETROLEUM ETHER
BARTON	ETHAN ALLEN INC	NAPHTHA: STODDARD SOLVENT
BARTON	ETHAN ALLEN INC	NITROCELLULOSE, SOLUTION, FLAMMABLE
BARTON	ETHAN ALLEN INC	TITANIUM DIOXIDE
BARTON	ETHAN ALLEN INC	TALC
BARTON	ETHAN ALLEN INC	OTHER, SILICA CRYSTALLINE
BARTON	ETHAN ALLEN INC	NAPHTHA, HYDROTREATED (PETROLEUM)
BARTON	ETHAN ALLEN INC	OTHER, MEDIUM, MINERAL SPIRITS
BARTON	ETHAN ALLEN INC	ALIPHATIC, LIGHT HYDROCARBON SOLVENT
BARTON	ETHAN ALLEN INC	OTHER, PHTHALATE ESTERS

BARTON	ETHAN ALLEN INC	OTHER, ALIPHATIC HYDROCARBON
BARTON	ETHAN ALLEN INC	OTHER, SOYA ALKYD
BARTON	ETHAN ALLEN INC	OTHER, TALL OIL FA ALKYD
BARTON	ETHAN ALLEN INC	#4 FUEL OIL
BARTON	FRED'S PLUMBING AND HEATING, INC.	FUEL OIL, [NO. 2]
BARTON	FRED'S PLUMBING AND HEATING, INC.	GASOLINE
BARTON	FRED'S PLUMBING AND HEATING, INC.	KEROSENE
BARTON	FRED'S PLUMBING AND HEATING, INC.	GASOLINE
BARTON	FRED'S PLUMBING AND HEATING, INC.	OIL, [FUEL, 1-D] LOW SULFER DIESEL
BARTON	IRVING OIL CORP	OIL, [FUEL, 1-D]
BARTON	IRVING OIL CORP	GASOLINE
BARTON	MAPLE LANE NURSING HOME	GASOLINE
BARTON	MAPLE LANE NURSING HOME	FUEL OIL, [NO. 2]
BARTON	MAPLE LANE NURSING HOME	PROPANE
BARTON	MAPLE LANE NURSING HOME	OXYGEN
BARTON	One Stop Mini Mart Sunoco	Gasoline
BARTON	ONE STOP MINI MART SUNOCO	GASOLINE
BARTON	Orleans Electric Department	Hydrotreated light naphthenic distillate petroleum
BARTON	Orleans Waste Water Treatment Facility	Chlorine
BARTON	Orleans Waste Water Treatment Facility	Sulfer Dioxide
BARTON	Orleans Waste Water Treatment Facility	FERRIC CHLORIDE, SOLUTION
BARTON	Orleans Water Dept. Well Pump Control Bldg.	SODIUM HYPOCHLORITE SOLUTION
BARTON	Orleans Water Dept. Well Pump Control Bldg.	FLUORIDE, SODIUM
BARTON	ST. PAUL SCHOOL	FUEL OIL, [NO. 2]
BARTON	THE PIZZA PLACE QUICKSTOP	GASOLINE
BARTON	TOWN OF BARTON	SODIUM CHLORIDE
BARTON	TOWN OF BARTON	CALCIUM CHLORIDE
BARTON	TOWN OF Orleans	CHLORINE
BARTON	TOWN OF Orleans	SULFUR DIOXIDE
BARTON	TOWN OF Orleans	FERRIC CHLORIDE
BARTON	TOWN OF Orleans	SODIUM HYPOCHLORITE
BARTON	TOWN OF Orleans	SODIUM FLUORIDE
BARTON	VERIZON CENTRAL OFFICE (4812-06)	SULFURIC ACID
BARTON	VERIZON CENTRAL OFFICE (4821-06)	SULFURIC ACID
CHARLESTON	CHARLESTON ELEMENTARY SCHOOL	FUEL OIL, [NO. 2]
CHARLESTON	WEST CHARLESTON COUNTRY STORE	GASOLINE
CHARLESTON	West Charleston Hydro Plant	DIESEL FUEL OIL
CHARLESTON	West Charleston Hydro Plant	Diesel Fuel
CONVENTRY	CALKINS SAND & GRAVEL, INC.	FUEL OIL, [NO. 2]
CONVENTRY	CARROLL CONCRETE CO, INC	PROPANE
CONVENTRY	CARROLL CONCRETE CO, INC	FUEL OIL, [NO. 2]
CONVENTRY	CARROLL CONCRETE CO, INC	TURPENTINE SUBSTITUTE
CONVENTRY	New England Waste Services of Vermont, Inc.	Diesel Fuel
CONVENTRY	New England Waste Services of Vermont, Inc.	Heating Oil
CONVENTRY	New England Waste Services of Vermont, Inc.	Engine oil
CONVENTRY	New England Waste Services of Vermont, Inc.	Anti-Freeze
CONVENTRY	New England Waste Services of Vermont, Inc.	Hydraulic fluid

CONVENTRY	New England Waste Services of Vermont, Inc.	Acetylene
CONVENTRY	New England Waste Services of Vermont, Inc.	OXYGEN, [COMPRESSED]
CONVENTRY	PIKE INDUSTRIES, INC. - P905	AC 20 LIQUID ASPHALT
CONVENTRY	PIKE INDUSTRIES, INC. - P905	OIL, [FUEL, 1-D] - HIGH SULFUR
CONVENTRY	PIKE INDUSTRIES, INC. - P905	OIL, [FUEL, 1-D] - LOW SULFUR
CONVENTRY	TOWN OF COVENTRY	OIL, [FUEL, 1-D]
CRAFTSBURY	CRAFTSBURY ACADEMY	VARIOUS (SMALL AMOUNTS)
CRAFTSBURY	CRAFTSBURY GARAGE	GASOLINE
CRAFTSBURY	CRAFTSBURY GARAGE	MOTOR OIL
CRAFTSBURY	CRAFTSBURY GARAGE	#2 FUEL OIL
DERBY	CHAMPLAIN OIL CO	GASOLINE
DERBY	Citizens Energy Services - Pine Hill Warehouse	Gasoline - All Grades
DERBY	Citizens Energy Services - Pine Hill Warehouse	Petroleum Electrical Insulating Oil
DERBY	DERBY ELEMENTARY SCHOOL	FUEL OIL, [NO. 2]
DERBY	DERBY ELEMENTARY SCHOOL	PROPANE
DERBY	DERBY ELEMENTARY SCHOOL	OIL, [FUEL, 1-D]
DERBY	DERBYLINE MAINWAY	GASOLINE
DERBY	FRED'S PLUMBING AND HEATING, INC.	FUEL OIL, [NO. 2] KERO
DERBY	FRED'S PLUMBING AND HEATING, INC.	GASOLINE
DERBY	FRED'S PLUMBING AND HEATING, INC.	FUEL OIL, [NO. 2] LOW SULFUR DIESEL
DERBY	FRED'S PROPANE & HEATING OIL	PROPANE
DERBY	IRVING OIL CORP	GASOLINE
DERBY	NORTH COUNTRY UN. JR. HIGH SCHOOL	FUEL OIL, [NO. 2]
DERBY	NORTH COUNTRY UN. JR. HIGH SCHOOL	PROPANE
DERBY	S.B. COLLINS, INC.	GASOLINE
DERBY	S.B. COLLINS, INC.	DIESEL
DERBY	TIVOLY, INC.	AMMONIA (ANHYDROUS)
DERBY	TIVOLY, INC.	FUEL OIL, [NO. 6]
DERBY	TIVOLY, INC.	OTHER, HYDRAULIC OIL
DERBY	TIVOLY, INC.	OTHER, COOLANT OIL
DERBY	TIVOLY, INC.	NITROGEN
DERBY	TIVOLY, INC.	PROPANE
DERBY	TIVOLY, INC.	OXYGEN
DERBY	TIVOLY, INC.	ACETYLENE
DERBY	TIVOLY, INC.	OTHER, MAPP GAS
DERBY	TIVOLY, INC.	GASOLINE
DERBY	TIVOLY, INC.	NAPHTHA: STODDARD SOLVENT
DERBY	US BORDER STATION	FUEL OIL, [NO. 2]
DERBY	US BORDER STATION AND POST OFFICE	FUEL OIL, [NO. 2]
DERBY	VERIZON CENTRAL OFFICE (4813-06)	SULFURIC ACID
DERBY	VERIZON CENTRAL OFFICE (4813-01)	ETHYLENE GLYCOL
DERBY	VERIZON CENTRAL OFFICE (4813-01)	OTHER, GEAR LUBE OIL
DERBY	VERIZON CENTRAL OFFICE (4813-01)	OTHER, USED OIL
DERBY	VILLAGE OF DERBY WATER FACILITY	SODIUM HYPOCHLORITE
DERBY	WESCO, INC.	GASOLINE
DERBY	WILLIAM P HOLDMAN, INC	OIL, [FUEL, 1-D]
GLOVER	TOWN OF GLOVER	MOTOR OIL

GLOVER	TOWN OF GLOVER	CALCIUM CHLORIDE
GREENSBORO	GREENSBORO NURSING HOME	FUEL OIL, [NO. 2]
GREENSBORO	GREENSBORO NURSING HOME	PROPANE
GREENSBORO	SMITH'S GROCERY	OTHER, 87 OCTANE
GREENSBORO	SMITH'S GROCERY	OTHER, 89 OCTANE
GREENSBORO	SMITH'S GROCERY	KEROSENE
GREENSBORO	SMITH'S GROCERY	OIL, [FUEL, 1-D]
IRASBURG	B & B TRUCKING, INC.	DIESEL FUEL
IRASBURG	VELCO IRASBURG SUBSTATION	MINERAL OIL
IRASBURG	VELCO IRASBURG SUBSTATION	BATTERY ACID
LOWELL	Lowell Graded School	FUEL OIL, [NO. 2]
MORGAN	VERIZON CENTRAL OFFICE (4816-07)	SULFURIC ACID
NEWPORT CITY	BEL-AIRE CTR	FUEL OIL, [NO. 2]
NEWPORT CITY	Blue Flame Gas	Propane
NEWPORT CITY	BOGNER OF AMERICA, INC.	SODIUM HYDROXIDE
NEWPORT CITY	Citizens Energy Services - Generating Station	Diesel Fuel
NEWPORT CITY	CITIZENS UTILITIES	GASOLINE
NEWPORT CITY	CITIZENS UTILITIES	OTHER, PETROLEUM OIL
NEWPORT CITY	COLUMBIA FOREST PRODUCTS	FORMALDEHYDE, SOLUTION, FLAMMABLE
NEWPORT CITY	COLUMBIA FOREST PRODUCTS	PROPANE
NEWPORT CITY	COLUMBIA FOREST PRODUCTS	PROPANE
NEWPORT CITY	COLUMBIA FOREST PRODUCTS	FUEL OIL, [NO. 2]
NEWPORT CITY	COLUMBIA FOREST PRODUCTS	OTHER, ZINC COMPOUNDS
NEWPORT CITY	COLUMBIA FOREST PRODUCTS	OIL, [FUEL, 1-D]
NEWPORT CITY	COLUMBIA FOREST PRODUCTS	CYCLOHEXYLAMINE
NEWPORT CITY	CUMBERLAND FARMS INC.	GASOLINE
NEWPORT CITY	Emory Hebard (Newport) State Office Building	#2 fuel oil
NEWPORT CITY	FRED'S PLUMBING & HEATING, INC.	GASOLINE
NEWPORT CITY	GREEN MOUNTAIN CUSTOM FINISHING	ACETONE
NEWPORT CITY	GREEN MOUNTAIN CUSTOM FINISHING	NAPHTHA: STODDARD SOLVENT
NEWPORT CITY	GREEN MOUNTAIN CUSTOM FINISHING	PROPANE
NEWPORT CITY	JIMMY KWIK STORE	GASOLINE
NEWPORT CITY	Mulkin Corp.	Fuel Oil #2
NEWPORT CITY	Mulkin Corp.	Motor Oil
NEWPORT CITY	Mulkin Corp.	Propane
NEWPORT CITY	NEWPORT DAILY EXPRESS	OTHER, MM Hg @ TEMP
NEWPORT CITY	NEWPORT DAILY EXPRESS	OTHER, WEB PRESS NASH
NEWPORT CITY	Newport Furniture Parts Corp	Chromium III
NEWPORT CITY	Newport Furniture Parts Corp	MANGANESE
NEWPORT CITY	Newport Furniture Parts Corp	METHYL ALCOHOL
NEWPORT CITY	Newport Furniture Parts Corp	BUTANOL
NEWPORT CITY	Newport Furniture Parts Corp	NAPHTHALENE
NEWPORT CITY	Newport Furniture Parts Corp	1,2,4-TRIMETHYLBENZENE
NEWPORT CITY	Newport Furniture Parts Corp	CUMENE
NEWPORT CITY	Newport Furniture Parts Corp	ETHYL BENZENE
NEWPORT CITY	Newport Furniture Parts Corp	METHYL ISOBUTYL KETONE
NEWPORT CITY	Newport Furniture Parts Corp	TOLUENE

NEWPORT CITY	Newport Furniture Parts Corp	2-BUTOXYETHANOL
NEWPORT CITY	Newport Furniture Parts Corp	ZINC STERATE
NEWPORT CITY	Newport Furniture Parts Corp	XYLENE, MIXED ISOMERS
NEWPORT CITY	Newport Furniture Parts Corp	ETHOXYETHOXYETHANOL
NEWPORT CITY	Newport Furniture Parts Corp	ALUMINUM OXIDE
NEWPORT CITY	Newport Furniture Parts Corp	#2 FUEL OIL
NEWPORT CITY	Newport Furniture Parts Corp	GASOLINE
NEWPORT CITY	NEWPORT RENTAL	OXYGEN
NEWPORT CITY	NORTH COUNTRY HOSPITAL	PROPANE
NEWPORT CITY	NORTH COUNTRY HOSPITAL	FUEL OIL, [NO. 2]
NEWPORT CITY	NORTH COUNTRY HOSPITAL	SULFURIC ACID
NEWPORT CITY	NORTH COUNTRY UNION HIGH SCHOOL	OIL, [FUEL, 1-D]
NEWPORT CITY	NORTH COUNTRY UNION HIGH SCHOOL	FUEL OIL, [NO. 2]
NEWPORT CITY	NORTH COUNTRY UNION HIGH SCHOOL	PROPANE
NEWPORT CITY	Northern State Correctional Facility	#2 fuel oil
NEWPORT CITY	Northern State Correctional Facility	Propane
NEWPORT CITY	Orleans District Court	#2 fuel oil
NEWPORT CITY	SANEL AUTO PARTS CO	XYLENES
NEWPORT CITY	ST. MARY STAR OF THE SEA	FUEL OIL, [NO. 2]
NEWPORT CITY	UNITED STATES POSTAL SERVICE	FUEL OIL, [NO. 2]
NEWPORT CITY	USPS-NEWPORT, VT -MAIN POST OFFICE	FUEL OIL, [NO. 2]
NEWPORT CITY	VERIZON CENTRAL OFFICE (4817-06)	SULFURIC ACID
NEWPORT TOWN	JAMES A DONOVAN TRUCKING	GASOLINE
NEWPORT TOWN	JAMES A DONOVAN TRUCKING	OIL, [MOTOR]
NEWPORT TOWN	JAMES A DONOVAN TRUCKING	OIL, [FUEL, 1-D]
NEWPORT TOWN	NEWPORT TOWN SCHOOL	FUEL OIL, [NO. 2]
NEWPORT TOWN	NEWPORT TOWN SCHOOL	PROPANE
NEWPORT TOWN	THE LUCIER STORE	GASOLINE
NEWPORT TOWN	THE LUCIER STORE	KEROSENE
NEWPORT TOWN	THE LUCIER STORE	PROPANE
NORTON	VERIZON CENTRAL OFFICE (4819-06)	SULFURIC ACID
TROY	FOUR CORNERS MINI-MART	GASOLINE
TROY	FOUR CORNERS MINI-MART	OIL, [FUEL, 1-D] LOW SULFER
TROY	LALIBERTY TRUCKING INC.	OIL, [FUEL, 1-D]
TROY	LALIBERTY TRUCKING INC.	FUEL OIL, [NO. 2]
TROY	VERIZON CENTRAL OFFICE (4818-07)	SULFURIC ACID
TROY	VERIZON CENTRAL OFFICE (4822-06)	SULFURIC ACID

3. Impact on Infrastructure:

- Petroleum Products
- Roads/Highways/Bridges
- Water/Sewer
- Utilities
- Schools

4. Primary Effects of the Hazard:

- Disrupted Transportation
- Disruption of Government Services
- Economic Loss
- Health Problems
- Toxic Release
- Loss of Utilities

5. Secondary Effects of the Hazard:

- Explosion/Fire
- Isolated Areas
- Power Outage
- Landslide/Mudslide/Erosion
- Transportation Interruption
- Water Pollution
- Water Supply Disruption

6. Impact of the Hazard on the Jurisdiction:

People:

- Displaced Families
- Loss of Sanitation Services
- Loss of Water Services
- Casualties & Deaths

Property/Environment:

- Air Pollution
- Water Pollution
- Soil Contamination
- Bridges/Roads
- Fire/Explosion

Economy:

- Business Interruptions (Permanent/Temporary)
- Loss of Tax Base
- Unemployment (Long/Short Term)

C. Structure Fire

1. Description:

In terms of average annual loss of life and property, structure fires, often referred to as the “universal hazard” because they occur in virtually every community, are

a frequent hazard facing most Caledonia, Essex and Orleans Counties communities.

There have been requirements for smoke detectors in rental housing for over 20 years, and requirements for smoke detectors in single family dwellings since 1994. Many older buildings are vulnerable to fires due to old wiring and fire alarms that are not working properly.

2. History of Occurrences: Over the past years, the total number of responses to structure fires has been on average from one to two structure fires per year for each town, or approximately 50-100 structure fires per year for the NVDA region. Grass and forest fires are much more frequent due to the rural nature of the area resulting in the majority of fires responded to in the region. Many homes depend on wood burning as a source or secondary source of heat during the colder months, which accounts for many chimney fires.

Less frequent than individual fires are major downtown fires that can destroy town centers and necessitate a large response and often requiring economic aid for recovery. A fire in a downtown s\area with close wooden buildings and higher density populations can be devastating. Both St. Johnsbury and Hardwick historic downtowns experienced devastating fires in the 1990's. Loss of one life, economic income, and housing were the major issues resulting from these fires. Both were caused from faulty/old wiring. Grant funds were secured to rebuild both communities.

3. Impact on Infrastructure:

- Loss of housing and businesses
- Telephone/Communications Systems

4. Primary Effects of the Hazard:

- Building/Structure Collapse
- Disrupted Transportation
- Loss of housing
- Economic Loss
- Casualties
- Explosion/Fire
- Power Outage

5. Secondary Effects of the Hazard:

- Communications Failure
- Landslide/Mudslide/Erosion
- Health Problems

- Toxic Release
- Loss of Utilities

6. Impact of the Hazard on the Jurisdiction:

People:

- Displaced Families
- Loss of Sanitation Services
- Loss of Water Services
- Casualties & Deaths

Property/Environment:

- Air Pollution
- Water Pollution
- Soil Contamination

Economy:

- Business Interruptions (Permanent/Temporary)
- Loss of Tax Base
- Unemployment (Long/Short Term)

D. Winter/Ice Storm

1. Description:

A storm that generates sufficient quantities of snow, ice or sleet to result in hazardous conditions and/or property damage. Sleet is similar to hail only smaller and can be easily identified as frozen rain drops (ice pellets) that bounce when hitting the ground or other objects. Sleet does not stick to wires or trees, but in sufficient depth, can cause hazardous driving conditions. Ice storms are the result of cold rain that freezes on contact with the surface coating the ground, trees, buildings, overhead wires and other exposed objects with ice, sometimes causing extensive damage.

One of the major problems associated with ice storms is the loss of electrical power. Major electric utility companies have active, ongoing programs to improve system reliability and protect facilities from damage by ice, severe winds and other hazards. Typically, these programs focus on trimming trees to prevent encroachment of overhead lines, strengthening vulnerable system components, protecting equipment from lightning strikes and placing new distribution lines underground.

Other major problems include closed roads and restricted transportation.

By observing winter storm watches and warnings, adequate preparations can usually be made to lessen the impact of snow, ice and sleet conditions on

Caledonia, Essex and Orleans Counties communities. Providing for the mass care and sheltering of residents left without heat or electricity for an extended time and mobilizing sufficient resources to clear broken tree limbs from roads, are the primary challenges facing community officials. Severe snow, ice and sleet storms can affect every Caledonia, Essex and Orleans Counties' community. Every community should plan and prepare for these emergencies. That planning and preparedness effort should include the identification of mass care facilities and necessary resources such as cots, blankets, food supplies and generators, as well as debris removal equipment and services. In addition, communities should develop debris management procedures (to include the identification of debris storage, processing and disposal sites) so that the tree and other storm related debris could be handled in the most expedient, efficient and environmentally safe manner possible.

Farmers with animals dependent on milking or other care need to develop emergency plans for their herds. Having access to a generator was critical in the ice storm of 1998 that affected mainly Grand Isle and Franklin Counties.

2. History of Occurrences:

Snow and/or ice events occur on a regular basis. The only Presidentially declared snow event in Vermont's history was in March 2001 where most of the region received approximately three feet of snow overnight. The following day was Town Meeting throughout Vermont where residents came out to vote in their communities. Many Town Meetings were postponed due to the snow deposits. Power was out in several communities.

The great ice storm of 1998 caused major power outages, road accidents and communication problems. Most of Vermont was spared the worst of the storm that hit the area. Just north of the Vermont border, Quebec communities were severely impacted with extended power outages up to two months due to loss of major transmission lines that were encrusted with heavy ice and had collapsed. While many trees were lost in northern Vermont during this ice storm, loss of property was minimal. This type of an event could happen again in the Northeast Kingdom of Vermont during the winter months.

Typically the dollar loss experienced to public and private infrastructure is minimal and can be measured in inconvenience and loss of productivity at work, school and normal activities.

3. Impact on Infrastructure:

- Delivery of heating fuels
- Telephone/Communications Systems
- Railroads
- Roads/Highways/Bridges

- Water/Sewer
- Utilities
- Schools

4. Primary Effects of the Hazard:

- Disrupted Transportation
- Disruption of Government Services
- Economic Loss
- Casualties
- Extreme Cold
- Toxic Release
- Loss of Utilities

5. Secondary Effects of the Hazard:

- Building/Structure Collapse
- Communications Failure
- Explosion/Fire
- Power Outage
- Isolated Areas
- Transportation Interruption

6. Impact of the Hazard on the Jurisdiction:

People:

- Displaced Families
- Elderly and special needs populations
- Isolated/Stranded
- Loss of Sanitation Services
- Loss of Water Services
- Casualties & Deaths

Property/Environment:

- Air Pollution
- Water Pollution
- Soil Contamination
- Bridges/Roads

Economy:

- Business Interruptions (Permanent/Temporary)
- Loss of Tax Base
- Unemployment (Long/Short Term)

E. High Winds, Hurricanes, Tornadoes

1. Description:

Thunderstorms can generate high winds, such as parts of Vermont on July 6, 1999, downing hundreds of large trees in a few minutes. The State can also experience tornadoes, which are capable of damaging or destroying structures, downing trees and power lines and creating injuries and death from collapsing buildings and flying objects. Tornadoes are less common than hail storms and high winds, but have occurred throughout Vermont. In fact, 34 tornadoes were recorded in the State between 1950 and 1999, injuring 10 people and causing over \$8.4 million dollars in estimated property damage. Nearly all of these occurred from May through August and most of these occurred in the afternoon. One of the largest devastations caused by high winds and rain was the hurricane of 1938 that hit Connecticut and Rhode Island, then came directly north to level large stands of trees in Vermont. Many families remember this storm and its effects on the sugar maple industry in Vermont.

2. History of Occurrences:

High winds in Caledonia, Essex and Orleans Counties occur frequently, causing power outages, blocked roads, and damage to public and private property.

- The Hurricane of 1938 had done the most extensive damage to Vermont and even northeast Vermont in an unexpected manner. Weather forecasters did not predict severe weather so the storm throughout all of New England was not anticipated. Southern New England received the worst catastrophic damage while Vermont experienced loss of trees, roofs of barns, and damage to infrastructure. The maple industry was in decline for many years following the hurricane due to damaged trees.

Recent Presidential Declarations for the NVDA Region for significant events have included:

- June 1998 – DR1228 (mostly flood damage as a result of the remnants of Hurricane Floyd). The damage for the three county NVDA region was \$648,470.

3. Impact on Infrastructure:

- Building/Structure Collapse
- HazMat spills
- Power/Telephone/Communications Systems
- Railroads
- Roads/Highways/Bridges
- Utilities

Tab 2-G Power Utility Outages⁷

Utility	2001 Total	2002 Total	2003 Total	2001- 2003 Trees	2001- 2003 Weather	2001- 2003 Total
Hardwick Electric	44	106	12	51%	8%	162
Lyndonville Electric	67	106	56	62%	14%	229
Barton Electric	3	5	4	25%	50%	12
Green Mountain Power	152	289	204	49%	13%	645
Citizens Utilities (now VEC)	77	47	63	30%	12%	187
Vermont Electric Coop (VEC)	167	122	117	36%	10%	406
Village of Orleans Electric	1	1	1	0%	0%	3
Central Vermont Public Service	777	766	839	61%	1%	2382
Washington Electric Coop (WEC)	231	89	139	63%	11%	459
Totals	1526	1536	1437			4499

⁷ Data collected from utility companies. Special note – VEC, Citizens, CVPS and Washington Electric have customers outside the NVDSA region and do not break down power outages by county or town.

Claims to FEMA by electrical utilities following storms with high winds and rain:

Utility	1063 Aug-95	1184 Jul-97	Floyd 1307* Sep-99	Totals by Utility
Washington Electric			\$ 157,321	\$ 157,321
Hardwick Electric	\$ 37,482		\$ 56,042	\$ 93,524
Lyndonville Electric	\$ 57,646			\$ 57,646
Sheffield Sch. District	\$ 2,776			\$ 2,776
Hazen Union HS		\$ 1,948		\$ 1,948
Orleans Electric		\$ 1,066		\$ 1,066
			Total	\$ 314,281

4. Primary Effects of the Hazard:

- Disrupted Transportation
- Disruption of Government Services
- Economic Loss
- Casualties
- Loss of Utilities

5. Secondary Effects of the Hazard:

- Communications Failure
- Explosion/Fire
- Power Outage
- Isolated Areas
- Transportation Interruption

6. Impact of the Hazard on the Jurisdiction:

People:

- Displaced Families
- Isolated/Stranded
- Loss of Sanitation Services
- Loss of Water Services
- Casualties & Deaths

Property/Environment:

- Water Pollution
- Soil Contamination
- Bridges/Roads
- Fire/Explosion

Economy:

- Business Interruptions (Permanent/Temporary)

- Loss of Tax Base
- Unemployment (Long/Short Term)

F. Earthquakes (Possible but not high priority threat) - HAZUS Assessment

1. Description:

Vermont is classified as an area with "moderate" seismic activity. This can be compared to the west coast of the U.S., which is classified as "very high" and the north-central states classified as "very low." Sixty-three known or possible earthquakes have been centered in Vermont since 1843 (*Ebel, et al 1995*). The two strongest recorded quakes measured in Vermont were of a magnitude 4.1 on the Richter scale. One was centered in Swanton and occurred on July 6, 1943, and the second occurred in 1962 at Middlebury. The Swanton quake caused little damage, but the Middlebury quake did result in broken windows, cracked plaster and falling objects (*VEM, 1995*). In addition, many earthquakes centered outside the state have been felt in Vermont. Twin quakes of 5.5 occurred in New Hampshire in 1940. In 1988, an earthquake with a magnitude 6.2 on the Richter scale took place in Saguenay, Quebec and caused shaking in the northern two - thirds of Vermont (*Ebel, et al 1995*).

A HAZUS analysis was prepared for the NVDA region by the Vermont Department of Environmental Conservation in May of 2004. It must be noted that the final analysis is dependent on the data used in the model. Discrepancies were found in the number of critical facilities used in the analysis as well as the status of the dams in the region. Therefore, the final results are estimates only and should only be used as such. It should be noted that an earthquake could trigger a dam failure, which would result in a potentially catastrophic scenario depending on the dam and the communities downstream.

Based on information provided by the Vermont Geological Survey, the Department of Environmental Conservation, Agency of Natural Resources, developed HAZUS outputs is summarized as follows:

HAZUS is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences. The primary purpose of HAZUS is to provide a methodology and software application to develop earthquake losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from earthquakes and to prepare emergency response and recovery.

The geographical size of the region is 2,047 square miles and contains 24 census tracts. There are an over 24,000 buildings in the region with a total population of 62,438 (2000 Census). Approximately 99% of the buildings and 85% of the

building value are associated with residential housing. The 24,000 buildings in the region are valued at approximately \$4 billion dollars.⁸

Four of the largest known earthquake events were used as the standard to judge potential damage to the three counties in the NVDA region. The HAZUS model incorporates population data, critical facilities, public utilities and structures in its modeling analysis. The Montreal, Quebec (6.8 magnitude), the Tamworth, NH (6.2 magnitude), Swanton, VT (5.7 magnitude) and Goodnow, New York (6.6 magnitude) represent once-in-500 year earthquakes and probably would cause minimal damage in Caledonia, Essex and Orleans Counties. The full report is available at the end of this All Hazards Plan and is summarized below.

2. History of Occurrences:

- May 2002 – 5.2 magnitude earthquake centered across Lake Champlain in New York that was felt throughout Vermont.
- Montreal 500 year 6.8 magnitude
- Tamworth, NH 500 year 6.2 magnitude
- Swanton, VT 500 year 5.7 magnitude

3. Impact on Infrastructure:

- HazMat incidents
- Telephone/Communications Systems
- Railroads
- Roads/Highways/Bridges
- Water/Sewer
- Utilities
- Schools

4. Primary Effects of the Hazard:

- Disrupted Transportation
- Disruption of Government Services
- Economic Loss
- Casualties
- Loss of Utilities

5. Secondary Effects of the Hazard:

- Communications Failure
- Explosion/Fire
- Power Outage
- Isolated Areas

⁸ Earthquake Event Summary Report, Vermont Geological Survey, May 24, 2004, J. Kim

- Transportation Interruption

6. Impact of the Hazard on the Jurisdiction:

Northeast Kingdom Montreal 6.8 Magnitude Scenario:

- Building damage – HAZUS estimates that approximately 439 buildings will receive at least moderate damage. This is a little more than 2% of the total number of buildings in the county. HAZUS also estimate that some essential facilities (hospital, schools, police stations and fire stations) may receive at least slight damage. About 17 families are predicted to be displaced from their homes and will need temporary shelter.
- Transportation & utility systems – HAZUS estimates minimal disruption of the transportation and utility systems. There are no extended periods of time expected without power and/or essential services.
- Casualties – Minimal casualties are also expected with five requiring medical attention with one possible death.
- Economic loss – Direct building losses are estimated at > \$15 million (the majority being residential homes) and business interruption losses are expected to be as much as \$2.4 million. HAZUS estimates that although there was minimal damage to the transportation system, the loss would still be close to \$1.6 million needed for repairs. Approximately \$6.8 million would be needed to repair other non-transportation public utility systems such as water, sewer, electric and communications.

The remaining earthquake models that were the subject of this HAZUS report stated far less damaging data than the Montreal model. Overall, the NVDA region would not suffer catastrophic results from a probable earthquake in the 6.8 magnitude or less range. There would be disruptions in public utilities that would be minimal, but costly.

The complete report is available from the NVDA and not contained in other distributed copies of this plan.

People:

- Displaced Families
- Isolated/Stranded
- Casualties & Deaths

Property/Environment:

- Water Pollution
- Bridges/Roads
- Fire/Explosion

Economy:

- Business Interruptions (Permanent/Temporary)
- Loss of Tax Base
- Unemployment (Long/Short Term)

G. Dams

1. Description:

There are many dams in the NVDA region in Vermont and there are four additional dams on the Connecticut River that are under New Hampshire's Department of Environmental Conservation regulations. Most dams are relatively small with low potential for massive damage should a breach occur. However, the Murphy Dam on the Connecticut River, bordering Canada, is classified as high hazard because of the high population in the drainage area should a breach occur. There is a low probability of a breach with a high inundation area with loss of life if it does. Other high hazard dams in the region are Stiles Pond, Vail (Lyndon), Ewell Pond, Mackville Pond and Newport #1 dam.

The dams to note are highlighted if they have been given a Significant or High hazard potential classification. Significant hazard potential dams are those where failure would result in no loss of human life but could cause economic loss. Dams assigned a high hazard loss potential where failure would probably cause loss of human life. Unknown numbers of additional private and beaver-built in-stream impoundments may exist which could pose significant or higher hazards in the event of a failure. Future data development could address this gap in local information. Individual local plans in the annex will describe dam locations and beaver impoundment areas in detail.

Tab 2-H Dams

DamName	County	HAZUS Class	NH DES HazClass	Owner	SurfArea (Acres)	DrainArea (Acres)
Arnold Falls	Caledonia	L		Central Vermont Public Service Corp	7	156800
Barnet No. 14 (Barnet Hydro)	Caledonia			Hydro Energies Corporation		30720
Barton Village (Pensioner Pond)	Orleans			Village of Barton	170	66882
Canaan	Essex		Low Hazard	Public Service Co of NH		162560
Dodge Falls	Caledonia		Low Hazard	Dodge Falls Associates LP		
Echo Lake	Orleans	L		Great Bay Hydro Corp.	544	15186
Emerson Falls (US Fish Hatchery)	Caledonia			Emerson Falls Hydro Inc.		27520
Fairbanks (Morse) Mill Hydro	Caledonia			Fairbanks Mill Hydro		10240
Gage	Caledonia	L		Central Vermont Public Service Corp	15	265600
Gilman	Essex		Low Hazard	Dalton Hydro, LLC	130	968960
Great Averill Pond	Essex	L		Coaticook River Water Power Co	812	7683
Little Averill Pond	Essex	L		Coaticook River Water Power Co	483	2854
Newport No. 11	Orleans			Great Bay Hydro Corp.	0	90240
North Troy	Orleans	L		North Troy Hydro	1	87680
Norton Pond	Essex	S		Coaticook River Water Power Co	583	11142
Passumpsic	Caledonia	L		Central Vermont Public Service Corp	10	425
Peacham Pond	Caledonia	S		Green Mountain Power Corp	331	2197
Pierce Mills	Caledonia	L		Central Vermont Public Service Corp	1	151680
Roy Bros. Mfg. Co. (East Barnet)	Caledonia			Central Vermont Public Service Corp	156	320000
Seymour Lake	Orleans	L		Great Bay Hydro Corp.	1777	12920
Vail	Caledonia	L		Lyndonville Electric Department	5	140800
Warner Hydro	Orleans			Arlon Warner		
West Charleston 2	Orleans	L		Great Bay Hydro Corp.	39	67936
West Danville No. 15	Caledonia	S		Green Mountain Power Corp	396	18430
Caspian Lake	Orleans	S		Hardwick Electric Department	739	4510
Comerford (15 Mile Falls)	Caledonia		High Hazard	USGen New England, Inc.		1046400
Great Falls	Caledonia	L		Lyndonville Electric Department	12	134400
Hardwick Lake	Caledonia	S		Hardwick Electric Department	180	78144
Mackville Pond	Caledonia	H		Hardwick Electric Department	12	6850
McIndoes Falls (15 Mile Falls)	Caledonia		High Hazard	USGen New England, Inc.		1414400
Moore (15 Miles Falls)	Caledonia		High Hazard	USGen New England, Inc.		1024000
Murphy (Francis Lake)	N/A		High Hazard	NH Water Resources Council	1895	
Newport No. 1 (Clyde Pond)	Orleans	H		Great Bay Hydro Corp.	177	89292
Aiken	Caledonia			Ray and Dorothy Morton		467
Bakers Falls	Orleans	L		Great Bay Hydro Corp.	36	65400
Barton Reservoir	Orleans			Village of Barton		
Bonneau	Orleans			Rene and Mary Lou Bonneau	3	30
Browns Mill	Caledonia			Unknown		

DamName	County	HAZUS Class	NH DES HazClass	Owner	SurfArea (Acres)	DrainArea (Acres)
Chandler Pond	Caledonia	S		Lyndonville Electric Department	65	1050
Chaput Manure Storage Pond	Orleans			Reg Chaput	1.5	1.5
Coburn Brook Reservoir	Orleans			Town of Troy		
Coe Bros.	Caledonia			Unknown	2	
Coles Pond	Caledonia	L		State of Vermont - DFW	125	744
Crystal Lake	Orleans	H		State of Vermont - DEC	778	14453
Danville Reservoir	Caledonia			Danville Fire District		
East Burke (Lumber Co.)	Caledonia			Northern Star Ski Corp	2	
East Peacham Pond	Caledonia			Kenneth Goslant Jr.	5	
Ewell Pond	Caledonia	L		Ellen Robertson	50	1981
Fay Young Reservoir	Caledonia			Lyndonville Electric Department	1.1	1230
Goslants Mill	Caledonia	S		State of Vermont - DFW	0	7980
Great Hosmer Pond	Orleans			State of Vermont - DEC	155	803
Harveys Lake	Caledonia	S		Town of Barnet	409	5304
Holland Pond	Orleans			International Water Company	330	
Institute Pond	Caledonia	H		Lyndon Institute	3	160
Jay Peak	Orleans	S		Station Touristique Mont St Saveur	4	1280
Jobs Pond	Orleans			State of Vermont - DFW	31	275
Keiser Pond	Caledonia	L		State of Vermont - DFW	33	1611
Lake Groton	Caledonia	L		State of Vermont - DEC	414	12000
Lake Parker	Orleans			Town of Glover	240	
Lake Willoughby	Orleans			State of Vermont - DFW	1653	12256
Little Hosmer Pond	Orleans	L		State of Vermont - DEC	183	1792
Lyndon State College (Upper)	Caledonia	S		State of Vermont - LSC	1	38
Maidstone Lake	Essex	L		Champion Realty Corporation	800	3200
Martins Pond	Caledonia	L		State of Vermont - DFW	77	803
May Pond	Orleans	L		Village of Barton	116	1087
Miles Pond	Essex	S		State of Vermont - DEC	206	4185
Noyes Pond	Caledonia	S		State of Vermont - DEC	39	2408
Paine Site No. 1	Orleans	S		Richardson Real Estate	10	157
Paine Site No. 2	Orleans	L		Stephen Meyer	5	120
Randall	Caledonia			John H Randall	3	
Ricker Pond	Caledonia	L		State of Vermont - FPR	92	13500
Shadow Lake	Orleans	S		Town of Glover	199	3575
Sleeper Pond	Orleans			Town of Newport	5	
Stevens Pond	Essex			Robert and Dorothy Funk	26	178
Stiles Pond	Caledonia	H		Town of St. Johnsbury	146	3884
Tinkers Pond	Caledonia			Dr Harvey R Morrison	7	
Winter	Caledonia			Dennis and Emma Pudvah	3	115

2. History of Occurrences:

Smaller dams have failed on some of the smaller tributaries in the region but there have not been any significant consequences. However, there are several very large dams located on

the Connecticut River, separating Vermont and New Hampshire. These large dams are owned by utilities as listed above and are federally regulated. The utilities are required to maintain safety checks, inform the public of inundation plans, and have an early warning system in place. Regular maintenance is ongoing to assure safety measures. Should a large flood event occur beyond the magnitude in our historical past, the possible exists for a major breach of a large dam and severe inundation throughout the Connecticut River Valley. Many small communities and populations live in this fertile river valley region. A well-situated, higher magnitude earthquake could cause severe damage to a dam as well.

One dam in particular not on the Connecticut River that is considered a high hazard is Newport No. 1 (Clyde Pond) in Orleans owned by the Great Bay Hydro Company. This is considered a high hazard dam because if it were to breach, it would inundate the City of Newport before it drains into Lake Memphremagog.

3. Impact on Infrastructure:

- Roads/Highways/Bridges
- HazMat Incidents
- Telephone/Communications Systems/Internet
- Railroads
- Water/Sewer
- Utilities
- Schools

4. Primary Effects of the Hazard:

- Casualties
- Disruption of Government Services
- Economic Loss
- Disrupted Transportation
- Loss of Utilities

5. Secondary Effects of the Hazard:

- Communications Failure
- Explosion/Fire
- Power Outage
- Isolated Areas
- Transportation Interruption

6. Impact of the Hazard on the Jurisdiction:

People:

- Displaced Families
- Isolated/Stranded
- Casualties & Deaths

Property/Environment:

- Air Pollution
- Water Pollution
- Soil Contamination
- Bridges/Roads
- Fire/Explosion

Economy:

- Business Interruptions (Permanent/Temporary)
- Loss of Tax Base
- Unemployment (Long/Short Term)

H. Terrorism (Possible but not high priority threat)

1. Description

Terrorism and civil hazards include actions that people *intentionally* do to threaten lives and property. They may range from a single person on a shooting rampage, to a cyber attack that harms computer systems, to the organized use of weapons of mass destruction (WMD). WMD events could involve chemical, biological, explosive or radioactive weapons. VEM and Vermont State Police conducted a risk/threat assessment of potential WMD attacks in 2000 that ranked potential targets by State Police district. At that time, no known or suspected terrorists (potential threat elements) were operating in Vermont, but the FBI was aware that many terrorist organizations have cells in the Montreal area.

Additional analysis of the threat from terrorism is ongoing, due to the actual use of hijacked aircraft as flying bombs and biological weapons (anthrax in letters) in September and October 2001.

The threat assessment indicates the most probable (though unlikely) attack is still a conventional bombing, hostage taking, kidnapping or shooting. A WMD attack must still be considered a rare event, but with the potential for catastrophic consequences. The most likely scenario of WMD event in Vermont would involve the detonation of an improvised explosive device at a chemical facility (such as bulk liquid propane storage or manufacturing facility) near a large population center proximate to the Vermont/Canadian border. The NVDA region has seven international border crossings between Vermont and Quebec with the largest amount of traffic on Route 91 through Derby, Vermont. There are three state-owned airports in the NVDA region. A hazardous materials transportation study will be completed in September 2004 as part of a Homeland Security Grant. This study will document the types and quantities of hazardous materials being transported along the major highways throughout the NVDA region, both in and out of Canada.

There is a major crude oil pipeline between Portland, Maine and Montreal called the Portland Pipeline. This line travels along a right of way through nine communities for 63 miles in northeastern Vermont. A smaller pipeline goes through the most extreme northeast corner of Canaan through Beecher Falls.

2. History of Occurrence:

There have been no terrorism related events in Vermont but the recent World Trade Center attack impacted the state in terms of proximity and support provided to response and recovery operations with personnel and equipment. There is a possibility that a terrorist event could happen in Vermont as a result of an accident via air, road or rail en route to a major metropolitan area, especially at one of the seven border crossings with Canada. Vermont's Senators in Washington D.C. have been targets of anthrax mailings, resulting in new procedures for mail delivery and receipt for many governmental offices.

3. Impact on Infrastructure:

- HazMat Incidents
- Telephone/Communications Systems/Internet
- Railroads
- Roads/Highways/Bridges
- Water/Sewer
- Utilities
- Schools

4. Primary Effects of the Hazard:

- Disrupted Transportation
- Disruption of Government Services
- Economic Loss
- Casualties
- Loss of Utilities

5. Secondary Effects of the Hazard:

- Communications Failure
- Explosion/Fire
- Power Outage
- Isolated Areas
- Transportation Interruption

6. Impact of the Hazard on the Jurisdiction:

People:

- Displaced Families

- Isolated/Stranded
- Casualties & Deaths

Property/Environment:

- Air Pollution
- Water Pollution
- Soil Contamination
- Bridges/Roads
- Fire/Explosion

Economy:

- Business Interruptions (Permanent/Temporary)
- Loss of Tax Base
- Unemployment (Long/Short Term)