Town of Montgomery, Vermont

HAZARD MITIGATION PLAN 2008

Approved by the Town of Montgomery, Selectboard

Date: January 21st, 2008

ACKNOWLEDGEMENTS

Project Steering Committee

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Ken Cota - Montgomery Selectboard

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Andre LaBier - Montgomery Selectboard

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Project Coordinator:

Shaun Coleman – Northwest Regional Planning Commission

Project Participants:

Town of Montgomery Town Clerk Town of Montgomery Highway Department Northwest Regional Planning Commission Northwest Regional Planning Commission GIS Local Emergency Planning Committee (Franklin County) Town of Montgomery Fire and Rescue Department Vermont Agency of Transportation District 8 Vermont Emergency Management Vermont Emergency Management Vermont Agency of Natural Resources Vermont Homeland Security Department Vermont Fire Academy Northeast States Emergency Consortium Federal Emergency Management Agency National Weather Service Vermont Geological Survey

This plan should be considered a plan in work due to the continual changing environment in which these hazards present themselves. This plan must also be reviewed and adjusted as growth in population, industry, and overall community demographics change.

1. INTRODUCTION

This Plan is a Hazard Mitigation Plan for the Town of Montgomery.

The impact of expected, but unpredictable natural and human-caused events can be reduced through community planning. The goal of this plan is to provide an all-hazards local mitigation strategy that makes the Town of Montgomery more disaster resistant.

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

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

- Flood-proofing structures
- Tying down propane/fuel tanks in flood-prone areas
- Elevating furnaces and water heaters
- Identifying & modifying high traffic incident locations and routes
- Ensuring adequate water supply
- Elevating structures or utilities above flood levels
- Identifying & upgrading undersized culverts
- Proactive land use planning for floodplains and other flood-prone areas
- Proper road maintenance and construction
- Ensuring critical facilities are safely located
- Buyout & relocation of structures in harm's way
- Establish & enforce appropriate building codes
- Public information

The purpose of this Hazard Mitigation Plan is to assist local governments in identifying all hazards facing the county and their community and identify strategies to begin reducing risks.

2. METHODOLOGY

Incorporation of Existing Plans, Studies, Reports and Technical Information

Mitigation plans from around the country, current State Mitigation Plans, FEMA planning standards, the FEMA Flood Mitigation Assistance Program requirements and the National Flood Insurance Program's Community Rating System were examined. Other materials examined consisted of community plans, including:

- Montgomery, Vermont Town Plan 2005
- Town of Montgomery, Vermont Zoning Bylaws and Subdivision Regulations 2005
- State of Vermont Hazard Mitigation Plan 2004
- Town of Montgomery Rapid Response Plan
- Town of Montgomery Flood Insurance Study, 1980
- Town of Montgomery Flood Insurance Rate Maps 2001
- Northwest Regional Planning Commission Regional Plan 2007

A complete list of references may be found in Attachment H.

Hazard Specific Research

The project coordinator collected data and compiled research on seventeen hazards: winter storm, flooding, fluvial erosion/landslide, thunderstorms/lightning, high winds, loss of electrical service, structure fire, hazardous materials, hail, drought, water & sewer service loss, telecommunications systems failure, tornado, earthquake, major fire – wildland, civil disturbance, terrorism/WMD. Research materials came from local, state and federal agencies including FEMA, NOAA, DOT. Research was also conducted by referencing historical local newspapers, texts, interviewing residents, and scientific documents. Internet references were widely utilized in historical research applications. Current mitigation activities, resources, programs, and potential action items from research materials and stakeholder interviews were also identified.

During the plan development process, municipal officials were interviewed including the Emergency Management Director Barry Domina, Select Board members Scott Perry, Ken Cota, Wendy Howard and Andre LaBier, Highway Foreman Bill Baker, and local residents. The interviews identified commonalities related to natural, man-made and hazardous materials hazards and identified key long and short-term strategies/activities to reduce risk from these hazards. Meetings were held on July 10, and July 25, 2007. Outcomes included the types of hazards the town was subjected to and what they believed the top hazards would be, identification of mitigation projects and strategies for implementation.

Montgomery Select Board meetings held on June 4 and June 8, 2007, included discussion of the Pre-Disaster Mitigation Plan. The public meetings were used to develop mitigation strategies for the West Hill Brook area. Additionally, the Select Board met to discuss community hazard mitigation on May 7, May 21, July 2, July 16, August 6, August 20, September 4, September 17 and October 1, 2007. These meeting were publicly warned and the public was given an opportunity for comment. An outcome of the meetings was, by resolution during the August 6 meeting, for the Town to pursue a home buyout for the Baker's residence at 32 West Hill Road.

On July 27th, 2007, a meeting was held between local and state partners at the Baker's residence on West Hill Brook in Montgomery. The meeting included the Agency of Transportation Secretary Neil Lunderville, Agency of Transportation Director of Operations Sam Lewis, Agency of Transportation District Administrator George DeCell, Agency of Transportation District Engineer Randall Reed, Agency of Natural Resources Secretary George Crombie, Agency of Natural Resource River Program Manager Barry Cahoon, Agency of Natural Resources Northern Coordinator Stacey Pomeroy, Northwest Regional Planning Commission Planner Shaun Coleman, Vermont Emergency Management State Hazard Mitigation Officer Ray Doherty, Vermont Emergency Management Director of Policy and Planning Ross Nagy, Montgomery Select Board members Scott Perry, Ken Cota, Wendy Howard and Andre LaBier, State Senator Robert Starr, State Representative Randall Dexter, residents Robert and Ilene Baker, and residents Mr. and Mrs. Henry Rouse. The purpose of the meeting was to review past mitigation strategies for flooding along the West Hill Brook area and to seek common ground for addressing the problem. The outcome of the meeting was the identification of short and long term mitigation strategies for flooding in the area including home buy-out.

The Committee developed this Plan following the described planning steps:

1: Establish and Orient a Hazard Mitigation Planning Committee

Northwest Regional Planning Commission presented the Town of Montgomery with recommendations for the make up of the committee. Recommendations included the inclusion of town staff, emergency response staff, highway, elected officials, business owners, and those with knowledge of historical events. The Select board agreed and the committee was formed.

2: Identification of Hazards and Critical Facilities

As listed in Section 4, the Committee members identified human-made and natural hazards that could or have affected the Town of Montgomery.

| Winter Storm | Flooding | Fluvial Erosion/Landslide |
|------------------------|------------------------------|----------------------------|
| Thunderstorm/Lightning | High Winds | Loss of Electrical Service |
| Structure Fire | Hazardous Materials | Hail |
| Drought | Water and Sewer Service Loss | Telecommunications System |
| | | Failure |
| Tornado | Earthquake | Major Fire - Wildland |
| Terrorism/WMD | Civil Disturbance | |

The Committee reviewed the types of hazards and locations that have sustained or could be susceptible to each hazard within the Town. The results are shown in Section 4. The Committee then identified and catalogued all of the critical facilities within the Town. The result is found in Attachment B and shown on a location map at the end of the Plan.

3: Assessing Probability, Severity and Risk, and Estimating Potential Losses

The Committee members completed Risk Assessment Worksheets for all of the types hazards identified in Step 2 in order to assess probability, severity and risk. Potential losses for each hazard type were estimated. This data is found in Section 4 and Attachment A, Hazard Identification and Risk Assessment.

4: Analyze Development Trends

This step was conducted by Town staff, Montgomery Planning Commission and the Regional Planning Commission. The results of this research can be found in Section 3.

5: Existing Mitigation Strategies and Proposed Improvements

The Committee identified plans and policies that are in place to reduce the affects of human-made and natural hazards. The Committee also identified mitigation actions for each of the potential hazards identified in Section 4. The results are found in Section 5.2. The Committee also identified programs in place that are on-going community preparedness activities.

6: Identification of Mitigation Projects.

To assist with determining mitigation projects, the Committee considered the following objectives: Preventative (Programs & Policies), Property Protection, Structural, Public Education and Information, Engineering Projects, Equipment Purchase, and Training.

7: Prioritized Mitigation Measures

The Committee developed a prioritized list of mitigation projects identified in Step 6 considered feasible to implement. The priority matrix and associated criteria can be found in Attachment C.

8: Develop an Implementation Strategy- Action Plan

Using the prioritized list of mitigation actions identified in Step 6, the Committee developed a strategy that outlines who is responsible for implementing each project, potential funding sources/support, time-frame, initial implementation steps. The implementation schedule can be found in Section 5.4.

9: Adopt and Implement the Plan

The Committee members reviewed and approved each section of the plan as it was completed. After acceptance by the Committee, the Plan was submitted to Vermont Emergency Management for initial review, and then forwarded to FEMA, for formal approval. Once approved, the Plan was formally adopted by the Town of Montgomery on (INSERT DATE HERE).

The Committee approved the "Prioritized Mitigation Projects" list, which identifies responsibility, funding, support and timeframe for each project. Other projects that may be developed shall be led by the head of the department that shares that responsibility. The Select Board Chair should be charged with requesting annual reports as to the progress of each project. It is important to the Town of Montgomery that this plan be monitored and updated annually or after a presidentially declared disaster. Section 6 addresses this issue.

Public Involvement

A Public Notice was issued in a local newspaper, *The County Courier*, on October 11 and October 18, 2007 (see Attachment G) and a draft copy of the Plan was available for review and comment. The Steering Committee recognizes the need for greater public involvement in future updates of the plan. Notices of specific Hazard Mitigation Steering Committee meetings will be warned in local newspapers, websites, etc. In order to gain greater participation from neighboring communities during future updates of the plan, copies will be made available at the Town Offices of neighboring communities.

Additionally, efforts will be made to outreach to businesses, academia, nonprofits and other interested parties. Such groups will be encouraged to become involved in the planning process. The Local Emergency Planning Committee (LEPC) for Franklin County is comprised of representatives from these groups. Based on demographics of the county, outreaching to the LEPC would be a logical step. During future plan updates, The LEPC will be briefed during their regularly scheduled meetings and asked to provide comments on the plan. In order to gain greater participation from neighboring communities during future updates of the plan, copies will be made available at the Town Offices of neighboring communities with an open 30 day comment period and neighboring community planning commissions will be asked to review and submit comments to the plan.

3. COMMUNITY PROFILE

The Town of Montgomery is located in the northwestern part of the State of Vermont in Franklin County. It is bordered by the following eight towns: Richford, Enosburgh, and Bakersfield, (all located in Franklin County); Belvidere and Eden (both located in Lamoille County – to the south of Franklin County); and finally, Lowell, Westfield, and Jay (all three are located in Orleans County – to the east of Franklin County).

The topography of Montgomery is characterized by rolling foothills that ascend to the steep slopes of the Green Mountain Range. The development patterns follow along The Trout River, West Hill Brook and Jay Brook whose headwaters begin along Green Mountains. The overall change in topography ranges from approximately 460 feet in the northwestern part of Town near the Enosburgh/Richford/Berkshire border to 3,800 feet in the northeastern corner of Town near the Westfield/Jay/Littlefield border. High points include Big Jay (3,800 feet), Little Jay (3,600 feet) and Burnt Mountain (2,626 feet).

Existing Land Use

Montgomery is primarily a rural town with a total land area of 57 square miles or 36,436 acres. The majority of land cover in the Town is comprised of forest land (approximately 84%). Water covers 5.62% of the land while row crops and hay and pasture combined cover a total of 6.56%. Out of the 36,436 acres of land in the Town, only 116 acres or 0.32 % is devoted to residential uses.

The two major routes in the Town are Route 118 and Route 242. Most of the land use in Town occurs along these two routes, including residential, agriculture, and communication and utility lines. The Town currently divides its land use into the following zoning districts: Commercial/Residential, Village I, Village II, Agricultural/Residential, Conservation I (under 1,600' elevation), Conservation II (1,600' elevation or greater) and Flood Hazard Area.

The Town of Montgomery has two unique village areas: Montgomery Center and Montgomery Village. Both of these are considered assets to the Town. The Center and the Village need to be promoted and preserved and this can be done by encouraging historic preservation, economic development, and the adaptive reuse of existing structures. Most of the residential areas can be found here.

Future Land Use

The Town of Montgomery, like all other towns, needs to look at the consequences of growth and development for its local community and also with the Region and State. Growth and development can greatly affect the Town's land use and the Town's need to plan for this potential change. Franklin County is expected to see a steady population growth through the year 2015 while Montgomery is expected to see only a small increase in its population. The Town anticipates that there will be more growth than what has been projected for the Town. The 2005 Montgomery Town Plan has established the following Land Use Goal and policies:

Goal: To maintain Montgomery's rural character and scenic resources by encouraging development to follow wise land use practices.

Policies:

- Maintain the character of existing neighborhoods and avoid potential conflicts between incompatible land uses.
- Limit development on slopes greater than 15% and maintain natural vegetation on slopes.
- Protect scenic ridges by limiting development above 1,600 ft in elevation.
- Steer development away from areas where soils will not support it due to shallow depth to bedrock, instability, or high water table.
- Protect public health, welfare, and safety by limiting development in the flood plain.

- Protect water quality by limiting development in Wellhead Protection Areas, wetlands, and along stream banks.
- Conserve productive lands by accommodating development in areas apart from most farming activity.
- Recognizing the community's susceptibility to flooding, new development shall conform strictly to floodplain regulations.
- Promote new development in areas of existing infrastructure, such as roads, power, and water.
- Encourage sustainable agriculture and silvicultural practices to both protect the use of land and water resources, and keep a working rural landscape based on a practice of stewardship.
- Promote anti-sprawl initiatives as a measure to maintain the appropriate use of our land resources.

Population

The US Census estimated that the population of Montgomery was 1,063 in 2005. There were 666 total housing units in 2000, of which 412 are occupied, 225 are seasonal, recreational or occasional use. Most housing units are single units (53%).

Energy

The Vermont Electric Cooperative supplies Montgomery with electricity. According to the 2000 US Census, fuel oil and kerosene are the most popular home heating fuels (223 units out of 412 or 54.1 percent). Bottled, tank, or LP gas is the second most popular home heating fuel with 90 units (21.8 percent). The third most popular home heating fuel is wood with 85 units (20.6 percent). The remaining 3.4 percent is made up of electricity, and utility gas.

Emergency Services

The Vermont State Police (VSP) is the primary law enforcement agency responsible for public safety in Montgomery.

Montgomery has a Volunteer Fire Department located in the Public Safety Building on Route 242. There are currently seven volunteer members who serve on the Fire Department. The equipment consists of two pumper trucks, one tank truck, one rescue van, and assorted smaller equipment, which is capable of fighting a fire in any accessible area of the Town; however, the pumpers are both over 29 years old and will need to be replaced within the next few years.

The Town of Montgomery has an ambulance service, however, the ambulance is almost ten years old and will need replacing soon. In 2007, the Town contracted with Enosburg Ambulance Service to provide coverage during 50% of the daytime at a rate of \$8.50/capita. The department also has a rescue squad, which is well trained in various first aid. The squad works with the Fire Department as well as serving in other emergencies.

Montgomery adopted a Rapid Response Plan (RRP) in May of 1999 to initiate response to serious crises. The RRP is updated on an annual basis. The Town is in the process of developing a draft Emergency Operations Plan (EOP) using the Vermont State (EOP) standard with functional annexes.

Water Supply

There is currently one water system owned by the Town that serves Montgomery Center and Montgomery Village. There used to be a private water system that served Montgomery Village (Montgomery Village Water Works), but due to supply and quality issues it was closed and was bought by the Town. A three phase project is underway to improve the water system including installation of a new well on Town owned property off the Fuller Bridge Road. When the entire project is completed, Montgomery should have a system certified for about twice the capacity of the current system, and have improved water quality. Throughout the Town (including both the Village and the Center), the disposal of raw sewage is controlled

on an individual basis, primarily by the use of septic tanks. For subdivisions it will be the developers responsibility to provide water and sewage facilities.

Transportation

There are 14.314 miles of state highway in Montgomery, 10.5 miles of Vermont State Highway 118 and approximately four miles of Vermont State Highway 242. In the Town Highway System, there are no Class 1 Town highways, 6.7 miles of Class 2 highway, 34.8 miles of Class 3 highway and 9.2 miles of Class 4 highway. Bridge maintenance is a tremendous asset to the Town, drawing considerable tourist attention and adding to the scenic beauty of the area. According to VTrans, Montgomery has seven State bridges and fourteen Town bridges including six covered bridges which are considered historic sites. Bridge and culvert replacement along Town owned highways will most likely be an on-going project for the foreseeable future.

In 2002, culvert inventory of Montgomery was conducted. The survey classifies culvert conditions following the Vermont Agency of Transportation bridge and culvert standards. The Road Foreman updates the inventory on an annual basis to plan for future improvements and for budgeting purposes.

The Town is interested in constructing a new Town Garage to replace the existing facility. The Town is also interested in purchasing an excavator. The Road Foreman noted that the Town lacks barricades which would be a great asset during flooding events.

NFIP

Areas susceptible to flooding present obvious hazards to life and property, and the continued protection of these areas from development is an important responsibility. Montgomery participates in the National Flood Insurance Program administered by the Federal Emergency Management Agency (FEMA). FEMA conducted a flood hazard study for Montgomery in 1980 and flood hazard areas were identified along the South Branch Trout River, and main stem of Trout River and its confluences with Black Falls Brook and West Hill Brook. Flood Insurance Rate Maps (FIRM) were prepared by FEMA in 1980 and updated in 2001. They are available for review at the Montgomery Town Office.

4. RISK ASSESSMENT

Identifying hazards, profiling hazards, estimating losses and assessing vulnerability

All of the hazards identified in the Regional Pre-Disaster Mitigation Plan were considered and are discussed below. The information is based on surveys and interviews with local officials and the best available data sources found from federal, state, regional, and local agencies and departments. The risk and/or impact of several hazards were negligible and the regional examination was considered sufficient in justifying the time spent on the analysis. The hazard identification and risk estimation methodology used for the Town is consistent with the Regional Pre-Disaster Mitigation Plan.

Hazard identification and risk estimation can be a highly complex, time consuming and very costly effort if sophisticated technical and engineering studies are undertaken. The Town of Montgomery does not have the resources to undertake hazard identification and risk assessment studies to this level of detail. The Town of Montgomery and the Northwest Regional Planning Commission used a module of Mitigation 20/20 software which included a hazard profile matrix (Attachment A) that was used to develop a risk rating for each identified hazard. The matrix is intended to be completed by relying on hazard identification and risk evaluation information that is available as well as the knowledge and judgment of planning participants. Health and safety consequences, property damage, environmental damage and economic disruption are classified as consequences of occurrence of each hazard. The following is a description of the risk characteristics used to classify each hazard primarily based on Mitigation 20/20 program:

Frequency of Occurrence:

- 1. Rare: Unknown but rare occurrence
- 2. Unlikely: Unknown but anticipate an occurrence
- 3. Possible: 100 years or less occurrence
- 4. Likely: 25 years or less occurrence
- 5. Highly Likely: Once a year or more occurrence

Magnitude or % Area Impacted:

- 0. Negligible: < 10% of developed area impacted.
- 1. Limited: 10% to < 25% of developed area impacted.
- 2. Critical: 25% to 50% of developed area impacted.
- 3. Catastrophic: > 50% of developed area impacted.

Health & Safety Impacts:

- 0. No health and safety impact
- 1. Few injuries or illnesses
- 2. Few fatalities but many injuries or illnesses
- 3. Numerous fatalities

Property Damage:

- 0. No property damage
- 1. Few properties destroyed or damaged
- 2. Few destroyed but many damaged
- 3. Few damaged but many destroyed
- 4. Many properties destroyed and damaged

Environmental Damage:

- 0. Little or no environmental damage
- 1. Resources damaged with short term recovery practical
- 2. Resources damaged with long term recovery feasible
- 3. Resourced destroyed beyond recovery

Economic:

- 0. No economic disruption
- 1. Low direct and/or indirect costs
- 2. High direct and low indirect costs
- 3. Low direct and high indirect costs
- 4. High direct and high indirect costs

The risk estimation matrix (See Attachment A) for the Town derives a "relative risk score" using a qualitative process in which to compile estimates of the likely **frequency** of occurrence, the **extent** of the community that would be impacted, and the likely **consequences** in terms of public safety, property damage, economic impacts and harm to environmental resources. The total is considered in this plan to constitute the relative risk score. The hazards with the highest risk score are flooding, severe winter storms, fluvial

erosion/landslide and high winds/thunderstorm/lightning. It should be noted that the community's overall risk rating is low (310 out of a possible high of 1,200).

Vulnerability assessments build on the identification of hazards in the community and the risk that the hazards pose to the community. The vulnerability assessment process examines more specifically how the facilities and systems of the Town would be damaged or disrupted by the identified hazard.

In order to determine estimated losses due to natural and man made hazards in Montgomery, each hazard area was analyzed; results are shown below. Human losses were not calculated during this exercise, but could be expected to occur depending on the type and severity of the hazard. Most of these figures exclude both the land value and contents of the structure. The 2005 Town wide appraised value of all structures, \$111,124,129.00.¹ The median value of a home in Montgomery is \$90,000 according to the 2000 Census². The data was calculated using *FEMA's Understanding Your Risks: Identifying Hazards and Estimating Losses* (August 2001).

As future development in Montgomery is unpredictable at this time, it is uncertain as to how many future structures could be threatened by hazards. Only existing structures are considered.

While all the hazards listed in the State Mitigation Plan and Regional Plan were considered, only the hazards identified in this plan are the ones most likely to affect the Town of Montgomery.

Winter Storm

Winter storms bring snow, ice and freezing temperatures to the area and occur on annual basis. A FEMA declared disaster (FEMA 1101-DR-VT) for the county was made following a January 19th, 1996 winter storm. A warming trend produced heavy rains causing rapid snow melt that led to flooding. On January 6th 1998 a winter storm affected the Town and produced some flooding along streams. Snow turned to freezing rain and produced power outages into the area. This storm is referred to as the Ice Strom of 1998 (FEMA-1201-DR-VT), but the weather was more akin to a traditional winter storm than an ice storm.

Winter storms affect the entire Town and generally cause disruptions to public and private services. The primary impacts of a storm typically include the disruption to transportation networks, school closings and occasionally telecommunications and power outages. Vulnerable populations such as the elderly, those dependent on medical equipment and specialized health or physical care are at risk to winter storms. Also at risk are farms and associated structures and livestock. Barns can collapse due to heavy snow loads. Dairy cattle are susceptible to mastitis³ if they are unable to be milked.

Severe winter storms are accompanied by strong winds creating blizzard conditions with blinding winddriven snow, severe drifting, and dangerous wind chill. Strong winds with these intense storms and cold fronts can knock down trees, utility poles, and power lines. Extreme cold often accompanies a severe winter storm or is left in its wake. Prolonged exposure to the cold can cause frostbite or hypothermia and become life-threatening. Infants and elderly people are most susceptible. Severe winter storms can bring heavy accumulations of ice which can down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days while utility companies work to repair the extensive damage. Even small accumulations of ice may cause extreme hazards along roadways. The Town Highway Department has snow removal equipment in place to respond to winter storms.

¹ Town of Montgomery Grand List 2003-2005.

 $^{^{2}}$ May not fully reflect current median home values. In the event of a hazard incident, a current home value data should be used to estimate losses.

³ Mastitis is the inflammation of the mammary gland caused by microorganisms, usually bacteria, that invade the udder, multiply and produce toxins that are harmful to the mammary gland.

Winter Storms occur annually in the Town of Montgomery, typically in the form of a Nor'easter. Nor'easters occur most often in the winter and early spring, but also sometimes during the fall. These storms can leave inches of rain or several feet of snow on the region, and sometimes last for several days.

Montgomery's recent history has not recorded any loss of life due to the extreme winter weather. These random events are difficult to set a cost to repair or replace any of the structures or utilities affected.

Flooding

The Missisquoi River traverses through most of Franklin County. The Trout River, which runs through the Town of Montgomery, is one of its many tributaries. The Trout River watershed includes the Black Falls and West Hill Brooks which have a history of flooding. The watershed is a valuable natural and cultural resource. The Trout River watershed provides many beneficial uses such as providing a place for recreation activities. Maintaining the quality of the watershed is of extreme importance. Not only does it affect the Town, but also it has the potential to directly affect the Missisquoi River Delta and consequently, Lake Champlain.

Historically in Vermont, flooding has been the number one natural disaster in loss of life and property. Most flash flooding is caused by heavy rain from thunderstorms. Smaller creeks and streams are particularly vulnerable to flash flooding, especially in Montgomery's mountainous terrain.

Floods of large magnitude occurred in Montgomery in 1888, 1895, 1927, 1973, 1976, 1983 and 1997. Minor flooding occurs nearly every spring, particularly along the Trout River, when melting snow combined with spring rainfall flows from the surrounding mountains. One of the worst natural floods of historic record in Montgomery probably occurred in the late 1800's according to recollections of the senior citizens in the Town. The summer of 1976 brought the worst flooding since 1927 to Montgomery. They had a recurrence interval of approximately 50 years. The worst recorded flood in Montgomery's history occurred in 1997. Heavy rains from remnants of tropical storms have also created flooding in the north such as from Floyd in 1999.

In the summer of 1997, the Town of Montgomery suffered extensive damage from a flood so severe that it is known statewide as the Montgomery Flood (FEMA-1184-DR-VT). Late in the night on July 14th through the morning of the 15th, after more than ten hours of almost continuous rain, a wall of water poured into the center of Town. The Route 118 Bridge in Montgomery Center over the Trout River collapsed, cars were carried away, pavement was ripped up, and huge trees were uprooted. The flood that occurred is an urgent reminder for the need for proper management and appropriate use of the critical floodplain areas.

The 1997 flood made all Montgomery residents aware of the power inherent in a flood and is an urgent reminder of the need for proper management and appropriate use of critical floodplain areas. Development within floodplains poses significant risks and should generally be avoided. River channels and floodplains function as a single hydrologic unit, periodically transferring floodwaters and sediment from one to the 0other. Appropriate uses of floodplains are those that can accommodate this cycle. Examples of uses that are appropriate to floodplains include agriculture, open space, and recreation.

During the 1980's and 1990's and most recently on March 14, 2007, residences along West Hill Road and Hill West Road as well as others within the village have been inundated by flood waters from West Hill Brook. There is a gravel bar in the stream channel near the state highway bridge on VT118 (2.8 miles N from junction with VT242) that contributes to flooding issues by constricting the flow of water. Areas above the gravel bar become flooded. In former years, gravel was removed from the stream and river channels by the State and Town to alleviate public safety concerns. Some of the residences are located within the flood zone as indicated by the Flood Insurance Rate Map for the Town of Montgomery (revised July 5, 2001).

On June 5, 2002 flash flooding occurred in Montgomery due to a local heavy thunderstorm. Road washouts occurred along Route 58 near Montgomery Center resulting in \$25,000 in damages.

On May 19, 2006 heavy rainfall produced flooding within the Trout River basin, especially in the Town of Montgomery. Numerous roads were flooded and washed out. Several basements were inundated. A swift water rescue from a vehicle was conducted and a minor evacuation took place. There was approximately \$75,000 in property damages from the event.

According to FEMA's National Flood Insurance Program as June 30, 2007, the Town of Montgomery has 32 policies in force with \$4,360,100 in insurance in-force and \$22,417 written premium in force.

The Black Falls Brook stream channel has been moving over the last several years and threatens Route 118 in Montgomery Village as well as several residences in that area.

There are twin 6' foot boiler tubes located on the Gibou Road that fill-in during rain events. The Town Highway Department is interested in addressing this area.

A GIS based overlay analysis was conducted using FIRM data with the Vermont E-911 Esite data of structure locations. The results found that there are one hundred eight (108) structures within the 100 or 500 year flood plain in Montgomery. Sixty-eight (68) are all-season single family units, six (6) are mobile homes, fourteen (14) are classified as commercial, two (2) are classified as other commercial, one (1) is a commercial farm, two (2) are lodging, one (1) is a church, four (4) are government buildings (including public safety building), and ten (10) are classified as "other". This represents 14% of all structures in the community.

Estimating flood damage of the 14% of structures with 20% damage is \$3,111,476. Cost of repairing or replacing the utilities, roads, bridges, culverts, and contents of structures is not included.

Fluvial Erosion/Landslide

Fluvial erosion/landslides are becoming more common within the region. Historic land uses along the river and its streams, including flood plain encroachments, and vegetative debris removal have increased the risk of erosion and landslides.

On July 14–16, 1997, flooding in northern Vermont caused severe local damage and resulted in a Presidential disaster declaration (FEMA-1184-DR-VT). The erosion and deposition were significant at numerous locations. Local officials and residents are concerned that the accumulation of sand, gravel, and cobbles in stream channels magnified the severe flooding. Currently, Vermont and Federal streammanagement policies restrict the removal of these materials. The flood of 1997 exacerbated an already serious river erosion problem. Historic land use changes, channel management practices, and floods had resulted in an extremely unstable river system.

The Trout River, immediately downstream of Montgomery Center, was experiencing very high rates of bank erosion. Little streambank vegetation remained along certain reaches. The river had become so broad and shallow in places that it braided and cut across two meanders. There was a loss of agricultural productivity and property values along the river. Stability of the embankment along VT Route 118 was severely compromised.

Landowners downstream from Montgomery Center called for extensive state and federal assistance to restore the river. A unique partnership, the Trout River Restoration Project, formed to address longstanding river and field erosion problems, and enhance or restore the natural resource values of the Trout River. In 1998,

the approach used the principles and applied methods of fluvial geomorphology to address the root problems associated with channel stability, rather than traditional channel management techniques that tend to treat only the symptom of erosion.

Loss estimates for this hazard is unavailable due to insufficient data. The Town of Montgomery has not mapped fluvial erosion hazards. Such data could be used in a GIS overlay analysis to estimate potential losses similar to flood losses. Future plan updates will reflect any changes in data for estimating losses.

Thunderstorms/Lightning

The Town has experienced a variety of high winds from storm systems that develop along ridgelines. Typically, high winds accompany strong thunderstorms that often generate lightning and/or hail. Micro bursts with high wind speeds and high precipitation accumulations over brief periods often down trees and branches and power lines and can overwhelm local drainage networks for brief periods. There are rare instances where lightning has caused structure fires (barns) and grass fires during dry periods.

There are no loss estimates for lightning because it is extremely difficult to predict where the event will occur and the type of associated structural damage. Damages could come in the form of destroyed electrical appliances, structure fires, or wildland fires. Death or serious injury could occur to individuals exposed to lightning. Private properties in Montgomery have experienced lightning strikes. High elevations and areas around bodies of water such as lakes and ponds are more susceptible. Montgomery's road crew is equipped with associated debris removal equipment.

High Winds

High winds can occur anytime and in any area of Town during the year as pressure gradients move through the area. The Town has experienced a variety of high winds from storm systems that track from eastern New York and Ontario and across Lake Champlain. The Town is far inland and is unlikely to receive a direct hit from a hurricane, however high winds and hail storms are typically an accompanying hazard.

Micro bursts with high wind speeds and high precipitation accumulations over brief periods have become more frequent during summer months in recent years. Micro bursts often down trees and branches and power lines and can overwhelm local drainage networks for brief periods.

Power outages may occur resulting in significant loss of business as well as threatening public safety. Cleaning up debris following high wind events can be costly depending on the severity of the event.

The estimated damage of 10% of structures with 20% damage is \$2,222,483. The estimated cost does not include building contents, land values or damages to utilities. High winds are common along river corridors and ridgelines making those areas more susceptible.

Loss of Electrical Service

Historically, utility service disruptions in Montgomery have been minor affecting small areas for a limited time. In winter, branches and trees laden with snow and ice often fall on transmission lines causing limited service disruptions.

The Town of Montgomery has one portable high capacity generator. The generator could be used during an emergency at the Montgomery Public Safety Building, the Montgomery Elementary School (both potential emergency shelters) or the Montgomery Water Treatment Plant. It is expected that the school, when activated as a community shelter, would be a higher priority for use of the generator. Montgomery Public Safety officials are interested in purchasing a stationary generator and switch for the Public Safety Building and the Montgomery Water Treatment Plant. The Town also has a mobile command post that offers limited communications abilities during power outages.

It is difficult to estimate losses due to loss of electrical service both in the public and private sectors. Damages vary dependant on the season. Power loss in the winter can cause water pipes to freeze damaging private and public structures. Power loss can also lead to loss of business transactions. No loss estimates were derived for this hazard due to lack of data and resources. Any structure dependant on electrical utility is susceptible.

Structure Fire

Structure fires can occur anywhere. The Town of Montgomery Fire Department responds to 5 structure fires per year on average since 2000 and also assists on Franklin County Mutual Aid calls in neighboring communities. The Fire Department actively upgrades its equipment through federal grant programs. Department personnel are trained to operate under NIMS/ICS. The Montgomery Volunteer Fire Department is a member of the Franklin County Mutual Aid Agreement.

In the village area of Montgomery, structures that are relatively close raise the risk for multiple structure fire. The impact of this type of incident would primarily be on the commercial sector with a smaller impact on housing. New public facilities, such as the Montgomery Emergency Services building, are subject to fire safety building codes and are designed with heat/smoke detection systems.

Estimated loss due to fire damage on 5 structures annually using median home values is \$450,000. This loss estimate does not include building contents. Older historic buildings and residences that lack fire alarms and sprinkler systems are at greater risk for damages.

Hazardous Material (Fixed Site and Transport)

There are seven sites in Town that have sufficient types and/or quantities of hazardous materials to require reporting (see Attachment B). Agriculture based businesses such as farms typically store various hazardous materials including fuels, pesticides and fertilizers. Of more concern are the trucks carrying hazardous materials traveling along VT118 and VT242. Montgomery Fire and Rescue members have received some HazMat awareness and technical training. It is expected that the Vermont HazMat response team would assist in responding to a HazMat incident. The nearest HazMat response vehicle is located 61 miles away at the IBM facility in Essex, Vermont. A HazMat decontamination trailer is located 21 miles away in Swanton Village, Vermont.

Based on the recommended Public Safety evacuation distance from the 2000 Emergency Response Guidebook, a 1000-foot circle was drawn around sites that store hazardous materials. Structures inside the circle are those that may need to be evacuated or shelter-in-place during a HazMat incident. Of the 790 sites (E911 locations) in Montgomery, there are 131 (residences, public facilities and commercial facilities) or 17% of the structures in Town that might be impacted. There are 377 structures along Routes 118 and 242 that could be impacted by hazardous materials transport incident. The elementary school, Town Garage, State Garage, and Town Hall are critical facilities, as defined by the Town of Montgomery, located in that zone. Six HazMat sites are located within the 100 or 500 year flood plain in Montgomery including D&D Deli, Sylvester's Quick Stop, Town Garage, State Garage, Lutz' Automotive and Sylvesters Market. Of concern to the Town are above ground propane and kerosene tanks. During flood events, above ground tanks that are not tied down can be carried away by floodwaters. This was witnessed by many residents during the 1997 flood.

Loss estimates were not provided because no historical data has been found on losses due to HazMat accidents and potential HazMat loss estimates are extremely difficulty to predict. Factors include severity of the spill in terms of chemical(s) involved, size, and location. Future updates of the plan will incorporate any loss estimates. Attempts will be made to contact the Vermont HazMat Response Team for related figures.

Hail

A damaging phenomenon from thunderstorms is hail. Hail is typically a localized event and can cause a large amount of damage over a short period. There is no area in Town more susceptible to hail damage than other areas. Power outages may occur resulting in significant loss of business as well as threatening public safety. Cleaning up debris following high wind events can be costly depending on the severity of the event. Farmers have sometimes called hail the "white plague," because entire fields of crops can be destroyed in minutes.

One significant event occurred on May 30, 2002. According to local weather watchers, during a late afternoon storm, dime sized hail fell. There were no reported damages.

The impact of hail storm is difficult to predict due to the randomness of the event. It is difficult to set a cost to repair or replace any of the structures or utilities affected. Every structure is susceptible to damage. There are no defined areas where this event will occur.

Drought

While rare in occurrence, droughts have impacted residential and commercial water supplies. Reduced water flows due to drought have been short in duration. A drought event would impact the entire community. There are no records available regarding an extended drought in the Town of Montgomery. A thorough examination of drought risk is addressed in the Regional Pre-Disaster Mitigation Plan.

Water and Sewer Service Loss

Water service disruptions in Montgomery Center have been rare. The Town of Montgomery is currently involved in a three phase project to improve the water system. The Town has established a Health Officer to address public health issues related to a failed septic. Water service loss on the water system would impact residents in Montgomery Village and Montgomery Center.

It is difficult to estimate losses due to loss of water and sewer service both in the public and private sectors. No loss estimates were derived for this hazard due to lack of data and resources. Structures dependent on the water and wastewater system are more susceptible to loss of service.

Telecommunication Systems Failure

Telecommunications system failures occur periodically and are similar to power losses.

Telecommunications systems failure would impact the entire Town. As previously mentioned, the Town has a mobile command post that offers limited communications abilities during power outages. Public safety officials noted that they have decreased radio performance when trying to communicate with Central Dispatch (PSAP) or between themselves from different areas of Town. Also, there are no Public Telephones installed in Town.

Cell phone coverage is nearly non-existent in most areas of Town due to the geography of the area and the general lack of cell towers. Verizon and Unicel (digital) operate cellular transmission sites at Jay Peak. Also, near Jay Peak Resort, there is roaming coverage from several Canadian cell towers. The Town of Montgomery's Zoning Bylaws and Regulations contain a wireless telecommunications facilities section to protect the public health, safety and general welfare of the Town of Montgomery while accommodating the communications needs of residents and businesses. The development of adequate wireless telecommunications services within FCC standards, while preserving the character and appearance of the Town of Montgomery is a mitigation priority for the Town.

It is difficult to estimate losses due to telecommunications systems failure both in the public and private sectors. Telecommunications loss can also lead to loss of business transactions. No loss estimates were derived for this hazard due to lack of data and resources. Private and public structures within the village area

have access to broadband internet and would be susceptible to loss of DSL service. Individuals with cell phones would be affected by loss of cell coverage from the Jay Peak site or from the towers in Canada. Land line phone customers lose service when phone lines are disrupted from the effects of ice, falling limbs, high winds, etc.

<u>Tornado</u>

These phenomena are rare in Montgomery. Tornados may form when strong thunderstorms track through the area. There is no defined area to predict where this event will happen. Environmental impacts would include felled trees, while business impacts would be in the form of destroyed crops. Building damages may include destroyed windows, torn roofs, and destroyed barns. Tornado events occurred in Franklin County on June 18, 1957, June 13, 1961, August 3, 1970, and July 19, 1972. There is no record of a tornado touching down in Montgomery.

The estimated potential loss to 10% of structures with 20% damage is \$2,222,483. The estimate does not include building contents, land values or damages to utilities. River corridors and ridgelines are more susceptible to the affect of tornados.

Earthquake

Earthquake events are rare. There is no defined area where this event will occur. There are no records of historical damages due to earthquakes. A HAZUS earthquake risk analysis and loss estimate was conducted at the regional level. An earthquake may affect all types of structures in the community especially older buildings and bridges. There is moderate potential for serious damage to buildings and infrastructure in older portions of Town.

Structures are mostly of wood frame construction. The estimated loss of 20% of Town appraised structures is \$2,222,483. Costs of repairing or replacing roads, bridges, power lines, telephone lines, or the contents of the structures are not included.

Major Fire - Wildland

Wildfire typically comes in the form of grass fires. Forest fires are rare however the fuel potential for large fires exist. The mountainous areas of Town are forested and residential structures (year round and seasonal) could be impacted by a wildland fire. Grass fires occur in spring and early summer as fields are cleared of fall and winter debris. Lightning strikes can also cause wildfires. Wildfire suppression comes from the local Fire Department and mutual aid organizations.

Potential loss estimates are difficult to ascertain due to a lack of data on losses. In Montgomery Town there are large tracks of forested lands along the Green Mountains that could be at risk during sustained dry periods. The entire Town has minimal wildfire protection due to the on-call basis of the Fire Department. The potential for wildfire increases with the increase of fuel loads. Structures in forested areas without adequate fire breaks or are difficult to access due to their remote nature, are more susceptible than others. A wild fire complex similar to what occurs in Florida, Texas, and western states during dry periods, has not occurred in the Town.

Terrorism / WMD and Civil Disturbance

Such events are possible in Montgomery but are considered rare. The school has a school crisis guide which addresses a variety of responses and resources to respond to terrorist type event such as a school shooting. The Vermont State Police would provide law enforcement for either a Terrorism/WMD or civil disturbance event.

The loss estimate due to this event is impossible to predict for the Town of Montgomery. A terrorist event would likely occur at the school or at a government office located in Montgomery Village or Montgomery Center. A civil disturbance could occur at the school, government office or village area.

The combination of the impact of the hazard and the frequency determined the community vulnerability (risk score) as HIGH, MODERATE or LOW. The vulnerability classifications based on risk scores for each hazard are as follows:

- 0-24 LOW
- 25-49 MODERATE
- 50-75 HIGH

For example, a flood event is highly likely (nearly 100% probability in the next year) in many communities of Franklin County but the degree of impact varies, so a highly likely flood with critical or catastrophic impact rates the community vulnerability as HIGH. Another community with a highly likely or likely (at least one chance in the next 10 years) flood with a limited impact would receive a vulnerability rating of MODERATE. The vulnerability of a community having the occurrence of an event as possible or unlikely with limited or negligible impact would be LOW.

| | ry of Hazard | | | 1 | <u> </u> |
|---------------------------------|---------------|----------------------------|---------------------|---|---|
| Hazard Type | Frequency | Severity | Risk | Estimated Potential Losses (Dollars) | Vulnerability |
| Winter Storm | Highly Likely | Limited to Catastrophic | Moderate to High | n/a | Roads, bridges, commercial and residential structures, seasonal homes, public buildings (Town Office, DPS Building), school, church, and utilities. |
| Flooding | Highly Likely | Limited to Catastrophic | Moderate to High | \$3,111,476 | Loss of road access, power loss, telecommunications loss. Roads, bridges, commercial and residential structures, seasonal homes and utilities. |
| Fluvial erosion / landslide/ | Highly Likely | Limited to Catastrophic | Moderate | n/a | Structures, road access, loss of agricultural land. Roads, bridges, commercial and residential structures, seasonal homes, utilities. |
| Thunderstorm/ Lightning | Highly Likely | Limited | Moderate | n/a | Falling limbs and/or trees, power loss, church, school, telecommunications loss, structural damage, crop damage. Commercial and residential structures, seasonal homes, public buildings (Town Office), utilities. |
| High Winds | Highly Likely | Limited | Moderate | \$2,222,483 | Falling limbs and/or trees, power loss, telecommunications loss, church, structural damage, crop damage. Commercial structures, residential and seasonal homes, public buildings, utilities. |
| Loss of Electrical Service | Likely | Limited to Critical | Moderate | n/a | Pubic building (Town Office), church, utilities, residential and seasonal homes, commercial structures, including commercial farms. |
| Structure Fire | Highly Likely | Limited | Low | \$450,000 | All structure types especially those lacking early detection systems. |
| Hazardous Materials | Likely | Limited | Low | n/a | Residential and seasonal homes, commercial structures, public buildings (Town Office, Town Garage, State Garage, DPS Building), church, school, utilities, and the environment. |

| A full summary of hazards and imp | pacts is provided in the following table. |
|-----------------------------------|---|
| | |

| Hail | Highly Likely | Limited | Low | n/a | Residential and seasonal |
|--|---------------|----------------------------|-----|-------------|--|
| | | | | | homes, commercial and public buildings (Town Office, Town Garage, State Garage, DPS Building), school, church and utilities. |
| Drought | Rare | Limited to Catastrophic | Low | n/a | Commercial structures – farms, livestock, private wells, public structures (water reservoir, water pumping station and wastewater treatment plant), residential and seasonal homes and vulnerable populations. |
| Loss of Water & Sewer Service | Rare | Limited | Low | n/a | Public Health, residential and seasonal homes, commercial structures, church, public structures (water reservoir and wastewater treatment plant, town office, DPS building). |
| Telecommunication Systems Failure | Rare | Limited | Low | n/a | Residential structures, seasonal homes, commercial, public building (Town Office), school, utilities. Special needs populations. |
| Tornado | Rare | Limited | Low | \$2,222,483 | Falling limbs and/or trees, power loss, telecommunications loss. Structural damage to residential and seasonal homes, public buildings (Town Office, State Garage, Town Garage, DPS Building, water pumping station) commercial structures and utilities. |
| Earthquake | Rare | Limited to Catastrophic | Low | \$2,222,483 | Infrastructure (roads, bridges), structural damage to residences, seasonal homes, commercial building, public buildings (Town office, State Garage, Town Garage, water pumping station), utilities, utilities. See HAZUS report. |
| Major Fire - Wildland | Rare | Limited | Low | n/a | Residential and seasonal homes, commercial structures, utility poles and lines, road closures, fires in rural areas lacking fire breaks. |
| Terrorism/WMD and Civil Disturbance | Rare | Limited | Low | n/a | School, public building (Town office, State Garage, Town Garage, Post Office, water pumping station). |

A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the appropriate jurisdictions, or fulfills important public safety, emergency response, and/or disaster recovery functions. The current scope of this plan is to address these facilities and associated infrastructure. Once this plan is accepted, there is the possibility to expand the plan to cover other facilities and structures within the community.

The critical facilities identified in the Town of Montgomery Hazard Mitigation Plan include shelters; health care facilities; electric, and communication utilities; water and wastewater treatment plants and reservoirs; public safety facilities, government offices, hazardous materials storage sites; church and school.

Data from Montgomery Planning Commission, Northwest Regional Planning Commission, Local Emergency Planning Committee and Montgomery Emergency Services were used to assist in the analysis of areas affected by various hazards. Limited data sets from GIS were available for this analysis; however, the Northwest Regional Planning Commission GIS Service Center us committed to providing this in the future as data, time and funding is available. Past history of hazard events was also used for the analysis.

The results of the analysis are listed in Attachment B. The community hazard mitigation map is included in Attachment E. The community map depicts hazard areas, critical facilities, and vulnerable sites based on the best available data derived from local, regional, state and federal sources.

5. MITIGATION STRATEGY

5.1. Local Hazard Mitigation Goals

Town Plan (Adopted 2005) Goals & Policies that support Hazard Mitigation

- To look ahead and predict future needs for public facilities based upon community growth and change.
- To provide municipal services, or enable other entities, to meet the needs of local residents of all ages without undue or sudden impacts upon local property taxes.
- To look ahead and predict future needs for public facilities based upon community growth and change.
- To provide public utilities to support concentrated residential, commercial, and industrial development, and protect public health and water supplies in areas without municipal services.
- To promote energy conservation in the delivery of public services and the use of public facilities and infrastructure.
- To ensure reasonable, functional, and orderly development of transportation systems.
- To provide adequate educational services relative to anticipated population growth. To Create a learning community that will provide our students with the tools for lifelong success.
- To provide for local growth that is compatible with the Town's natural features including soils, landscape, water resources, and wildlife.
- To maintain Montgomery's rural character and scenic resources by encouraging development to follow wise land use practices.

5.2. Existing Hazard Mitigation Programs, Projects and Activities

Winter Storm

- Town road crew has snow removal equipment.
- Road crews have response equipment to deal with downed trees and branches.

• Emergency Services Building has a portable generator with switch. The generator may be used at the school when school shelter is opened. The Town of Montgomery would like to procure stationary generator for Emergency Services Building.

Flooding

- Replacement of Bridge No. 24 on TH 35, over Pacific Brook.
- Rehabilitation of Bridge No.34 (Hutchins Covered Bridge) on TH27 over the South Branch of the Trout River. 2007- On-going.
- Rehabilitation of Bridge No. 36 on TH 10, over Black Falls Brook. In development.
- Rehabilitation Of Bridge No. 32 (Creamery Bridge) on TH25 over West Hill Brook. On-going.
- Upgrade Bridge No.21 on VT118, over the Trout River with new concrete deck.
- Consideration of flood buy-out; 3 homes on lower West Hill Road in Town of Montgomery.
 - Robert and Aline Baker residence located at 32 West Hill Road.
 - Henry and Rowse residence located at 99 West Hill Road
 - Robert and Aline Baker rental property at 84 West Hill Road
- Consideration of flood buy-out for one home on North Main Street..
 - Terry Zataran residence located at 2166 North Main Street.
- Road Surface Management Systems and culvert conditions inventory performed in 2002 and updated following installation of new structures.
- Fuller Covered Bridge restoration project in 2000 to mitigate damages from flooding from Black Falls Brook.
- Flood hazard reduction in area of Fuller Covered Bridge on Black Falls Brook in Montgomery. Included participation and funding from Army Corps of Engineers, Vermont Agency of Natural Resources, and Vermont Emergency Management hazard mitigation grant program.
- The Town has Zoning Bylaws which designates a Flood Hazard Area District whose purpose is to minimize future public and private losses caused by development in flood hazard areas. The Town participates in the National Flood Insurance Program (NFIP).
- Flood Hazard Areas in Montgomery are identified on Flood Hazard Boundary Maps
- (FHBMs) and Flood Insurance Rate Maps (FIRMs) produced by FEMA. The purpose of these districts, which are located along the flood plains of rivers and streams throughout the Town, is to prevent increases in flooding caused by excessive development of lands within flood hazard areas. Montgomery has flood hazard development ordinances and is a member of the National Flood Insurance Program (NFIP).
- Town Highway Department is interested in purchasing barricades.

Fluvial Erosion/Landslide

- Trout River Project A Natural Channel Restoration Project of the Vermont DEC River Management Program (1998 – 2000). Project was critical to long-term flood protection of Montgomery and other downstream properties. Tremendous potential for public education on valuesbased river management and demonstration project.
- Streambank tree plantings
 - VYCC installed revetments along Trout River tributary on the Longley property in prior to the Montgomery Flood in 1997.
 - Missisquoi River Basin Association planted trees on former Jewett property on Black Falls Brook during 1998 and 1999.
 - Missisquoi River Basin Association planted trees at the Marcy Farm on Regan Road/VT118 along the South Branch of the Trout River and 1999.
- Phase 1 Geomorphic Assessment was completed for the Trout River Watershed (Northwest Regional Planning Commission, 2005).

- Phase 2 Geomorphic Assessment was completed on reaches within the Trout River Watershed (Johnson and Company and Missisquoi River Basin Association, 2007).
 - Trout River 5 reaches on the main stem (M01-M05)
 - Alder Brook- 2 reaches (T1.01-T1.02)
 - West Hill Brook- 1 reach (T2.01)
 - Black Falls Brook- 2 reaches (T3.01-T3.02)
 - South Branch- 4 reaches (T4.01-T4.04)
 - Hannah Clark Brook- 1 reach (T5.01)
 - Jay Brook- 1 reach (T6.01)
 - Wade Brook- 1 reach (T7.01)
 - o 3 reaches on unnamed tribs (M1S1.01 and M2S3.01-M2S3.02)

Thunderstorm/Lightning

- Road crews have response equipment to deal with downed trees and branches.
- Road crews monitor roadways for obstructions and flooding.
- Town has install lightning protection on equipment operated at municipal facilities.

High Winds

- Highway department has debris removal equipment.
- Road crews monitor roadways for obstructions and flooding.

Power Loss

- Emergency backup generator exists for school (designated Red Cross shelter).
- On-going regularly scheduled road maintenance programs (cutting vegetation).

Hazardous Materials (Fixed Site and Transport)

- Fire and rescue departments have personnel trained in hazmat awareness.
- Fire and rescue departments trained in Incident Command System/National Incident Management System.
- Upgrades in fire fighter personal protection equipment.

Structure Fire

- Fire Department seeking funding to purchase replacement (pumper/tanker) for older pumpers.
- Fire Department member of Franklin County International Firefighters Association.
- Fire Department member of Franklin County Mutual Aid Agreement.

Telecommunications

- Zoning bylaws address wireless telecommunication facilities including tower and antennae design requirements.
- The Town is continually seeking ways to improve handheld radio coverage as well as cell phone coverage for its departments.

Terrorism/Civil Disturbance

- School has updated State School Response Guide to handle variety of emergency situations.
- School Board proactive in addressing school safety issues.

On Going Community Preparedness Activities

• On July 27, 2007 officials from Vermont Agency of Transportation, Vermont Agency of Natural Resources, Vermont Emergency Management, Town of Montgomery Selectboard, Northwest

Regional Planning Commission, as well as state representatives and homeowners along West Hill Brook met to discuss short and long term strategies for West Hill Brook flooding issues.

- Replacement of existing Town Garage with new facility.
- FEMA and VEM approved Rapid Response Plan (updated annually).
- Continue to identify and equip, as appropriate, emergency operations shelters and centers.
- Active membership in the Local Emergency Planning Committee serving Franklin County.
- Community participates in the Vermont Enhanced 911 System.
- Covered bridges are being restored using Historic Preservation Grants.
- Ambulance Service is seeking funding to replace ambulance.

| | Town Policies and Plans | | | | | | | | | |
|---|---|---|--|--|--|--|--|--|--|--|
| Existing Protection | Description | Effectiveness/Enforcement/ Hazard that is addressed | | | | | | | | |
| Town Plan | Policies and vision for future land use. Adopted in 2005. | Policies that provide protection and limited development in wellhead protection areas, wetlands, steep slopes, and shallow soils. | | | | | | | | |
| Zoning Bylaws and Regulations. | Land Use Regulation. Adopted 2005. | Restrictions on development in potential hazardous areas such as steep slopes, floodplains, and waters source areas. | | | | | | | | |
| Rapid Response Plan | Summary of response and notification procedures. | Updated annually. | | | | | | | | |
| Subdivison Bylaws | No. | Local provisions related to the division of a lot tract or parcel of land. | | | | | | | | |
| Flood Plain Ordinance | No. | | | | | | | | | |
| Fire Mutual Aid | Franklin County Mutual Aid Agreement, 2006. | Assistance from county fire, rescue, municipal and public works departments. | | | | | | | | |
| School Emergency Response | School Crisis Guide | Responses by various type of emergency incident. | | | | | | | | |
| Solid Waste Implementation Plan | Member of the Northwest Vermont Solid Waste Management District. | Transportation, resource recovery, recycling and disposal of solid waste. | | | | | | | | |
| Hazen's Notch Watershed Inventory Project. | Hazen's Notch Association inventoried and mapped the streams the Hazen's'Notch/Wade Brook watershed plus public education campaign on property protection. May 1999. | Inventory of streams, ponds, wetlands and recommendations to landowners regarding erosion control projects. | | | | | | | | |
| Emergency Shelters | Designated emergency housing facilities for communities. | RRP identifies two shelters, one with American Red Cross designation. | | | | | | | | |

5.3. Risk Reduction Goals

Through current plans, policies and mitigation actions, Montgomery is working to decrease damages from winter storms, floods and structure fires. Other less hazardous risks are also being addressed.

5.4. Identified Hazard Mitigation Programs, Projects and Activities

The following table outlines mitigation programs, projects and activities describe the overall direction the Town is taking to work toward mitigating risk from natural, technological and societal hazards. These mitigation strategies have been chosen by the Town, through surveys and interviews with community officials, as the most appropriate policies and programs to lessen the impacts of potential hazards.

The following list documents the questions (criteria) considered in establishing an order of priority. Each of the following criteria was rated according to a numeric score of "1" (indicating Poor), "2" (indicating Average) and "3" (indicating Good). The highest possible score is 36. The full scoring matrix used is located at the end of this annex.

- 1) Does the action reduce damage?
- 2) Does the action contribute to community objectives?
- 3) Does the action meet existing regulations?
- 4) Does the action protect historic structures or structures critical to Town operations?
- 5) Can the action be implemented quickly?
- 6) Is the action socially acceptable?
- 7) Is the action technically feasible?
- 8) Is the action administratively possible?
- 9) Is the action politically acceptable?
- 10) Is the action legal?
- 11) Does the action offer reasonable benefits compared to its cost of implementation?
- 12) Is the action environmentally sound?

Mitigation projects are listed in terms of mitigating threat or risk to public health and safety, reduction of hazard to community assets, adherence to Town plan and local ordinances, cost, and feasibility. Projects are classified as either short - term or long - term activities. Short –term action items are activities which the municipality may be capable of implementing within one to two years. Long-term action items may require new or additional resources, funding or authorities. Ongoing action items occur at least once per year. Potential funding sources are found in Chapter 4 and Appendix D of the Regional Pre-Disaster Mitigation Plan.

| Implementation Schedule for Prioritized Mitigation Projects | | | | | | | | | | | |
|---|---|---|--|-----------------|--|--|--|--|--|--|--|
| Priority Score | Mitigation Project | Responsibility/Oversight | Funding/Support | Time – Frame | Initial Implementation Steps | | | | | | |
| 36 | Emergency response training for emergency personnel. | ining Fire Chief from State fire agencies; DHS | | On-going | Evaluate current training needs. Contact VT Fire Academy. | | | | | | |
| 32 | Stream bed maintenance in high risk areas. | U.S. Army Corps of Engineers and State of Vermont | U.S. Army Corps of Engineers and State of Vermont. | Short - term | Scope project relevant to public safety issues. | | | | | | |
| 31 | Procure and install stationary generator & automatic switch at the Town Water System. | Selectboard, Montgomery Fire/Rescue | FEMA grants, DHS, state (EMPG) and local funding. | Long – term | Spec. generator requirements for auxiliary power to building as well as automatic switch. Get cost estimates. Seek federal homeland security and state grants regarding facility protection. | | | | | | |
| 32 | Replace Fire Dept. pumper with pumper tanker. | Selectboard/Fire Chief | FEMA grant (Fire Grant), local funding. | Long- term | Spec. replacement vehicle to meet department needs. | | | | | | |
| 32 | Replace Town Garage with new facility | Selectboard, Road Foreman | Federal (USDA), DHS, state and /or local funding. | Long- term | Site design, grant writing. | | | | | | |
| 31 | Gibou RoadFEMA grantsGibou RoadSelectboard / RoadFEMA grantsCulvertSelectboard / Roadstate grants (VtreplacementCommissionerLocal RoadsProject.Program, localfunding.Flood buyout forresidences affectedprogram, localby West HillBrook floodingincluding Robertand Aline BakerFEMA, VEM, Selectboard, Home-owner(s).FEMA, VEM, Town of Montgomery.West Hill Roadand Henry Rowseresidence located at 99 West Hill | | FEMA grants (HMGP, FMA), state grants (Vt Local Roads Program, local | Short – term | Hydraulic study, completed, engineering study in process, stream alteration engineer site visit planned. | | | | | | |
| 30 | | | Town of | Long - term | Meet with interested parties (private, local, state and Federal officials) to discuss home buy- out options. | | | | | | |

Note: In the table below, time frames are defined as follows: Short term equals 6 months to one year. Medium term equals 1-3 years. Long term equals 4+ years

| 30 | switch for Public Safety Building. | | FEMA grants, DHS, state (EMPG) and local funding. | Long- term | Spec. generator requirements for auxiliary power to building as well as automatic switch. Get cost estimates. Seek federal homeland security and/or state grants regarding facility protection. |
|----|--|---|--|----------------|---|
| 30 | Flood buyout for residences affected by Black Falls Brook flooding/geofluvial erosion. Terry Zataran residence at 2166 N. Main St. | dences affected y Black Falls Brook ding/geofluvial rosion. Terry aran residence 2166 N. Main | | Long- Term | Meet with interested parties (private, local, state and Federal officials) to discuss home buy- out options. |
| 28 | Upgrade communications equipment to address gaps in hand-held and cell coverage areas. | | Federal (FEMA, DHS) state (VCOMM) and/or local funding. | Long- term | Conduct "needs assessment" or communications plan. |
| 28 | Purchase new ambulance. | | | Long- term | Spec. new ambulance. Cost estimates. Seek Selectboard approval. |
| 27 | Purchase Excavator for Highway Dept. | Selectboard, Road Foreman | Federal, private, state or local grants. | Short- term | Spec. replacement vehicle. Seek board approval. |
| 27 | Purchase barricades for Highway Dept. | Selecboard, Road Foreman | Federal, private, state or local grants. | Short- term | Determine number needed and cost estimates. |

6. PLAN IMPLEMENTATION, MONITORING & EVALUATION

Initial Approval

In addition to public involvement in the initial development of the plan, opportunities for public comment included interviews with the Town Emergency Management Coordinator and Fire Chief, and updates to the Local Emergency Planning Committee (LEPC) and to the full Northwest Regional Commission Board of Directors. Local citizens were interviewed as well. A copy of the draft will be provided to the Town Road Foreman, Town Emergency Management Coordinator, Selectboard Representative and Fire Chief for comment. Future updates of the plan will include more opportunities for public comment.

Following consideration of the comments from those forums, the draft local annex and associated regional Pre-Disaster Mitigation Plan will be presented to the State Hazard Mitigation Committee through the State Hazard Mitigation Officer (SHMO) for review and comment and a recommendation for forwarding to FEMA Region I. After receipt of comments from FEMA Region I, the final changes will be made and the final document will be presented to the Selectboard for adoption. The adoption of the plan by the community governing body demonstrates agreement with the Northwest Regional Pre-Disaster Mitigation Plan and their individual community annex. The final plan will then be forwarded to FEMA Region I for formal review and approval. Once approval has been granted, the Montgomery Selectboard will be responsible for adopting the Montgomery Town Hazard Mitigation Plan.

Routine Plan Maintenance

The Hazard Mitigation Plan is dynamic and should not be fixed. To ensure that the plan remains current and relevant, it is important that it be updated periodically. The plan should be updated every five years in accordance with the following procedure:

- 1. The Montgomery Selectboard will appoint a team to convene a meeting of the Review/Update committee. The team may include the Emergency Management Director and/or Coordinator, Road Foreman, Selectboard representative and/or Fire Chief.
- 2. The committee will discuss the process to determine if the evaluation criteria is still appropriate or modifications or additions are needed due to changing conditions since the last update occurred. Data needs will be reviewed, data sources identified and responsibility for collecting information will be assigned to members.
- 3. A draft report will be prepared based on these evaluation criteria and in conformance with the FEMA *Local Hazard Mitigation Plan Review Crosswalk* document.
 - Changes in community and government processes, which are hazard-related and have occurred since the last review.
 - Progress in implementation of plan initiatives and projects.
 - Effectiveness of previously implemented initiatives and projects.
 - Evaluation of unanticipated challenges or opportunities that may have occurred between the date of adoption and the date of the report.
 - Evaluation of hazard-related public policies, initiatives and projects.
 - Review and discussion of the effectiveness of public and private sector coordination and cooperation.
- 4. The Selectboard will review the draft report and reach consensus on changes to the draft.
- 5. The changes will be incorporated into the Plan.

- 6. The Plan will be reviewed by appropriate representatives from VEM and FEMA Region 1.
- 7. VEM and FEMA comments will be addressed in the Plan.
- 8. The Selectboard will notify and schedule a public meeting and the review/update committee will prepare a presentation.
- 9. The public will observe presentation and provide comments on draft report.
- 10. The Selectboard will incorporate community comments into draft report.
- 11. The Selectboard will finalize and adopt the report and distribute to interested parities.

Continued Public Involvement

The Montgomery Selectboard is dedicated to involving the public directly in the continual review and updates of the Hazard Mitigation Plan. Copies of the plan will be kept at the Town Office. The existence and location of these copies will be publicized in the media (newspaper, web sites, Town Annual Report, etc.). The plan will also include the Selectboad Chair's contact information to facilitate and track public comments. In addition, any proposed changes will be publicized in the media.

Programs, Initiatives and Projects Review

Although the plan should be reviewed in its entirety every five years as described above, the Town may review and update its programs, initiatives and projects more often directly with the State Hazard Mitigation Officer (SHMO) based on changing local needs and priorities.

The Town of Montgomery should incorporate elements of the of this plan, such as identified projects, into capital planning initiatives and annual budget reviews during Town Meeting.

| | | Probability | TT 1/1 0 | Conse | quence of Occ | urrence | T () |
|----------------------|---------------|------------------|--------------------|-----------|-----------------|------------|-----------------|
| Hazard | Impacted Area | of Occurrence | Health & Safety | Property | Environment | Economic | Total Rating |
| Winter Storm | 3 | 5 | 1 | 2 | 1 | 2 | 45 |
| Flooding | 2 | 5 | 1 | 2 | 2 | 2 | 45 |
| Fluvial erosion/ | | | | | | | |
| Landslide | 1 | 5 | 1 | 1 | 2 | 2 | 35 |
| Thunderstorms/ | | | | | | | |
| Lightning | 3 | 5 | 0 | 1 | 1 | 1 | 30 |
| High Winds | 3 | 5 | 0 | 1 | 1 | 1 | 30 |
| Loss of Electrical | | | | | | | |
| Service | 1 | 4 | 1 | 1 | 0 | 2 | 20 |
| Structure Fire | 0 | 5 | 1 | 1 | 1 | 1 | 20 |
| Hazardous Materials | 0 | 4 | 1 | 1 | 2 | 1 | 20 |
| Hail | 1 | 5 | 0 | 1 | 1 | 1 | 20 |
| Drought | 3 | 1 | 1 | 1 | 2 | 2 | 9 |
| Water & Sewer | | | | | | | |
| Service Loss | 2 | 1 | 0 | 1 | 2 | 2 | 7 |
| Telecommunication | | | | | | | |
| Systems Failure | 3 | 1 | 0 | 0 | 0 | 1 | 4 |
| Tornado | 1 | 1 | 1 | 1 | 1 | 2 | 6 |
| Earthquake | 1 | 1 | 1 | 1 | 1 | 2 | 6 |
| Major Fire -Wildland | 1 | 1 | 1 | 1 | 1 | 1 | 5 |
| Civil Disturbance | 1 | 1 | 1 | 0 | 0 | 2 | 4 |
| Terrorism/WMD | 1 | 1 | 1 | 0 | 0 | 2 | 4 |
| | | | | Total Ris | k Rating for Mo | ontgomery: | 310 |

Attachment A Hazard Identification and Risk Assessment Montgomerv

Attachment B

Critical Facilities, Hazmat Storage Facilities, and Vulnerable Sites Town of Montgomery

| Facility Name or Designation | Facility Owner | Function | Street or Location |
|--|--|---|---|
| D&D Deli | | Hazardous materials facility | Comstock Bridge Rd |
| DPS Building | Montgomery DPS | Emergency operations center | 86 Jay Mountain Road |
| Lutz' Automotive | | Hazardous materials facility | 71 Main St |
| Mobile Command Center | Montgomery DPS | Communications center/EOC | Mobile |
| Montgomery Center Water Reservoir | Town of Montgomery | Water system facility | S. Richford Road/Fuller Bridge Road |
| Montgomery Center Water Treatment Plant | Town of Montgomery | Water system facility | S. Richford Road/Fuller Bridge Road |
| Montgomery Water Pumping Station | Town of Montgomery | Water system facility | Route 58 |
| Montgomery Water Pumping Station | Town of Montgomery | Water system facility | Montgomery Elementary School |
| Montgomery Water Storage Tank | Town of Montgomery | Water system facility | Regan Road and Route 242 |
| Montgomery Elementary School | Principal: Beth O'Brian | School/Library and Hazardous materials facility | 249 School Drive |
| St. Isidore (Catholic) | Religious facilit | | Jay Mountain Road |
| State Garage | Vermont Agency of Transportation | Public works facility and Hazardous materials facility | Route 118 |
| Sylvester's Quick Stop | | Hazardous materials facility | Route 118 |

| Sylvester's Grocery | | Community Supplier and Hazardous materials facility | Main St |
|------------------------------------|-----------------------|--|------------------------|
| Town Garage | | | 1800 North Main St |
| Town Hall | Town of Montgomery | Critical facility | Main St |
| Town Office Building | Town of Montgomery | Government offices | Route 118 |
| United Methodist | Pastor Ed Sorrell | Religious facility | Rte 118 |
| US Post Office | US Postal Service | Government offices | 18 Black Falls Road |
| US Post Office (Town Office) | US Postal Service | Government offices | Route 118 |

Attachment C

Town of Montgomery Priority Matrix

Each of the following criteria was rated according to a numeric score of "1" (indicating Poor), "2" (indicating Average) and "3" (indicating Good).

- 1. Does the action reduce damage?
- 2. Does the action contribute to community objectives?
- 3. Does the action meet existing regulations?
- 4. Does the action protect historic structures or structures critical to Town operations?
- 5. Can the action be implemented quickly?
- 6. Is the action socially acceptable?
- 7. Is the action technically feasible?
- 8. Is the action administratively possible?
- 9. Is the action politically acceptable?
- 10. Is the action legal?

11. Does the action offer reasonable benefits compared to its cost of implementation?

| | | | | | | | C | riter | ia | | | | | Total Score |
|--------------------------|---|---|---|---|---|---|---|-------|----|---|----|----|----|----------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| | Gibou Road culvert replacement. | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 35 |
| | Procure and install generator and automatic switch for Town water system. | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 35 |
| | Procure and install generator for Public Safety Building | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 35 |
| | Emergency response training for first response personnel | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 36 |
| tion | Upgrade communications equipment to address gaps in hand-held and cell coverage areas. | 2 | 3 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 3 | 3 | 2 | 28 |
| ion Ac | Stream bed maintenance in high risk areas | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 30 |
| Mitigation Action | Flood buyout West Hill Road residences affected by flooding | 3 | 3 | 2 | 1 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 32 |
| Μ | Flood buyout for residences along Black Falls Brook affected by flooding/geofluvial erosion. | 3 | 3 | 2 | 1 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 32 |
| | Purchase Excavator for Highway Dept. | 1 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 2 | 3 | 2 | 2 | 27 |
| | Purchase barricades for Highway Dept. | 2 | 3 | 1 | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 27 |
| | Replace Town Garage with new facility | 2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 32 |
| | Replace Fire Dept. pumper with pumper/tanker. | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 32 |
| | Purchase new ambulance | 2 | 3 | 2 | 1 | 2 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 28 |

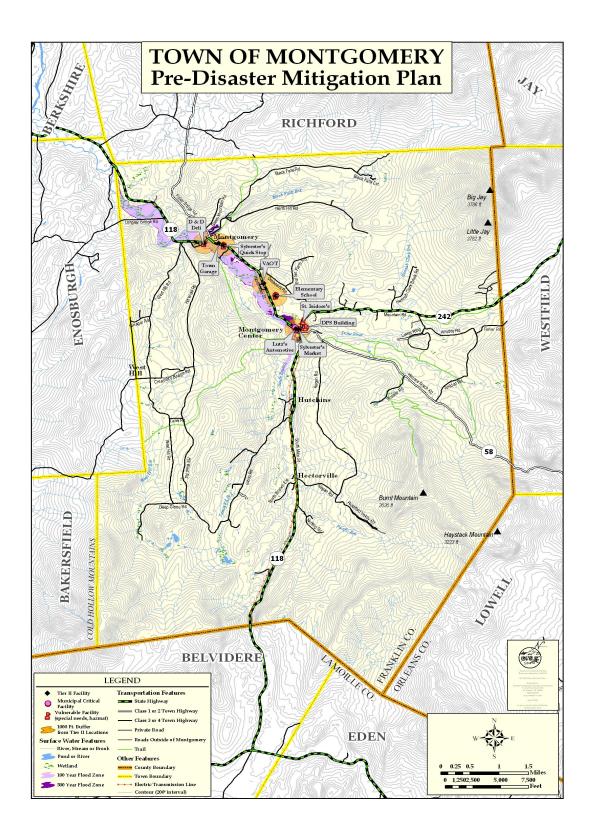
12. Is the action environmentally sound?

Attachment D Public Government Participation

Information in the Hazard Mitigation Plan is based on research from a variety of sources. It encompassed research using a historical perspective and future projections for the vulnerability assessment. The research methods and various contributions to the plan included but were not limited to:

- Town of Montgomery Select Board
- Town of Montgomery Emergency Management
- Northwest Regional Planning Commission
- Northwest Regional Planning Commission Land Use Plan for the Region 2005.
- Town of Montgomery Town Plan 2005.
- Town of Montgomery Highway Department
- Northwest Regional Planning Commission GIS
- Local Emergency Planning Committee (Franklin County)
- Town of Montgomery Fire and Rescue Department
- Vermont Department of Transportation District 8
- Vermont Emergency Management
- Vermont Agency of Natural Resources
- Vermont Homeland Security Department
- Vermont Fire Academy
- Northeast States Emergency Consortium
- Federal Emergency Management Agency
- National Weather Service
- National Oceanic Atmospheric Administration
- Vermont Geological Survey

Attachment E Town of Montgomery Map



Attachment G **Public Notice**





7:30 p.m. An application submitted by Robert McAllister (parcel #CL5023) for a setback variance for construction of a garage in a Conservation 1 Zoned District. The proposed structure will be locat-

Attachment H References

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