

Town of Montgomery, Vermont HAZARD MITIGATION PLAN 2017



Montgomery Flood July 15, 1997

Approved Pending Adoption by FEMA: May 5, 2017
Adopted by the Town of Montgomery Selectboard: Date: May 15, 2017
FEMA Final Approval:

Whereas, natural and man-made disasters may occur at any time, we recognize that by lessening the impacts of these disasters we will save resources, property and lives in the Town of Montgomery, Vermont;

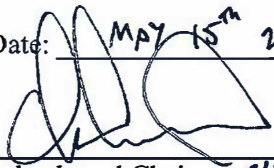
And whereas the creation of the Town of Montgomery Hazard Mitigation Plan is necessary for the development of a risk assessment and effective mitigation strategy;

And whereas, the Town of Montgomery is committed to the mitigation goals and measures as presented in this plan;

Therefore the Town of Montgomery Select Board hereby adopts the 2017 Montgomery Hazard Mitigation Plan.

AUTHORIZING SIGNATURES

Date: MAY 15th 2017




Selectboard Chair *CHARLES HANCOCK*



Selectboard



Selectboard



Selectboard

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Town of Montgomery Ambulance Service

Vermont Agency of Transportation District 8

Vermont Department of Emergency Management

Vermont Agency of Natural Resources

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 continually 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 an update to the 2008 FEMA approved and Town adopted 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

2. PURPOSE

The purpose of this Hazard Mitigation Plan is to assist the Town of Montgomery in identifying all hazards facing the county and their community and identify strategies to begin reducing risks from identified hazards. Once adopted, the local mitigation plan is not legally binding; instead, it outlines goals and actions to prevent future loss of life and property.

Adopting and maintaining the Local Hazard Mitigation Plan will provide the following benefits:

- Make certain funding sources are available to complete the identified mitigation initiatives that would not otherwise be available if the plan was not in place.
- Ease the receipt of post-disaster state and federal funding because the list of mitigation initiatives is already identified including Vermont Emergency Relief Assistance Funding.
- Support effective pre- and post-disaster decision making efforts.
- Lessen the Town’s vulnerability to disasters by focusing limited financial resources to specifically identified initiatives whose importance has been ranked.
- Connect hazard mitigation planning to community planning where possible.

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 seven 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 and Westfield, (located in Orleans County) – to the east of Franklin County).

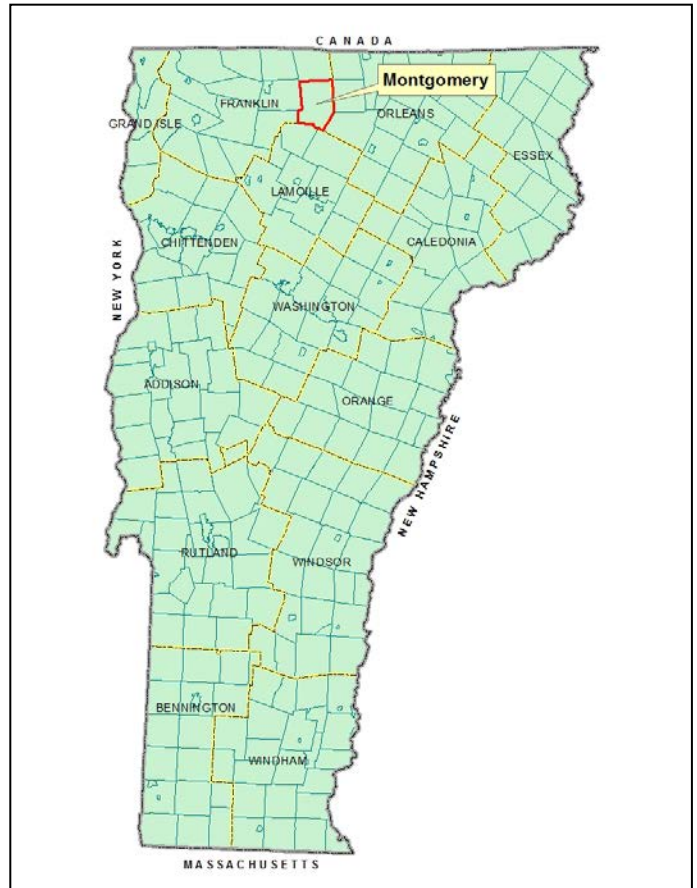
The topography of Montgomery is characterized by rolling foothills that ascend to the steep slopes of the Green Mountain Range. The development patterns follow along The Trout River, West Hill Brook, Black Falls Brook and Jay Brook whose headwaters begin along Green Mountains. The overall change in topography 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 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 is 57 square miles or 36,436 acres. The majority of land cover in the Town is comprised of forest land (approximately 84 percent) with agriculture the second dominant land cover (less than 10 percent).

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. The majority of residential homes are located in these two villages.

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 (such as row crops and hay or pastures), and communication and utility lines. The Town currently divides its land use into the following zoning districts: Village I, Village II, Rural/Residential, Conservation I (under 1,600’ elevation), Conservation II (1,600’ elevation or greater), Flood Hazard Area and River Corridor.

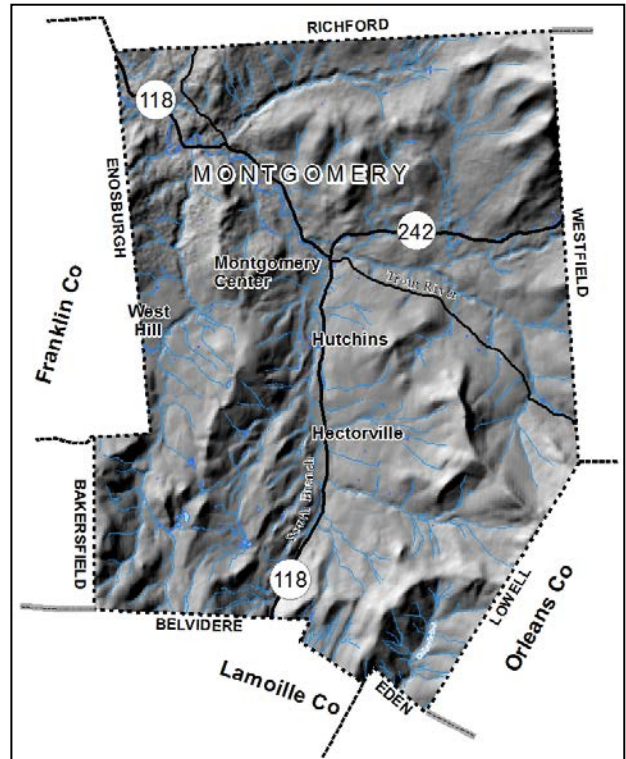


Future Land Use

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 2020. Although Montgomery was expected to see only a small increase in its population, there was a 21% percent population increase between 2000 and 2010. The Town is expected to experience 12% to 17% percent population increase from 2011 to 2020 which is a higher rate of growth than is expected at for Franklin County.

Since the last plan update, development in Town been on average of 5 building permits per year and these have been for single family residential homes mainly outside of the village areas. None of the development has been in hazard prone areas. The development has not increased the Town's vulnerability to hazards due to proper siting and review by the zoning office to ensure the development was compliant with the Town's zoning bylaws.

The Town continues to anticipate that there will be more growth than what has been projected for the Town.



Population

The US Census estimated that the population of Montgomery was 1,201 in 2010. There were 791 total housing units in 2010, of which 509 were occupied, 233 were seasonal, recreational or occasional use. Most housing units were counted as single units (96.4%).

Energy

The Vermont Electric Cooperative supplies Montgomery with electricity. According to the 2010 US Census, fuel oil and kerosene are the most popular home heating fuels (198 units out of 412 or 45.9 percent). The second most popular home heating fuel is wood with 151 units (35 percent). Bottled, tank, or LP gas is the third most popular home heating fuel with 79 units (18.3 percent).

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 fourteen volunteer members who serve on the Fire Department. The fire department is certified Firefighter 2 by virtue of the fact that there are four members certified as FF2. One member is certified FF1. The equipment consists of one pumper truck, one mini-pumper, one tank truck, one rescue van, and assorted smaller equipment, which is capable of fighting a fire in any accessible area of the Town. The rescue van and mini pumper are more than thirty years old.

Montgomery Rescue is licensed by the Vermont Department of Health Emergency Medical Services division as an Intermediate Level Pre-hospital Emergency Medical Service Transportation Provider. Their one

ambulance is almost twenty years old and will need replacing soon. In 2011, the Town contracted with Richford Ambulance Service to provide coverage during the daytime (12 hours).

Montgomery adopted a Local Emergency Operations Plan (LEOP) in May of 2016 to initiate response to serious crises. The LEOP is reviewed and updated as needed on an annual basis. The Town Selectboard has executed a National Incident Management System (NIMS) resolution and continually strives to remain current on NIMS compliance through training and reporting to Vermont Department of Public Safety.

Water Supply

There is one water system owned by the Town that serves the villages of Montgomery Center and Montgomery Village. It has approximately 190 connections servicing about 220 households and businesses and has the capacity to supply about 76,000 gallons per day. 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 systems. 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. Covered bridges are 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. This includes six covered bridges which are on the National Register of Historic Places. Bridge and culvert replacement along Town owned highways will most likely be an on-going project for the foreseeable future.

The Town of Montgomery needs to update its culvert and bridge inventory which hasn't been updated in over 10 years. The inventory identifies culvert locations and classifies conditions following the Vermont Agency of Transportation bridge and culvert standards. The Town will be conducting a municipal road stormwater erosion inventory in 2017.

The Town has recently constructed a new Public Works Building/Garage in 2010.

4. PLANNING PROCESS

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 2016-2021.
- Town of Montgomery, Vermont Zoning Bylaws and Subdivision Regulations 2016
- State of Vermont Hazard Mitigation Plan 2013
- Town of Montgomery Local Emergency Operations Plan 2016
- Town of Montgomery Flood Insurance Study, 1980
- Town of Montgomery Flood Insurance Rate Maps 2001
- Northwest Regional Planning Commission Regional Plan 2014

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

Plan Update Process

This is an update to the 2008 Town of Montgomery, Vermont Hazard Mitigation Plan. The Plan was originally adopted by the Town on January 21, 2008 following notice from FEMA Region 1 that the plan was “Approved Pending Adoption”. NRPC staff has worked with the Town to update the Plan.

The Northwest Regional Planning Commission (NRPC) coordinated the Montgomery Local Hazard Mitigation Plan update process. During the process, municipal officials were interviewed including the Disaster Preparedness and Emergency Management Director, Greg Lucas, Selectboard member, Mark Brouillette, Road Commissioner, Michael Snider, Public Works, Selectboard Chair, Charlie Hancock. The interviews identified commonalities related to natural, man-made hazards and identified key long and short-term strategies/activities to reduce risks from these hazards. Preparation of the meeting included a review of the Montgomery Municipal Plan, the Montgomery Hazard Mitigation Plan, Montgomery Zoning Regulations and Geomorphic Assessments along the Trout River. Information from these sources is incorporated into the various sections of this plan.

The first meeting was held with the hazard mitigation committee on December 9, 2015 at the Northwest Regional Planning Commission. The committee reviewed the previous plan, including the risk assessment section, provided updates to the status of mitigations actions, discussed hazard mitigation planning and disaster resilience initiatives. Outcomes included updates to the types of hazards the town was subjected to and what they believed the top hazards were, update of progress on past mitigation actions from the 2008 plan, identification of mitigation projects and strategies for implementation. The meeting was publicly warned, however no one other than committee members attended.

A second hazard mitigation committee meeting was held on September 29, 2016 at the Montgomery Public Safety Building. Participants reviewed the draft LHMP, reviewed the town’s policies and current mitigation actions, and identified mitigation goals and new mitigation projects. The meeting was publicly warned but no members of the public were present. After this final committee meeting, NRPC staff communicated with committee members on an individual basis to gather final pieces of information, and the draft plan was finalized. The final draft plan was distributed to the entire committee for their review.

- Copies of the draft plan were made available to the public at the Town Office from February 16, 2017 to March 2, 2017 for review and comment.
- The public was invited to comment on the draft plan update via a public notice that was circulated in the local newspaper County Courier, the Town’s website, the NRPC newsletter and NRPC website. This opportunity served to make the public aware where they can find hard copies to review or request either hard copies or digital format. Instructions were also included to direct comments to Shaun Coleman, Senior Planner at Northwest Regional Planning Commission either by email, phone or fax.
- The draft plan update was circulated via email from to the Planning Commission and Selectboard for review and comment.
- Copies of the draft plan update were sent to the Town Clerk’s in Richford, Bakersfield, Enosburgh, Belvidere, Eden, Lowell, and Westfield for review and comment. A copy of the plan was also sent to Vermont State Hazard Mitigation Officer for review.

The Richford Town Clerk, Enosburgh Town Clerk and Lowell Town Clerk acknowledged receipt of the plan but that was all. No public comments were received. The Montgomery Fire Department and Public Works Department provided some updated information regarding department resources and capabilities. None of the comments contained or suggested new mitigation strategies or actions.

The draft was then finalized and submitted to Vermont Division of Emergency Management and Homeland Security (DEMHS) and FEMA for review. After receiving FEMA’s “Approval Pending Adoption”, the plan will go before the Selectboard for adoption.

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.

Additionally, continuing efforts will be made to outreach to businesses, 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.

The plan has been reorganized with the following sections updated/added during the process:

Section of Plan	Changes Made
1. Introduction	None.
2. Purpose	Purpose explains benefits of plan. Note: Section 2 was Methodology. Methodology Section was renamed to Planning Process and moved to Section 4. Methodology for original (2008) LHMP was removed.
3. Community Profile	Census data and other information updated with information from Municipal Plan and US Census. Maps added.
4. Planning Process	Additional details on process including: names of individuals involved, meeting locations and dates, plan update process, added list of sections updated, and table on status of the town’s current mitigation actions added.
5. Community Hazard Inventory and Risk Assessment	List of hazards was consolidated. Risk assessment table added, local hazard information updated, data tables added. Maps added.
6. Assessing Vulnerability	Added maps and more information on SFHA, Repetitive Loss Properties, updated critical facilities, updated market value of structures, updated NFIP participation information and added development trends data.
7. Mitigation Strategy	Updated Mitigation goals, cost-benefit, updated town policies and plans table and updated language on Flooding and Development Regulations.
8. Plan Implementation, Monitoring & Evaluation	General updates including details on routine plan

	maintenance and methods to continue public involvement.
9. Appendices	Maps updated with new data, tables updated, sources updated.

Progress Since 2008

The plan update was revised to address changes in priorities however the focus remains on flooding, severe winter storms and severe thunderstorms. Many of the actions identified in the previous plan were completed or were determined to be response actions and not mitigation actions. Changes in staff and local elected officials have brought a change in priorities. The Town’s overall mitigation goals have remained consistent and supported with the adoption of a new River Corridor Protection bylaw. New vulnerabilities were identified and are listed in the Prioritized Mitigation Action Table in Section 7. The following table provides an overview of Montgomery’s local hazard mitigation actions from the 2008 along with their current status. Note that mitigation actions which are completed have been deleted from the Mitigation Actions & Projects Table in Section 6.6 of this plan.

Status of Hazard Mitigation Actions

Mitigation Action	Status
Emergency response training for emergency personnel.	This is an on-going “Preparedness” activity and not a “Mitigation” action and has been removed from the plan.
Stream bed maintenance in high risk areas.	Completed: Change in state policy allows extremely limited maintenance along State Route 118 and bridge at junction of West Hill Road and Hill West Road.
Procure and install stationary generator & automatic switch at the Town Water System.	Completed: Equipment purchased and installed.
Replace Fire Dept. pumper with pumper tanker.	Removed: This action was completed and is removed as a “Mitigation” action. Actions regarding upgrading fire department equipment are considered a “Preparedness” activity and part of municipal capital budget.
Replace Public Works Building / Garage with new facility	Completed: New public works facilities are part of capital budgeting process and not “Mitigation” actions. Moving or retrofitting public works building to reduce their risk to hazards is considered “Mitigation” actions.
Gibou Road Culvert replacement Project.	Completed: Failed culvert replaced in 2010.
Flood buyout for residences affected by West Hill Brook flooding at 32 West Hill Road and located at 99 West Hill Road.	Completed: Buyout of 32 West Hill Road completed 2010. Residence at 99 West Hill Road still there and Town has not pursued buy-out with property owners.
Procure and install stationary generator and switch for Public Safety Building.	Removed: This action is considered a “Preparedness” activity and not “Mitigation”. The town is seeking funding for the stationary generator and currently has a portable generator at the site for back-up.
Flood buyout for residences affected by Black Falls Brook flooding/geofluvial erosion at 2166 N Main Street.	Incomplete: The owners have not agreed to a buyout.

Upgrade communications equipment to address gaps in hand-held and cell coverage areas.	In Progress: Town has purchased and installed upgrades to public safety communications equipment to address many gaps. Cell coverage infrastructure is privately owned.
Purchase new ambulance.	Removed: This action is considered a “Preparedness” activity and not a “Mitigation” action. Montgomery Rescue has not met with Selectboard regarding purchasing a new ambulance.
Purchase Excavator for Highway Dept.	Removed: Actions regarding upgrading Highway Department equipment are considered part of the municipal capital budget process and not mitigation.
Purchase Barricades for Highway Dept.	Removed: This action was completed and is removed as a “Mitigation” action. Actions regarding purchasing Highway Department equipment are considered part of the municipal capital budget.

5. RISK ASSESSMENT

Identifying hazards, profiling hazards, estimating losses and assessing vulnerability

In the last LHMP for the Town of Montgomery, the NRPC emergency planner and Town of Montgomery EMD collected data and compiled research on hazards including : severe winter storm /ice storm, flooding / fluvial erosion, thunderstorms (high winds, lightning, hail), loss of electrical service, structure fire, hazardous materials, drought, telecommunications systems failure, tornado, earthquake, major fire – wildland, civil disturbance, terrorism/WMD. Research materials came from local, state and federal agencies including FEMA, NOAA, NCDC and 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.

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 state examination was considered sufficient in justifying the time spent on the analysis.

Hazard ide notification 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 % Community Impacted:

0. Negligible: < 10% of properties damaged.
1. Limited: 10% to < 25% of properties damages/Loss of essential facilities/services for up to 7 days/few (<1% of population) injuries possible.
2. 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.
3. Catastrophic: > 50% of properties damaged/ loss of essential facilities/services for > 14 days/Severe (> 10% of population) injuries/multiple deaths possible.

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 (209 out of a possible high of 1,200).

Vulnerability Scores

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.

The combination of the impact of the hazard and the frequency was used to determine the community vulnerability (risk score) as HIGH, MODERATE or LOW. The vulnerability classifications based on risk scores 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 within Franklin County but the degree of impact varies, so a *highly likely* flood with *critical* or *catastrophic* impact rates the community vulnerability as HIGH. A 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.

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 median value of a home in Montgomery is \$163,100 according to the 2009 to 2013 Census estimates.¹

A full summary of hazards and impacts is provided in Table 5.1.

Table 5.1 Summary of Hazards and Impacts for the Town of Montgomery

Hazard Type	Frequency Of Occurrence	Impact/Magnitude	Risk	Estimated Potential Losses (Dollars)	Vulnerability
Severe Winter Storm / Ice Storm	Highly Likely	Limited to Catastrophic	Moderate to High	n/a	Roads, bridges, commercial and residential structures, seasonal homes, public buildings, (Town Office, PSB, PWB, Rec Center, Library, cemeteries), school, church, and utilities.
Flooding / Fluvial Erosion	Highly Likely	Limited to Catastrophic	Moderate to High	\$2,935,800	Loss of road access, power loss, telecommunications loss. Roads, bridges, commercial and residential structures, seasonal homes and utilities.
Severe Thunderstorm (High Winds, Lightning, Hail)	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.

¹ 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.

Loss of Electrical Service	Rare	Limited to Critical	Moderate	n/a	Pubic building (Town Office), church, utilities, residential and seasonal homes, commercial structures, including commercial farms.
Structure Fire	Unlikely	Limited	Low	\$489,300	All structure types especially those lacking early detection systems.
Hazardous Materials	Unlikely	Limited	Low	n/a	Residential and seasonal homes, commercial structures, public buildings including Town Office, Public Safety Building, Public Works Building/Garage, Recreation Center, Library Buildings, State Garage, church, school, utilities, and the environment.
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 (e.g. Water Reservoir and Wastewater Treatment Plant, Town Office, Public Safety Building).
Telecommunication Systems Failure	Rare	Limited	Low	n/a	Residential structures, seasonal homes, commercial, public buildings (e.g. Town Office) elementary school, utilities. Special needs populations.
Tornado	Rare	Limited	Low	\$3,443,483	Falling limbs and/or trees, power loss, telecommunications loss. Structural damage to residential and seasonal homes, public buildings (Town Office, State Garage, Public Works Building/Garage, Public Safety Building, Recreation Center, State Garage, 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, Public Works Building/Garage, Public Safety Building, Rec Center, Water Pumping Station, Water Reservoir), utilities.
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, Public Works Building/Garage, Public Safety Building, Rec Center, Water Pumping Station).
Extreme Temperatures*	Rare	Limited	Low	n/a	Fauna, public health.
Hurricane*	Rare	Limited	Low	n/a	Local and state transportation networks. Residences, businesses, Town Office, State Garage, Public Works Building/Garage, Public Safety Building, Rec Center, Water Pumping Station and Elementary School.

Infectious Disease Outbreak*	Rare	Limited	Low	n/a	Fauna, public health.
Invasive Species*	Rare	Limited	Low	n/a	Agricultural crops, forests.
Rock Cuts*	Rare	Limited	Low	n/a	State highway 242.
Nuclear Power Plant Failure*	Rare	Limited to Catastrophic	Low	n/a	All flora and fauna. Public health, Agriculture.
Rockslide/Landslide	Rare	Limited	Low	n/a	State Highways 242 and 118.

*Has never occurred.

All the hazards identified in the state hazard mitigation plan were considered. Several of the hazards were studied in depth in the previous Montgomery Hazard Mitigation Plan are summarized in table 5.1. The Committee decided it is not feasible to study each in depth again as many of the hazards were considered unlikely or rare. The hazards not profiled in this plan update are considered to be unlikely or rare in the Town of Montgomery and therefore will not be profiled in this plan update. Those hazards that are not considered in the local plan may have been profiled in the State Hazard Mitigation Plan. The hazards not addressed in this plan update along with the justification for not including them are outlined in the following table. The asterisk * denotes that the hazards were profiled in the previous LHMP for Montgomery.

Hazard Not Profiled	Justification
Loss of Electrical Service *	Rarely occurs and typically a consequence of other hazards such as winter storm (ice storm). Utilities are privately owned and regulated by public safety board. Town has emergency power generators at public safety building, town highway department, school and a portable is available for the Town Hall.
Structure Fire *	There are on average 3 structure fires in town each year according to Fire Department. The Fire Department has set response procedures they follow structure fires. New construction follows state fire marshal codes.
Hazardous Materials *	There are no large scale hazmat storage sites or manufacturing facilities in town. Hazardous materials are mostly propane and gasoline. The Town Fire Departments follows set hazmat response protocols should a spill occur.
Drought *	Has not occurred in memory. Dry conditions occur briefly in late summer if they occur at all.
Loss of Water & Sewer Service *	Most of the Town relies on private wells. None issue.
Telecommunications Systems Failure *	Typically accompanies another hazard such as power loss, winter storm (ice storm). Telecommunications infrastructure that serves town is privately held.
Tornado *	Has never occurred in Town. Generally profiled under high winds.
Earthquake *	A moderate scale earthquake has never occurred in Town. The Town does not lie near any fault zone. Refer to Vermont State Hazard Mitigation Plan for further information regarding earthquake risk.
Major Fire – Wildland *	Large wildland fire complex has never occurred in Town. Small grass fire in spring and summer occur rarely and typically less than an acre in size. Town fire department has response procedures to handle hazard.
Terrorism / WMD and Civil Disturbance *	Has never occurred in Town. Vermont State Police would be primary response agency for any terrorist type incident.
Extreme Temperatures	The Committee agreed that extreme temperatures a non-issue because they are brief in duration if they occur at all. Hot spells in summer and cold snaps in winter are just part of life in Montgomery and not a concern.
Hurricane	The Town is too far north from the Atlantic coast. Vermont does not have any

	coastline. Tropical storms are profiled under High Winds section.
Infectious Disease Outbreak	Has not occurred in Town. Considered rare.
Invasive Species	Considered rare. Town would rely on state to assist individuals and commercial ag producers in mitigation and response to invasive outbreak.
Rock Cuts	None in town.
Nuclear Power Plant Failure	Montgomery is approximately 180 miles northwest from the nearest nuclear power plant which is the recently decommissioned VT Yankee Nuclear Power Plant owned by Entergy Nuclear Vermont Yankee, LLC.
Rockslide/Landslide	Do not occur in Town. No areas where rockslides are an issue. Mentioned in landslide (fluvial erosion).

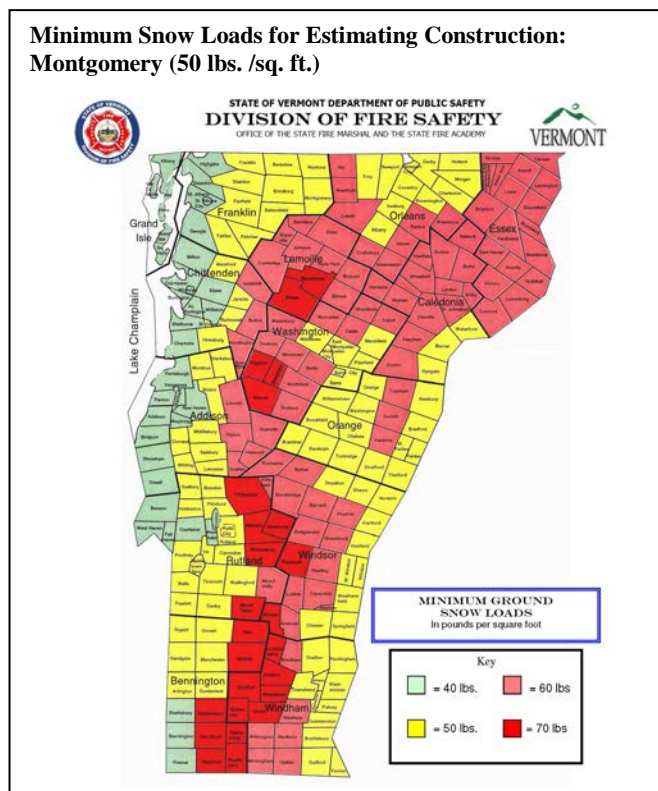
The community has identified and chosen to focus mitigation action items on the following hazards: Severe Winter Storm / Ice Storm, Flooding / Fluvial Erosion, and Severe Thunderstorms (High Wind, Lightning, and Hail). These are the hazards that are most likely to occur in Montgomery Town and are the hazards the town has developed mitigation actions around.

Severe Winter Storm / Ice Storm

Description

Severe winter storms with snow, ice and freezing temperatures in various combinations are fairly commonplace in Montgomery. Such storms are accompanied by strong winds creating blizzard conditions with blinding wind-driven 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. Winter storms can cause roofs to collapse and limit access to areas and buildings around Town. 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.

Impact and Geographic Area of the Hazard



The primary impacts of a winter storms / ice storm typically include disruptions to transportation networks due to fallen limbs and trees, school closings and occasionally telecommunications and power outages. 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.

Winter storms / ice storms affect the entire Town and generally cause disruptions to public and private services. Construction standards for snow load (see map below) indicate that structures in Montgomery should be built to withstand loads of 50 pounds per square foot. This would indicate an average depth of snow of 40 inches or 10 inches of ice on a square foot of roof surface. At that point, design standards would be exceeded and the structure runs the risk of collapse. Given this standard, a snowstorm which dumped 40 inches of

snow or 10 inches of ice would likely result in a few collapsed roofs, especially on structures which are not built to these standards.

The primary impacts of an ice storm typically include disruption to transportation networks due to fallen limbs and trees, school closings and occasionally telecommunications and power outages. 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.

Vulnerable populations, such as the elderly, those dependent on medical equipment and specialized health or physical care, are at risk to all types of winter storms. Also at risk are farms and livestock. Barns can collapse due to heavy snow and ice loads. Dairy cattle are susceptible to mastitis² if they are unable to be milked. Many larger dairy farms have stationary or portable PTO driven generators as back-up power for automated milking equipment. Also at risk are people who use electric heat in their homes when associated power outages occur.

Extent and Probability

The National Weather service defines a blizzard as “a storm which contains large amounts of snow or blowing snow, with winds in excess of 35 mph and visibilities of less than 1/4 mile for an extended period of time (at least 3 hours). Some of the worst historical storms in Montgomery have left snow depths of 14” (March 2001), wind speeds up to 40 mph (January 1998), and ice accumulations of 2-4” (January 1998 and December 2013).

Winter storms / ice storms occur annually in 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.

Burlington, Vermont					
Top 10 Fall Snowfall Totals					
Sep-Nov					
Highest			Lowest		
Rank	Snowfall	Year(s)	Rank	Snowfall	Year(s)
1	24.0"	1900	1	0	2009/1948/1937/1915
2	23.0"	1921	2	0.1"	2004
3	21.9"	1906	3	0.4"	2010/1953/1930
4	20.4"	2002	4	0.5"	2003/1946/1941/1934/1918
5	19.4"	1910	5	0.7"	1999/1960/1894
6	19.2"	1971	6	0.8"	1982
7	18.8"	1968	7	0.9"	1988/1929
8	16.1"	1997	8	1.0"	1931
9	16.0"	1977	9	1.3"	1964
10	15.6"	1969	10	1.4"	1939

Source: National Oceanic and Atmospheric Administration

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. Impacts to future populations, residences, new buildings, critical facilities and infrastructure are anticipated to remain the same.

Burlington, Vermont					
Top 10 Winter Snowfall Totals					
Dec-Feb					
Highest			Lowest		
Rank	Snowfall	Year(s)	Rank	Snowfall	Year(s)

² 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.

The Town is equipped to handle most winter emergencies, including maintaining road accessibility through various snow and tree debris removal equipment. The Town has access to private machinery, including bulldozers, plows, ATVs and snowmobiles, should they be needed in the event of an emergency. Heavy wet snows occurring during early fall and late spring and ice storms in the winter months are the cause of most power failures.

1	103.4"	2007-08	1	18.4"	1912-13
2	97.9"	2010-11	2	20.4"	1979-80
3	96.9"	1970-71	3	21.9"	1928-29
4	90.1"	2009-10	4	23.6"	1936-37
5	81.7"	1965-66	5	24.0"	1898-99
6	80.7"	2003-04	6	25.0"	1904-05
7	80.0"	1957-58	7	25.6"	1940-41
8	79.4"	2008-09	8	26.3"	2011-12
9	78.6"	1946-47	9	27.0"	1900-01
10	75.7"	1969-70	10	27.4"	1960-61

Source: National Oceanic and Atmospheric Administration

Past Occurrences:

According to the National Climate Data Center, there have been 81 winter storms events affecting eastern Franklin County, Vermont including Montgomery since January 1, 1997 totaling approximately \$1,097,500 in property damages and no deaths in the region. Additionally, there were 3 severe ice storms in the region causing \$2,500,000 in property damages and no deaths.

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.

Burlington, Vermont					
Top 10 Spring Snowfall Totals					
Mar-May					
Highest			Lowest		
Rank	Snowfall	Year(s)	Rank	Snowfall	Year(s)
1	52.7"	1933	1	0.1"	1945
2	47.8"	2001	2	1.0"	1903
3	45.7"	1971	3	2.0"	1910
4	37.7"	1974	4	2.7"	1927
5	36.4"	1916	5	3.1"	1934
6	36.1"	1997	6	3.2"	1991
7	34.4"	1994	7	3.9"	1946
8	33.9"	1983	8	4.0"	1905
9	31.0"	2007/1972	9	4.1"	1915
10	30.1"	2011	10	4.2"	1921

Source: National Oceanic and Atmospheric Administration

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 Storm of 1998 (FEMA-1201-DR-VT), but the weather was more akin to a traditional winter storm than an ice storm.

On December 22, 2010, Vermont received a Presidential disaster declaration (DR 1951) to supplement state and local recovery efforts in the areas struck by severe storms during the period of December 1-5, 2010.

FEMA’s public assistance funds were made available to affected counties including Franklin County.

During December 20-26, 2013 (DR-4163) a wide-spread low pressure system that brought snow and freezing rain through Ontario, Quebec, and Northern New England. These areas experienced an ice storm that brought wide-spread power outages. Many Towns throughout Franklin County, Vermont were affected by the ice storm. Vermont Electric Cooperative responded to over 60,000 customer outages during the week and estimated costs of restoring power at \$7,400,000. In Montgomery, the highway department was active keeping roads open and removing ice damaged trees and limbs from local roads. Several residents were without power for several days.

The Town’s Mitigation Committee classified severe winter storms / ice storms to be highly likely each year. Every winter there is a winter event where Town residents will have to address snow and ice build-up on personal property and the Town’s public works department will have to ensure the roads remain clear of snow and ice.

Flooding / Fluvial Erosion

Description:

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. Fluvial erosion is the destruction of riverbanks caused by the movement of rivers and streams. This occurs when the stream is unstable and has more energy than is needed to transport its sediment load, due to channel alterations or runoff events that increase water speed in the channel. Historic land uses along rivers and streams, including floodplain encroachments and removal of vegetation have increased the risk of fluvial erosion.

Impact and Geographic Area of the Hazard

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.

Fluvial erosion hazard mapping was released by the VT Agency of Natural Resources (ANR) in early December 2014. This mapping will assist municipalities in developing bylaws and effective mitigation strategies to regulate development within fluvial erosion hazard zones. Montgomery has been proactive in developing a river corridor bylaw, which is included with their zoning regulations. This bylaw is considered interim for the river corridor criteria set by Vermont Agency of Natural Resources and Vermont Division of Emergency Management and Homeland Security (DEMHS).

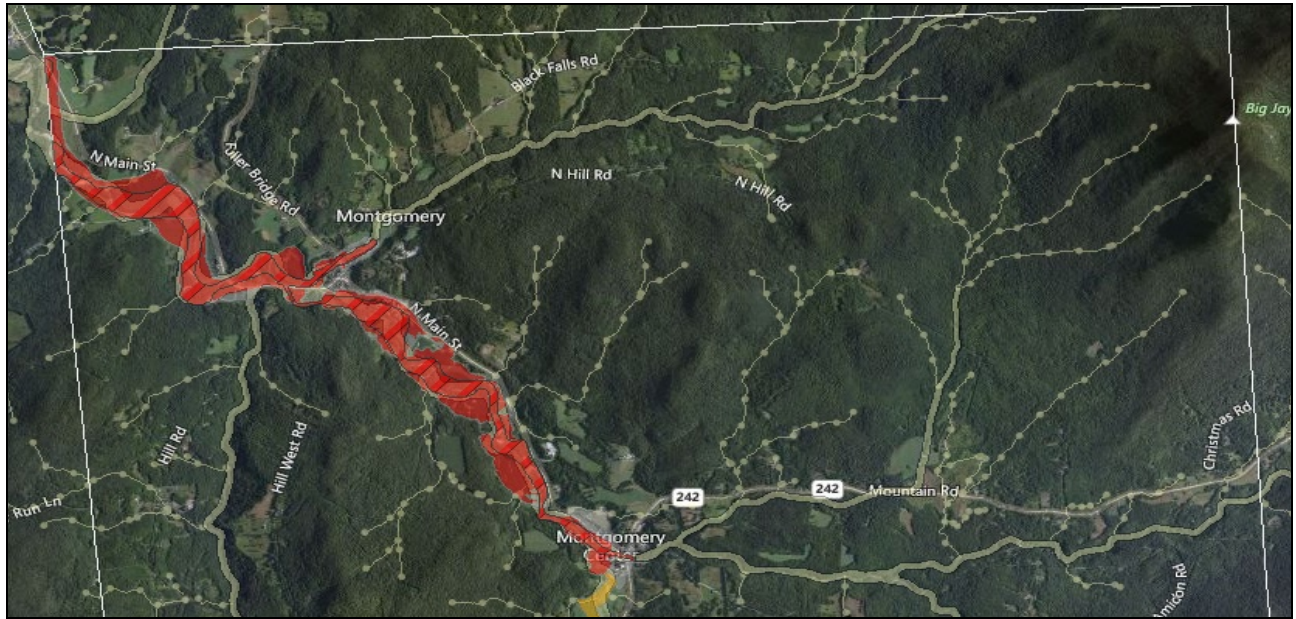
Floodplain/River Corridor Mapping

The following maps were created using the Vermont Agency of Natural Resources (ANR) 'Natural Resources Atlas' which is an online mapping tool. The maps depict the River Corridors that VT ANR has designated and special flood hazard areas (SFHAs) that FEMA has mapped. It should be noted that the current map effective date (as of this plan writing) for the Flood Insurance Rate Maps (FIRMS) for Montgomery is July 5, 2001.

The below map is of the northern half of the Town of Montgomery. The orange shaded areas are SFHAs, red areas are FEMA Floodways, and the white shaded areas are the ANR River Corridors. The red floodway is the Trout River. The Trout River flows into the Missisquoi River at its confluence in East Berkshire just north east of Town. There is an additional floodway on Black Falls Brook at its confluence with the Trout River in Montgomery. This area sees flooding on a semi-annual basis according to the committee. During the 1980's and 1990's and on March 14, 2007, residences along West Hill Road and Hill West Road as well were 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. There was a home buyout that took place recently to remove a residence that was frequently impacted by flooding. There is also a floodway along the Trout River in Montgomery Center. VANR and the Town of Montgomery have done extensive river corridor restoration work along this stretch of river to reduce the risk of flooding to Montgomery Center.

The river corridors span more stream length than the SFHAs. It is worth noting that river corridors are only mapped for streams with watershed of two or more square miles, but they do also apply to the area within

fifty feet of top of bank for all mapped streams in the Vermont Hydrography Dataset³. Areas within mapped river corridors are included in the restrictions set out in Montgomery's floodplain bylaw.



The below map is of the southern half of Montgomery. The orange shaded area is SFHAs and the white shaded areas are the ANR River Corridors. The SFHA in Montgomery Center is the most serious flood hazard in Montgomery which is the floodway along the Trout River. Floodplain and floodway extend northwest through the town and along State Route 118/N. Main Street into neighboring Enosburgh Town. The floodway is the area of the floodplain that accommodates moving flood waters; whereas other designated A and AE zone SFHAs accommodate standing floodwaters. Therefore, intrusions in the floodway are prohibited. The River Corridors shown in the below map extend to much more stream length than the SFHA.

³ USGS houses the National Hydrography Dataset, out of which you can extract data by state < <http://nhd.usgs.gov/>>



Flash floods typically occur in high elevation drainage areas as a result of summer thunderstorm activity. Flash flooding can also result from ice dams. The one location in town where ice jams do occur is at the junction of West Hill Road and Hill West Road and VT118. The state owned bridge in this area is too low or close to the streambed according to VTrans engineers and causes ice to build up by restricting the flow underneath. The state and town work together to remove ice buildup under the bridge before the road is threatened. This hazard area falls under the state's jurisdiction.

Infrastructure and structures along higher elevation streams and drainage areas are most susceptible to damage from flash flooding. Drainage ditches and culverts are the biggest concern for local flash flooding events. Areas in Montgomery that are particularly susceptible include West Hill Road, Black Falls Brook Road, Hazen's Notch Road, Longley Bridge Road and Amidon Road. Several culverts need to be replaced.

Much of Montgomery Center lies in the floodplain but there is generally minimal damage when flooding conditions occur. Many buildings are built outside the floodplain for the most part, although many portions of private properties, mostly lawns, are in the floodplain and may be damaged. There has been considerable investment made in Montgomery Center to flood proof properties against flooding

A GIS based overlay analysis was conducted using FIRM data with the Vermont E-911 site data of structure locations. The results found that there are ninety (90) structures within the 100 or 500 year flood plain in Montgomery. Sixty-eight (27) are single family residential units, one (1) is a multi-family residential unit, seven (7) are mobile homes, three (3) are inns and ten (10) are classified as commercial, one (1) is a commercial farm, one (1) is a house of worship and two (2) are classified government buildings (including public safety building and old town office) and (1) is a utility. This represents 10% of all structures in the community.

The median value of owner occupied housing units in Montgomery is \$163,100. Estimating flood damage of the 10% of structures with 20% damage is \$2,935,800. Cost of repairing or replacing the utilities, roads, bridges, culverts, and contents of structures is not included.

Extent / Probability

Flash floods, rain storms and fluvial erosion occur annually. According to the National Climatic Data Center, there have been 14 recorded flash flood events and 28 flood events causing approximately \$9,605,000 and \$193,000 and 0 deaths respectively in eastern Franklin County between 1996 and 2016.

Flash floods typically occur during summer when a large thunderstorm or a series of rain storms result in high volumes of rain over a short period of time. Higher-elevation drainage areas and streams are particularly susceptible to flash floods. Flash floods are likely in Montgomery, and potential damage to major transportation corridors Route 118 and Route 242 could limit access to town. Flooding and fluvial erosion are considered highly likely by the town.

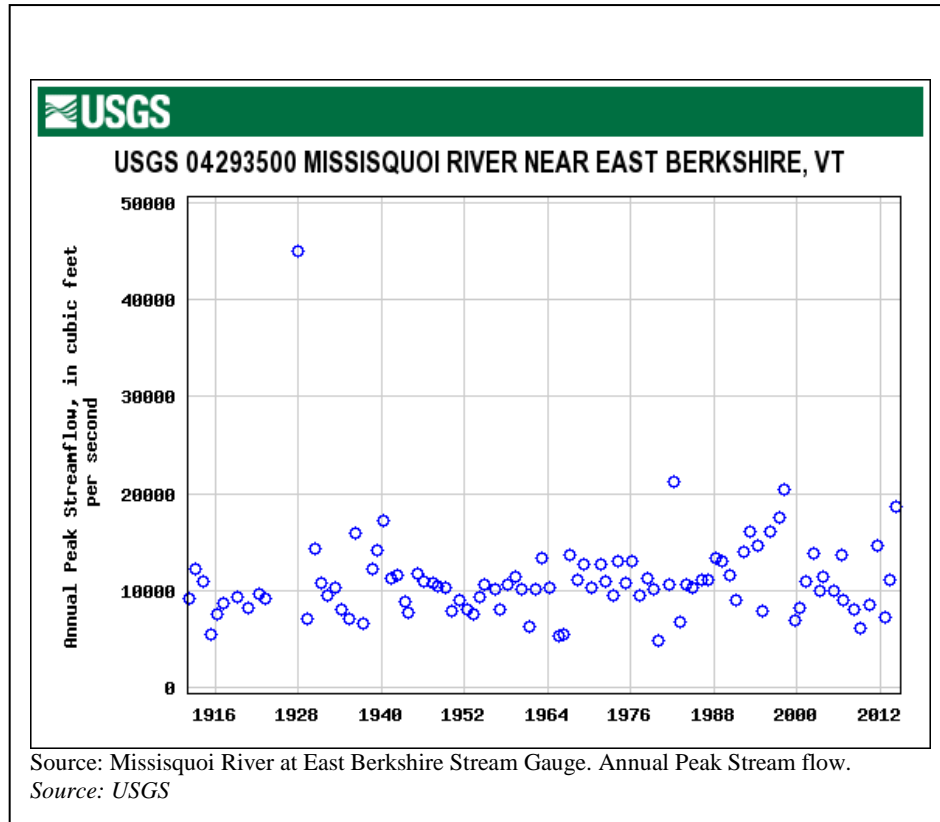
There are no stream gauges on the Trout River, South Branch or Black Falls Brook, which are the three watersheds that lie within

Montgomery. The Trout River drains into the Missisquoi River in East Berkshire. This is the closest gauge to Montgomery and the highest recorded measurement was 23.10 feet, which was measured on November 3, 1927. Average height for this reach is about 12.59 feet.

Extent for fluvial erosion: Following the Agency of Natural Resources geomorphic assessment data for fluvial erosion hazards, the Trout River corridor in Montgomery Village was given a Very High risk rating. Comstock Bridge Road is the area that is at greatest risk in the village. There are three residences and one commercial business that could be impacted by stream channel erosion in this area. The Trout River corridor in Montgomery Village is classified with an extreme risk rating for fluvial erosion. There are 20 residences, 4 commercial sites and the Town Hall that are at risk from fluvial erosion in this area. Extent information in terms of area measurements is unavailable even for the most significant areas where erosion is a concern.

Past Occurrences:

Floods of large magnitude occurred in Montgomery in 1888, 1895, 1927, 1973, 1976, 1983, 1997 and 2011. 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 November 3-4, 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 and Irene in 2011



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.

“It was an extremely localized storm which flooded Montgomery. Other towns such as East Berkshire, Hyde Park, Wolcott, Eden and Hardwick all suffered extensive road damage. Houses were damaged in the township of Enosburg and in the community of Enosburg Falls the Missisquoi River flooded the wastewater treatment plant. But Montgomery was by far the hardest hit with damage estimated in the millions. Montgomery Disaster Command News reported in mid-August that “FEMA inspectors had visited 76 locations (13% of all 613 homes) in Montgomery. Of these, four had been totally destroyed, 59 had lost furnaces, 37 septic systems were destroyed, 32 buildings sustained significant structural damage, 35 vehicles were destroyed, 8 had hazardous materials contaminations and 27 had lost appliances.”⁴ Those numbers would grow over time.” (Montgomery Town History, 3rd edition).

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 other. 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.

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.

A two day heavy rainfall event on May 18 and 19, 2006 brought of 3 to 5 inches of rain in Franklin County with locally more than 6 inches along the western slopes of the Green Mountains. Heavy rainfall produced flooding within the Trout River basin, especially in the Town of Montgomery. Numerous roads were flooded and several culverts were 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.

From June 14 - 17, 2008, a series of storms affected the entire state (DR 1778). Stronger storms on Monday June 16 produced up to 1 inch hail. These storms also produced heavy rainfall, but were moving more quickly. No flooding resulted. On Tuesday June 17th strong thunderstorms produced pea sized hail and heavy rain in the Trout River basin in northwest Vermont. Flash flooding occurred in the eastern parts of Franklin County.

The year 2011 was a record year for flooding in the state of Vermont. The first floods occurred over a two-week period in April and May of 2011 (DR 1995, 4043). These floods impacted the northern half of the state, including the counties of Addison, Chittenden, Essex, Franklin, Grand Isle, Lamoille, Orleans, Washington, and Windham. The damage totaled over \$1.8 million in FEMA assistance. In the spring, heavy rains in late March/early April on top of a deep late season snowpack resulted in riverine flooding and sent Lake Champlain well over the 500-year flood elevation breaking the 140-year-old peak stage elevation. Additional spring runoff events resulted in Lake Champlain being above base flood elevation for more than a month.

⁴ Montgomery Disaster Command News, Vol.6 August 14, 1997, Page 2.

High lake levels coupled with wind driven waves in excess of 3 feet resulted in major flood damages for shoreline communities.

Additionally, flooding and fluvial erosion caused by Tropical Storm Irene was catastrophic in many parts of southern and central Vermont, destroying property and taking lives, and again eliciting a disaster declaration (DR-4022). Fortunately, Montgomery only experienced heavy rainfall throughout the day and evening.

According to FEMA's National Flood Insurance Program as of March 31, 2014, the Town of Montgomery has 31 policies in force with \$4,867,900 in insurance in-force and \$37,639 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.

Flooding is a reminder to Montgomery residents of the power inherent in nature 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 other. 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.

Northern Vermont experienced record rainfalls during the spring of 2011 (DR1995 and DR4043). High precipitation combined with snowmelt resulted in prolonged saturated conditions and significantly elevated and/or perched water tables. The saturated ground and high water table conditions contributed to slope instability and landslides at several locations throughout northern Vermont.

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.

Severe Thunderstorms (High Winds, Lightning, Hail)

Description

Thunderstorms are caused by an updraft, which occurs when warm, moist air rises vertically into the atmosphere. The updraft creates a cumulus cloud, which will eventually be the thunderstorm cloud. Severe thunderstorm winds are brief in duration and bring gust in excess of 50 mph. Severe thunderstorms are capable of producing high winds, large hail, lightning, flooding, rains, and tornadoes. Microbursts are downdrafts from thunderstorm that may reach speeds in excess of 80 mph. (State of Vermont Hazard Mitigation Plan 2013).

The National Weather Service (NWS) issues a wind advisory when winds are sustained at 31 to 39 mph for at least one hour or any gusts 46 to 57 mph. Winds of 58 mph or higher cause the NWS to issue a High Wind Warning. In Vermont, high winds are most often seen accompanying severe thunderstorms. In fact, straight-

line winds are often responsible for most of the wind damage associated with a thunderstorm. These winds are often confused with tornadoes because of similar damage and wind speeds.

Impact and Geographic Area of the Hazard

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.

Beaufort Number	Wind Speed Range (mph)	NOAA Terminology	Description
0	0	Calm	Smoke rises vertically.
1	1-3	Light air	Direction shown by smoke but not by wind vanes
2	4-7	Light breeze	Wind felt on exposed skin; leaves rustle.
3	8-12	Gentle breeze	Leaves and small twigs in constant motion; wind extends light flag.
4	13-18	Moderate breeze	Raises dust and loose paper; small branches are moved.
5	19-24	Fresh breeze	Small trees sway.
6	25-31	Strong breeze	Large branches in motion; umbrellas used with difficulty
7	32-38	Near gale	Whole trees in motion, inconvenience felt when walking against the wind.
8	39-46	Gale	Breaks twigs off trees. Cars veer on road. Generally impedes progress
9	47-54	Severe Gale	Light structural damage.
10	55-63	Storm	Trees uprooted. Considerable structural damage
11	64-73	Violent Storm	Widespread structural damage.
12	74-95	Hurricane	Considerable and widespread damage to structure

High winds track generally occur from weather systems that track west to east over the Champlain Valley. High winds are common along the Trout River corridor in the eastern part of Town, as well as the foothills of the Green Mountain Range on the eastern border of Town. Additionally, strong winds occur in in the hills of the southwest part of town known as the Deep Gibou.

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 are a hazardous threat to the Town and most commonly accompany other storm events. Violent windstorms are possible in Montgomery. The Town is far inland and is unlikely to receive a direct hit from a hurricane, however high winds and hail storms have occurred in Town as weakened tropical storms track near the region. High winds associated with severe thunderstorms affect forested areas, utility lines and exposed property.

Extent / Probability

There have been 141 thunderstorm events in the region in the past 58 years according to the National Climatic Data Center. Of those, 77 are classified as severe thunderstorms with wind speeds of 50 kts. or

greater. Severe thunderstorms can cause power outages, property damage, transportation interruptions, affect businesses and can cause loss of life. 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. Micro burst have occurred almost annually in the past 10 years according to project participants.

Lightning strikes in western Franklin County average between 4-6 strikes per square mile each year based on data collected by NASA satellites between 1995 and 2002. Within the Town of Montgomery, these numbers would average between 224 -340 lightning strikes per year. There is very little data on lightning strikes in Town. . There are rare instances where lightning has caused barn fires and grass fires during dry periods. Damages from lightning could come in the form of destroyed electrical appliances, structure fires, or wildland fires. Private properties in Montgomery have experienced lightning strikes. High elevations and areas around bodies of water such as lakes and ponds are more susceptible. The Town’s Highway Department has appropriate debris removal equipment.

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.

Hailstorms usually occur in Vermont during the summer months and generally accompany passing thunderstorms. While local in nature, these storms are especially significant to area farmers, who can lose entire fields of crops in a single hailstorm. Large hail is also capable of property damage. There have been 64 recorded hail events in Franklin County between 1958 and 2015. Hail is considered a relatively infrequent occurrence. Those hail events that do occur tend to be highly localized and limited to a relatively small area and typically occur with thunderstorms.

It is extremely difficult to predict where the event will occur and the type of associated structural damage. The estimated damage from a severe thunderstorm event occurring to 10% of all structures in Town with 20% damage is \$3,443,036. The estimated cost does not include building contents, land values or damages to utilities. There are no known deaths that have occurred in Town due to severe thunderstorms.

Past Occurrences

Severe Thunderstorms in Montgomery: Source NCDC					
Dates	Type	Description	Area	Magnitude	Property Damages
3/10/2002	High Wind s	A cold front moved across the area from Canada and brought strong winds. Trees were blown down around Town.	Franklin County	54 kts.	\$5,000
5/30/2002	Thunderstorm / Hail	A cold front moved southeast from Canada and triggered late afternoon and evening thunderstorms. Dime size hail was reported in Montgomery.	Montgomery	0.75 in.	\$0.00
6/9/2004	Thunderstorms High Wind	A cold front tracked slowly across northern New York and Vermont. This front was preceded and accompanied by thunderstorms with damaging winds. Trees and power lines were blown down in many towns including Montgomery.	Franklin County	50 kts.	\$5,000
7/5/2005	Thunderstorms / High Winds	Thunderstorms preceded a cold front that moved into Vermont from Canada. Thunderstorms were severe in Franklin County with dozens of trees blown down damaging cars. Winds were estimated between 58 and 72 mph (between 50 and 63 knots). Power outages were reported in the county.	Franklin County	55 kts.	\$100,000

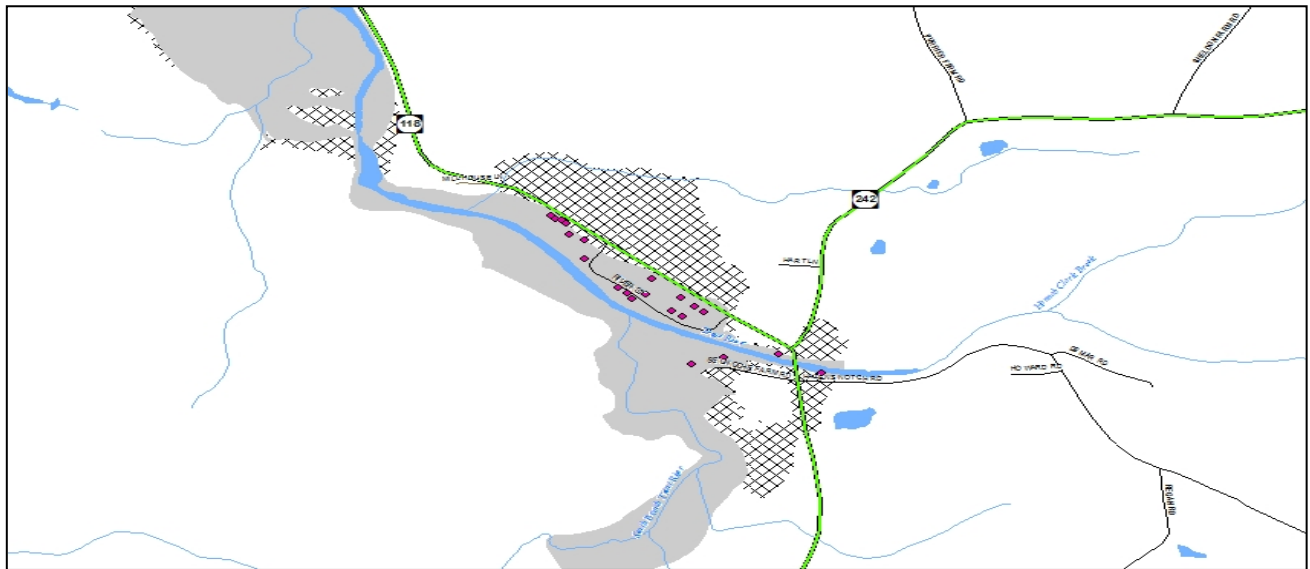
6/19/2006	Thunderstorms High Winds	Thunderstorms intensified during the day as they moved into the Champlain Valley from Canada. These thunderstorms produced severe weather including downed trees.	County Wide	50 kts.	\$10,000
8/16/2007	Thunderstorms High Winds	A cold front moved across the region from Canada and was accompanied by high winds. Many trees were uprooted	State-wide	60 kts.	\$50,000
6/10/2008	Thunderstorms, High Winds	A cold front brought severe thunderstorms to the area. Numerous trees were damaged, downed or uprooted which caused downed power lines and structural damage to numerous buildings and vehicles throughout the state. Tens of thousands of customers lost power due to the storms, with some outages that lasted several days. Numerous trees were down on Route 118 in Montgomery and a power line fell across a truck. No one was injured.	Montgomery	50 kts.	\$10,000
7/8/2008`	Thunderstorms, High Winds.	Several rounds of thunderstorms moved across northern Vermont during the afternoon of July 18th. A developing squall line across the Champlain Valley of New York moved into northwest Vermont by mid-afternoon and continued across the state. Widespread tree and structural damage occurred with this system in Grand Isle, Franklin, Lamoille and Orleans counties.	Northern Vermont	55 kts.	\$50,000
5/26/2011	Thunderstorms High Winds	Unstable air mass travelled across northern Vermont from the west during the late afternoon producing widespread thunderstorms and damaging winds. Many customers were without power due to downed trees on utility lines.	County wide	50 kts.	\$20,000
6/18/2011	Thunderstorms / Hail	A cold front brought scattered thunderstorm activity across Franklin County. A few of the stronger storms produced large hail greater than an inch diameter,	Montgomery	1.00 in.	\$0.00
7/6/2011	Thunderstorms / High Winds	A well-established squall line moved across the state during the afternoon with numerous reports of wind damage as well as lightning strikes. As a result of these storms, more than 15,000 customers in Vermont lost power.	State-wide	50 kts.	\$5,000
9/8/2012	Thunderstorms High Winds	A squall line of severe thunderstorms developed and pushed east into Vermont. There was isolated minor wind damage in the form of large tree branches knocking out powerlines across town.	County wide	50 kts.	\$25,000
10/29/2012	High Winds	Superstorm Sandy brought high winds along the western slopes of the Green Mountain. Much of the state experience 50 knot wind speeds. Strong east winds of 25 to 35 mph, enhanced by downslope from the Green Mountains caused frequent wind gusts in excess of 45 mph with isolated wind gusts to 60 mph along western slope communities. Scattered tree limbs, branches and small trees were toppled by these winds, which accounted for scattered power outages as well.	State-wide	50 kts.	\$10,000
6/1/2013	Thunderstorms High Winds	A weak disturbance, well ahead of a cold front forecast triggered a few scattered thunderstorms. Damaging winds occurred in Montgomery toppling trees in town. There were brief power interruptions.	County-wide	50 kts.	\$2,000
9/11/2013	Thunderstorms / Hail	A weak area of low pressure resulted in a series of thunderstorms that moved across Vermont during the late afternoon and evening. Some of these thunderstorms produced hail and damaging winds	Montgomery	1.00 in.	\$5,000

		that downed trees and utility lines.			
9/11/2016	Thunderstorms / High Winds	A strong front moved into the area from the west generating damaging winds and lightning. Trees were blown down and parts of northern Franklin County were without power overnight.	County-wide	50kts	\$5,000

6. ASSESSING VULNERABILITY

Structures in the SFHA

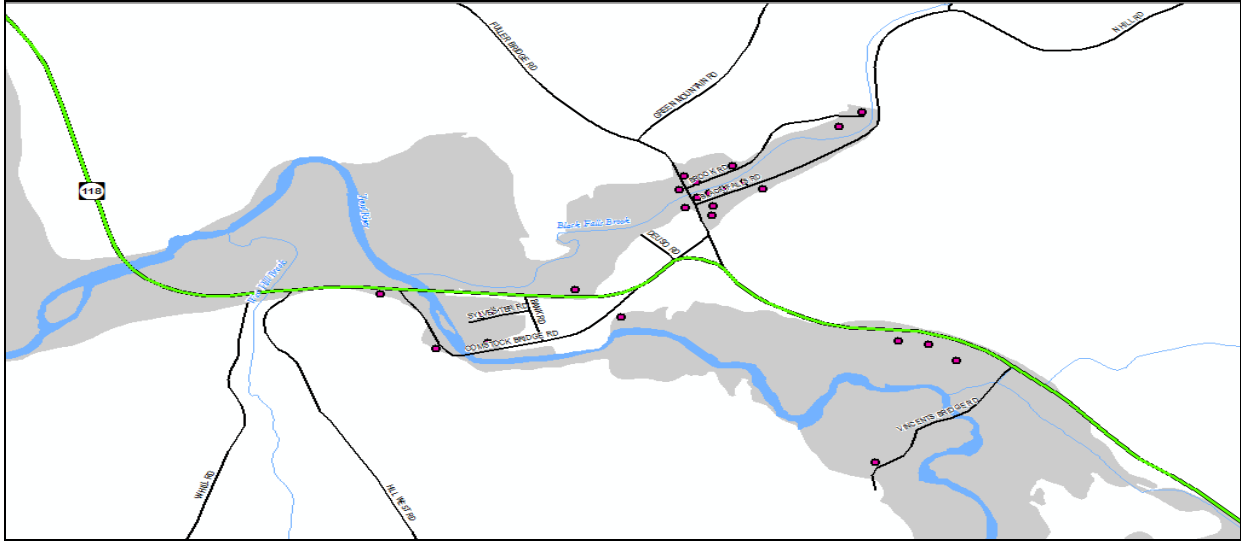
There are approximately 48 buildings within FEMA-designated Special Flood Hazard Areas (SFHAs)⁵. The below map shows structures (purple circles on map below) that are located in the SFHA in Montgomery Center. Twenty-one of the forty-eight buildings are located in Montgomery Center. Fourteen are single



family dwellings, one is a multi-family dwelling, two are lodging/B&Bs, one is a restaurant, two are commercial buildings and one is a commercial farm.

The below map shows structures (purple circles dots on map below) that are located in the SFHA in Montgomery Village near the confluence of Black Falls Brook and the Trout River. Twenty-five in Montgomery Village are located in the SFHA. Fourteen are single family dwellings, six are mobile homes, three are commercial sites, one is a utility and one is the US Post Office.

⁵ Flood Hazard Summary Report for Montgomery, available on VT ANR's Floodready website <<https://anrweb.vt.gov/DEC/FoFReports/>>



Properties within SFHAs, that have a mortgage, are required to purchase flood insurance. Montgomery’s participation in the National Flood Insurance Program (NFIP) gives residents and business owners access to discount flood insurance through the National Flood Insurance Program. Flood insurance can still be purchased privately, however it is more expensive. Development in SFHAs must meet additional construction standards as outlined in Montgomery’s floodplain regulations.

Repetitive Loss Properties

According to the State Hazard Mitigation Officer, the Town of Montgomery has no repetitive loss properties.

The definition of severe repetitive loss as applied to this program was established in section 1361A of the National Flood Insurance Act, as amended, 42 U.S.C. 4102a. An SRL property is defined as a residential property that is covered under an NFIP flood insurance policy and:

- (a) That has at least four NFIP claim payments (including building and contents) over \$5,000 each, and the cumulative amount of such claims payments exceeds \$20,000; or
- (b) For which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.

For both (a) and (b) above, at least two of the referenced claims must have occurred within any ten-year period, and must be greater than 10 days apart.⁶

Critical Facilities

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 treatment plants, pump stations and reservoirs; public safety facilities, government offices, hazardous materials storage sites; church and school.

⁶ FEMA <<http://www.fema.gov/severe-repetitive-loss-program>>

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. The results of the analysis are listed in Attachment B. The community hazard mitigation maps are 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.

Market Value of Structures in Montgomery⁷

	<u>Number</u>	<u>Value Includes Land</u>
Residential Homes	631	\$135,256,400
Seasonal Homes	55	\$4,330,500
Mobile Homes – Unlanded	9	\$184,400
Mobile Homes - Landed	22	\$2,021,300
Commercial	24	\$4,101,900
Commercial Apts	3	\$629,300
Other (Utilities, Woodland and Miscellaneous)	199	\$25,628,000
Total Listed Value	943	\$172,151,800

Participation and Compliance with the National Flood Insurance Program (NFIP)

The National Flood Insurance Program (NFIP) is a voluntary program organized by the Federal Emergency Management Agency (FEMA) that includes participation from 20,000 communities nationwide and 247 Vermont towns and cities. Combined with floodplain mapping and floodplain management at the municipal level, the NFIP participation makes affordable flood insurance available to all homeowners, renters, and businesses, regardless of whether they are located in a floodplain.

FEMA conducted a flood hazard study for the Town of Montgomery in 1980 and was updated in 2001. Flood Insurance Rate Maps (FIRMs) were prepared by FEMA in 1980 and updated in 2001. Flood hazard areas were identified along the Trout River, South Branch of Trout River, Black Falls Brook and tributaries. The FIRMs and Study are available for review at the Montgomery Town Office and on-line at FEMA.gov.

Creation of the Flood Hazard District in the Town’s Subdivision and Zoning bylaws enabled Montgomery to be eligible for FEMA’s National Flood Insurance Program (NFIP), which permits residents within the Flood Hazard District to purchase flood insurance. The purpose of the district is to prevent increases in flooding caused by development in flood hazard area, to minimize future public and private losses due to floods, and to promote the public health, safety and general welfare. The Town is committed to enforcing floodplain regulations and ordinances to be eligible to participate in the NFIP program and protect the people and property of Montgomery by restricting development in flood prone areas. Montgomery is a member in good standing with the NFIP (CID 500056). The latest floodplain ordinance was adopted March 3, 2016.

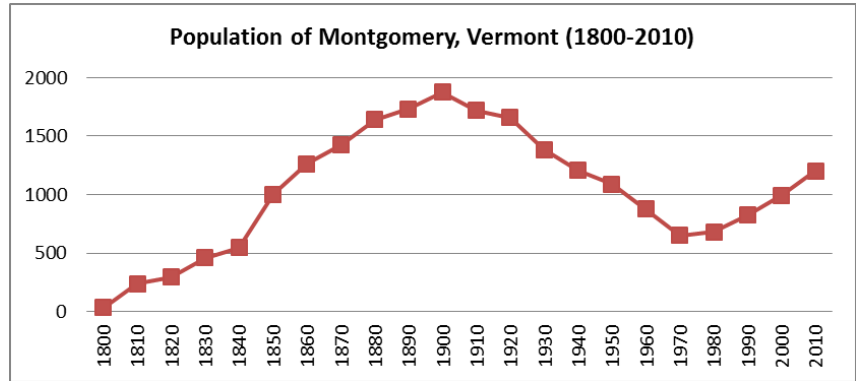
⁷ Town of Montgomery Grand List 2014.

The latest record indicates that there are 31 active NFIP policies in Montgomery. The policies have a total coverage value of \$4,691,800. There have been 21 NFIP claims filed in Montgomery since 1978 totaling \$266,089.

The Town works with the elected officials, the State, the Northwest Regional Commission, and FEMA to correct existing compliance issues and prevent any further NFIP compliance issues through continuous communications, training and education.

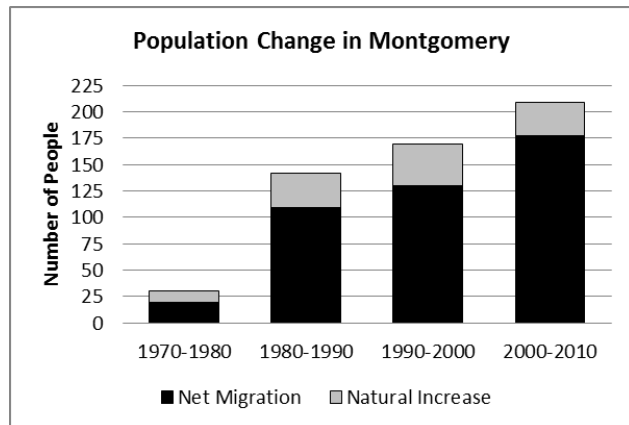
Development Trends

The graph below shows Montgomery’s population grew steadily from the year 1800 to the year 1900 where it peaked. In the early 1900s the population started to see a decline until 1980, where once again it has started to rise moderately.



Data Source: US Decennial Census

The small size of the population base makes long-term forecasting difficult, especially at the local level. Population trends since 1970 show that in-migration, driven in part by continued economic growth and development, will continue well into the next century, but natural increases will level off somewhat, given the overall aging of the population. Since the 1980s, the in-migration is accounting for the majority of the population growth.



Data Source: Vermont Health Department, Vital Statistics

According to the U.S. Census reported population, Montgomery has been growing at a rate of twenty-one percent for the past three decades. The growth in Montgomery has been steadier than the surrounding communities leading up to 2010, and a much higher percent increase than Franklin County from 2000 to 2010 which saw a five percent population increase.

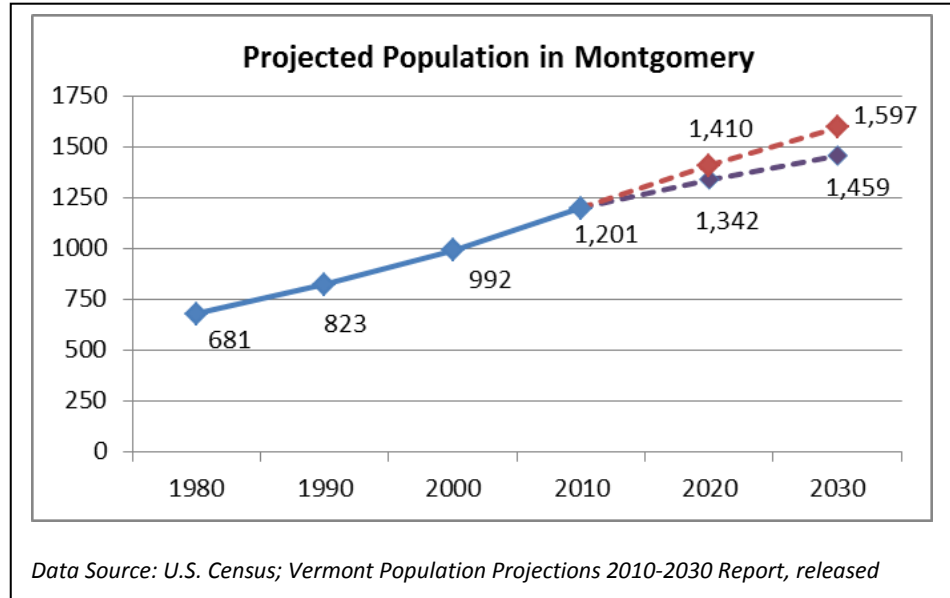
Population projections are based on past trends in birth, deaths and migration which provide reasonable estimates of future conditions. The Vermont Agency of Commerce and Community Development produced a report calculating projections based on past trends from two time periods; the 1990-2000 predict higher growth and 2000-2010 predicts lower growth. Based on these projections, Montgomery could experience continued growth of twelve to seventeen percent by 2020. Franklin County as a whole is projected to see closer to three to nine percent growth by 2020.

Montgomery has zoning bylaws in place that protects high risk areas. Development on slopes above 15% is discouraged in the town plan.

Development is characterized by a concentration of structures and land uses devoted to small-scale commercial, residential, governmental and recreational uses.

The character of the Center and the Village is an important social and economic asset to the community. The Town does not have adequate sewer making the potential for additional development in these two areas problematic. This coincides with Montgomery’s desire to maintain its rural character.

The town sees population fluxes because of the draw of Jay Peak resort in neighboring Town of Jay. However, the town is spread out and has less concentrated infrastructure to accommodate the influx of winter travelers, compared to towns like Stowe and Killington, which also have a huge influx of population during ski season. There is a second home population, because of proximity and access to a ski resort. On a weekend Montgomery can have a large population increase in which case the town’s capabilities are limited for a population of that size. They have a low full time population but a very high seasonal population. This ties up resources and mutual aid is called in if there is an emergency. But for the regular population of locals, they are considered to have more resources than towns of their size in the region.



7. MITIGATION STRATEGY

The Hazard Mitigation Goals were developed by the Committee for the Montgomery Local Hazard Mitigation Plan.

General Goals

- Prevent / reduce the loss of life and injury resulting from all-hazards events.
- Prevent / reduce the financial losses and infrastructure damage incurred by municipal, residential, agricultural and commercial establishments due to disasters.
- Include hazard mitigation planning in the municipal planning process including the Town Plan, Capital Improvement Plan and Local Emergency Operations Plan.
- Ensure the general public is part of the hazard mitigation planning process.

Town Plan (Adopted 2016) Goals & Policies that support Hazard Mitigation

- Provide emergency services and law enforcement to protect the health, safety, and property of local residents
- Conserve Montgomery’s recreational resources, discourage incompatible land uses, and protect the scenic qualities that contribute to recreation

- Consider land needed for community services within the overall land use plan
- To protect the public water supply by restricting inappropriate development in the source protection area
- All telecommunications and electric facilities shall be located in appropriate areas; respecting the integrity of residential areas, aesthetic concerns, and natural resource issues
- Make Town owned buildings as energy efficient as possible
- Encourage the development of renewable energy resources, including the heating of municipal facilities
- Encourage energy conservation by promoting patterns of development that utilize clustering and energy efficient site design whenever possible
- Encourage energy efficiency by making available information regarding groups and organizations in the State, which can provide consumers with information on how to become more energy efficient
- Recognize the collective value in preserving natural resources throughout the town and encourage good land stewardship practices among private landowners in matters of soil health, biodiversity, and water quality
- Ensure the conservation and proper stewardship of significant natural communities found with the town or area of interest
- Limit development on slopes greater than 15% and maintain natural vegetation on slopes
- 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
- Recognizing the community's susceptibility to flooding, new development shall conform strictly to floodplain regulations
- Provide for long-term stewardship and protection of wetlands and waterways that have significant functions and values for rare species habitat, wildlife habitat, or natural communities and prevent additional loss of wetlands within the town
- Promote safe, convenient, economic, and energy efficient transportation systems including public transit options and paths for pedestrians and bicycles

Existing Hazard Mitigation Programs, Projects and Activities

Severe Winter Storm (Ice Storm)

- Town road crew has snow removal equipment.
- Road crews have response equipment to deal with downed trees and branches.
- Fixed emergency generators are located at the Water Plan and School which is also the primary emergency shelter. A mobile generator is available for other sites (PSB, Town Garage, and Pump Stations). The Town would like to purchase a fixed generator for the Public Safety Building.

Flooding / Fluvial Erosion

- Rehabilitation of Bridge No. 36 on TH 10, over Black Falls Brook. Summer 2014.
- Replacement of Bridge No. 24 on TH 35, over Pacific Brook.
- Rehabilitated Bridge No.34 (Hutchins Covered Bridge) on TH27 over the South Branch of the Trout River.
- Rehabilitated Bridge No. 32 (Creamery Bridge) on TH25 over West Hill Brook.
- Upgraded Bridge No.21 on VT118, over the Trout River with new concrete deck.
- Flood buy-out of residential single family home at 32 West Hill Road.

- Consideration of flood buy-out of 2 residential units on lower West Hill Road in Town of Montgomery located at 99 West Hill Road and 84 West Hill Road.
- Fuller Covered Bridge restoration project in 2000 to mitigate damages from flooding from Black Falls Brook. Repairs to truss timber following TS Irene.
- 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 and River Corridor 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).
- 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 values-based river management and demonstration project.
- Streambank tree plantings
 - VYCC installed revetments along Trout River tributary on the Longley property 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).

Severe Thunderstorm (Lightning, High Winds, Hail)

- Road crews have response equipment to deal with downed trees and branches.
- Road crews monitor roadways for obstructions and flooding.
- Town has installed some lightning protection on equipment operated at municipal facilities.
- Highway department has debris removal equipment.
- Emergency backup generator exists for school (designated Red Cross shelter).
- On-going regularly scheduled road maintenance programs (cutting vegetation).

On Going Community Preparedness Activities

- DEMHS approved Local Emergency Operations Plan that is updated annually.
- Continue to identify and equip, as appropriate, emergency operations shelters and centers.
- Fire Department is member of Franklin County International Firefighters Association.
- Town Departments are members for Franklin County Mutual Aid Agreement.
- Active membership in the Local Emergency Planning Committee serving Franklin County.
- Community participates in the Vermont Enhanced 911 System.
- Ambulance Service is seeking funding to replace ambulance.
- School has updated State School Response Guide to handle variety of emergency situations.

- School Board proactive in addressing school safety issues.

Identified Hazard Mitigation Actions, Programs, and Activities

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 actions 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. Actions 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. Recent disasters that have occurred have not caused a change in priorities. The projects have been prioritized as part of the Town’s on-going comprehensive planning process following state land use law.

The following identified programs, projects and activities are future mitigation strategies for the Town of Montgomery. These mitigation strategies have been chosen by the town as the most appropriate policies and programs to lessen the impacts of potential hazards.

Cost-Benefit Analysis

Each project will incorporate a full benefit-cost analysis (BCA) following FEMA’s BCA methodology and latest software to ensure cost effectiveness and maximize savings.

There was a rough cost/benefit analysis done for each action listed in the table. The below cost and benefits tables address the priorities for the mitigation strategies that are stated in the Mitigation Actions Table.

Cost Estimates

High	=>\$100,000
Medium	= \$25,000 – 100,000
Low	=< \$25,000

Benefit Estimates

High	Public Safety
Medium	Infrastructure / Functionality
Low	Aesthetics / General Maintenance

Time Frame

Short term	6 months to one year
Medium term	1 – 3 years
Long term	4+ years

Implementation of the mitigation actions is summarized in the below table, as far as who, when and how they will be carried out. Further details about some actions can be found following the mitigation actions table, in text.

Prioritized Mitigation Actions						
Priority / Score	Hazard / Mitigation Action	Responsibility / Oversight	Time – Frame	Funding / Support	Cost / Benefit	Initial Implementation Steps
High 34	Flooding/Fluvial Erosion Hazen’s Notch Road Culvert Replacement	Selectboard, Public Works Director	Medium – term Started in 2016 and completed by end of 2017	Local funding, , VT Fish and Wildlife Grant	High / High	Action was identified in 2015. Funding secured. Bid contract released in 2016
High 34	Flooding/Fluvial Erosion Deep Gibou Road Culvert Replacement	Selectboard, Public Works Director	. Long-term Start in 2017 and Complete by 2022	Local Funding, VT local Roads Program, HMGP.	High / High	Hydraulic study and permit needed.
High 34	All Hazards Town-wide Bridge and Culvert Update	Selectboard, Public Works Director	Short – term Start in spring 2017 and complete by fall 2017	Local funding, VT Local Roads	Low / High	Secure funding. RFP for contractor to perform inventory.
High 34	Flooding/Fluvial Erosion, Severe Thunderstorm Hannah Clark Brook Road culvert upgrade	Selectboard, Public Works Director	Medium – term Started in 2016 and completed by end of 2017	Local funding, , VT Fish and Wildlife Grant	High / High	Action was identified in 2015. Funding secured. Bid contract released in 2016.
High 34	Flooding/Fluvial Erosion Amidon Road Culvert upgrade	Selectboard, Public Works Director	Medium – term Started in 2016 and completed by end of 2017	Local funding, , VT Fish and Wildlife Grant	High / High	Action was identified in 2015. Funding secured. Bid contract released in 2016
High 34	Flooding/Fluvial Erosion Longley Bridge Road retrofit	Selectboard, Public Works Director	Medium – term Started in 2016 and completed by end of 2017	Local funding, , VT Fish and Wildlife Grant	High / High	Action was identified in 2015. Funding secured. Bid contract released in 2016
High 34	Flooding/Fluvial Erosion West Hill Road Culvert Replacement	Selectboard, Public Works Director	Long – term. Start in 2017 and Complete by 2022	Local Funding, VT local Roads Program, HMGP.	High / High	Hydraulic study and permit needed.

High 34	Flooding/Fluvial Erosion, Severe Thunderstorm Replace Damaged Culvert on Brady Road	Selectboard, Public Works Director	Long-Term Start in 2017 and Complete by 2022	Local Funding, VT local Roads Program, HMGP.	High / High	Hydraulic study and permit needed.
High 34	Flooding/Fluvial Erosion Replace Bridge on Cote Drive	Selectboard, Public Works Director	Long-Term Start in 2017 and Complete by 2022	Local Funding, VT local Roads Program, HMGP.	High / High	Hydraulic study and permit needed.
High 34	All Hazards Culvert Upgrade Hill West Road	Selectboard, Public Works Director	Long-Term Start in 2017 and Complete by 2022	Local Funding, VT local Roads Program, HMGP.	High / High	Hydraulic study and permit needed.
High 32	Flooding/Fluvial Erosion Flood buyout for four residences along Black Falls Brook	Selectboard, Landowner, DEMHS, FEMA	Long-term Start in 2017 and Complete by 2017	FEMA Mitigation Program	High / High	Meet with landowners to discuss buyout option
High 36	Severe Winter Storm / Ice Storm Enhance Public Awareness of the Dangers of Severe Winter Weather	Selectboard, Fire Department	Short term Start in October 2017 and end April 2018	Local funding	Low / High	Identify and distribute educational materials on carbon monoxide poisoning and keeping wood stoves cleaned.
High 36	Severe Winter Storm / Ice Storm Support Power Utility Efforts to Protect Utility Corridors From Ice	Selectboard, Public Works Director, Fire Department	Short term Start in April 2017 and end in November 2017.	Local funding (if needed). Assist with identification of areas of concern.	Low / High	Support power utility standards of identifying utility corridors in need of pruning.
High 36	Severe Thunderstorm Protect critical facilities and infrastructure from lightning damage	Selectboard, Public Works Director, Fire Department	Short term Start in June 2017 end December 2017.	Local Funding	Low / High	Install lightning protection and surge suppression protection on critical facility electronic equipment.

Hazen Notch Road Culvert Replacement: This site is near the intersection with Rosier Road. There is a 4' x 50' boiler tube in place at the site. The culvert is failing. The bottom of the culvert has corroded away. The culvert is no longer channeling water as it should and the road is being undermined. There is a large buildup of material about the inlet as well. The Town recommends replacing the existing corrugated metal



pipe with new precast concrete box culvert with headwall and wing walls in accordance with Bridge and Culvert Standards.

Deep Gibou Culvert Replacement - The existing corrugated metal culvert is undersized for the stream. The site floods during heavy rainstorms. The Town recommends replacing the existing culvert with structure that can channel stormwater effectively. Several homes are affected by the flooding and local traffic is rerouted to bypass the area during flood events.

Update Town-owned Culvert and Bridge Inventory – The Town bridge and culvert inventory following VTRANS / ANR standard has not been updated in over 10 years. The Town would like to seek funding to update the inventory. The inventory would follow the State Standard including location, size, condition, material, etc. The inventory would be a valuable tool for capital planning purposes.

Culvert Replacement on Hannah Clark Brook Road – The site is located near the intersection with Oberland Valley Road. The existing metal open-bottom arch culvert is undersized for the stream hydraulics at the site. The site floods during heavy rainstorms. There are three houses on Hannah Clark Brook Road that could be isolated should the road be inaccessible at the site. This site floods during heavy rain. The Town recommends replacing the existing metal open-bottom arch culvert with new open-bottom culvert with headwall and wing walls in accordance with Bridge and Culvert Standards.

Culvert Replacement on Amidon Road: - The site is on Jay Branch Tributary near the intersection with Montgomery Heights Road. The existing corrugated culvert is undersized and failing. The road along this culvert is too narrow and floods during heavy rainstorms. The Town would like to replace the existing corrugated metal pipe with new precast concrete box culvert with headwall and wing walls.



Longley Bridge Road Retrofit – The site is approximately ¾ of a mile from Route 118. The existing precast concrete culvert is undersized for the stream channel. The culvert is overtopped during high precipitation events. The Town would like to retrofit the existing bridge for the stream hydraulics possibly with channel roughening.

West Hill Road Culvert Replacement - There are two concrete box structures that are undersized and are now deteriorating to erosion and age and need to be upgraded or replaced. The structures are just south of the intersection of Creamery Bridge Road. The rails and deck are in need of replacement due to their age. Stream erosion has caused the footings to shift making these structures a high priority for town to replace.

Replace Damaged Culvert on Brady Road: - The culvert has collapsed. Whenever it rains a section of road gets washed out. The culvert is a 4' x 6' x 20' arch. There is one house that could get isolated if the road gets washed out. The Public Works Director noted that with one rain storm, the Town could lose a portion of the road isolating the residence. The Town installed part of temporary one-lane bridge on the site as an emergency fix. The Town would like to install a permanent structure engineered to meet stream hydraulics following the town's bridge and culvert standards.

Replace Bridge on Cote Drive – The existing bridge is constructed of rail road rails with pressure treated decking with concrete abutments. The abutments are cracked and there is evidence of bank erosion creating a safety issue. The Town is considering utilizing a temp bridge to replace the existing bridge because of the

condition of the decking. The Town would like to install a structure that meets the hydraulics of the site in accordance with the Town's bridge and culvert standards.

Culvert Upgrade Hill West Road: Site is located near 3248 Hill West Road. There is evidence of a failed old culvert in the middle of the road. When the existing stone culvert is full, water backs up and floods an open area approximately ½ to ¾ of acre as well as the road. The Town would like to install a precast concrete structure in accordance with Bridge and Culvert Standards.

Flood Buyout for Residences Along Black Falls Brook – There are four residences between Black Falls Brook Road and the Black Falls Brook near the confluence with Trout River that should be relocated. The Town is concerned that these residences are threatened by flooding. The Town recommends buying the residences, removing the structures and returning the land to a conservation district.

Enhance Public Awareness of the Dangers of Severe Winter Weather – The Town Fire Department will educate homeowners of the importance of installing carbon monoxide monitors and alarms. The Town Fire Department will educate citizens that all fuel-burning equipment should be vented to the outside. The Fire Department will add information to social media sites. The town is considering mailing out educational literature to the citizens and making brochures available at the Town Office and Public Library.

Support Power Utility Efforts to Protect Utility Corridors from Ice – The utility lines are privately owned, however, the Town will support the power company's utility line and corridor tree pruning program in order to protect power lines. Trees or branches that are a concern to impact utility lines will be reported to the power company. The power company has improved upon their line corridor tree pruning program to reduce the impacts of ice storms in recent years.

Protect Critical Facilities and Infrastructure from Lightning Damage – The Town Public Works Department will protect critical facilities and infrastructure from lightning damage. The Department will identify equipment and facilities that are lacking adequate lightning protection devices such as lightning rods and grounding, on municipal communications infrastructure, and other critical facilities and determine what the appropriate level of protection. The Town will install and maintain surge protection on critical electronic equipment such as municipal computer systems.

Existing Planning and Regulatory Capabilities

Montgomery is a rural town with a low population. The Town staff includes a full-time Town Clerk/Treasurer, a full-time Public Works staff of three. The Public Works staff covers 48.8 miles of town highway. They are constantly treating roadways in winter months, so they are strained to do other things that come up. The full-time staff size is similar to other towns in northern Vermont of similar size. They have a volunteer Planning Commission, and Development Review Board. The part-time town Zoning Administrator could use better training. Floodplain development is an issue for Montgomery because of the location of Montgomery Center.

The Montgomery Fire Department contains is a Volunteer force, and as such is in need of additional volunteers, especially to cover daytime hours. On average they have 12 members. The Town of Montgomery currently maintains an ambulance squad (Montgomery Rescue) providing emergency medical services to Town residents and the surrounding area as needed. Montgomery Rescue is in need of a new ambulance as their current ambulance is 19 years old.

One of the strains on the town's emergency personnel is that Montgomery draws a lot of recreational visitors during the summer for its hiking opportunities and swimming holes, during the fall for the colorful foliage season and during the winter for skiing, snowshoeing at Hazen's Notch and Jay Peak ski resort which also contains an ice arena. Jay Peak is located just outside of Town to the northeast in the Town of Jay. Weekend

traffic through Montgomery increases greatly during the winter season from December through early April. The town’s capabilities are limited for such an increase in traffic. During peak season when the ski conditions are good, emergency resources could be tied up dealing with motor vehicle accidents or responding to Jay Peak Resort, so the ambulance squad relies on mutual aid at times.

How this Plan will Improve Existing Capabilities

The following policies, programs and activities related to hazard mitigation are currently in place and/or being implemented in the Town of Montgomery. The Town Emergency Management Coordinator analyzed these programs for their effectiveness and noted improvements needed. Montgomery uses all of the plans listed below to help plan for current and future activities with the town. For example: the Local Emergency Operation Plan has a contact list that is used for response purposes in the case of a hazard event, and is updated every year after Town Meeting. The Town Plan directs visions and goals that include Natural Resources and Land-Use decisions. In the development of this plan, the latest 2016 Town Plan was used. Town Road and Bridge Standards are followed by the town and they do an annual culvert and bridge inventory that is mapped by the NRPC. The town is compliant with the NFIP.

As Montgomery goes through the update process for the planning mechanisms outlined in the table below, they will look to the Hazard Mitigation Plan’s Table of Actions and Risk and Vulnerability Assessments to help guide land use district decisions, and guide goals and policies for those districts. They have agreed to this. After Town Meeting every March, policies and action items in the Town Plan are reviewed and integrated into hazard mitigation as needed. The Local Emergency Operations Plan contact list is updated after Town Meeting each year, including updates to vulnerable geographic locations, as well as locations of vulnerable populations. Updates to each of the planning mechanisms outlined in the table below are handled by the responsible party identified in the table. There is no timeframe for updating the below referenced plans and regulations to better incorporate hazard mitigation, however, as each document is updated the hazard mitigation plan will be reviewed for incorporation. The goals of this hazard mitigation plan will be incorporated in the upcoming town plan update to ensure that emergency preparedness and mitigation planning efforts are included in the Town Plan, with particular attention to including the projects in the Mitigation Actions Table. This will assist with ensuring that this plan is utilized and project follow-through occurs.

The last time the zoning bylaws were updated, the town included River Corridor Protection Overlay to mitigate damages from flooding and fluvial erosion hazards. The LEOP is updated yearly and was updated last in 2016.

The following authorities, policies, programs, and resources related to hazard mitigation are currently in place and/or being implemented in the Town of Montgomery in addition to the NFIP. These programs reduce the effects of hazards to existing, new, and future buildings, infrastructure, and critical facilities by preventing their location in identified hazard areas and ensuring that infrastructure and buildings are designed to minimize damage from hazard events. The Committee analyzed these programs for their effectiveness and noted any improvements that may be needed. Other mitigation/emergency planning related documents and their status are outlined in the below table:

Town Policies and Plans			
Existing Protection	Description	Effectiveness/Enforcement/Hazard that is addressed	Gaps in Existing Protection/Improvements Needed

Town Plan	Policies that provide protection and limited development in wellhead protection areas, wetlands, steep slopes, and shallow soils.	Policies and vision for future land use. Includes flood resiliency element. Adopted in February 15, 2016.	None found
Zoning Bylaws and Flood Hazard Area Regulations.	Restrictions on development in potential hazardous areas such as steep slopes, floodplains. Also regulates land development in FEMA flood areas. Includes River Corridor Overlay District with associated Protection Measures.	Land Use Regulation recently updated. New River Corridor Overlay approved by ANR. Adopted March 3, 2016.	None found.
Local Emergency Operations Plan	Summary of emergency response and notification procedures, situation reports, ICS forms, Local Declaration forms, Local Situational Reports, Emergency Stream Protective Measures.	2016. Updated annually.	Does not identify local shelter manager. Does not contain Debris Management Annex.
Fire Mutual Aid	Assistance from county fire, rescue, municipal and public works departments.	Franklin County Mutual Aid Agreement, 2006. Updated in 2015.	None identified.
School Emergency Response	Responses by various types of emergency incidents at school.	Vermont School Crisis Guide.	Needs updating.
Solid Waste Implementation Plan	Transportation, resource recovery, recycling and disposal of solid waste.	Member of the Northwest Vermont Solid Waste Management District.	None identified.
Maintenance Programs	Bridge and Culvert Inventory. Municipal Road Stormwater Erosion Inventory.	First established in 2002. New State requirement that is part of municipal roads general permit program.	Bridge and Culvert Inventory will be performed in 2017. Road Erosion Inventory anticipated in 2017.

There are currently no large or small developments planned in Montgomery that would be considered in the floodplain or flood prone areas.

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.

Flooding and Development Regulations

The Town of Montgomery has adopted floodplain regulations in order to protect the health, safety, and welfare of its residents and to allow the community to participate in the National Flood Insurance Program (NFIP). In 1987 the Town established an ordinance for special flood hazard areas. The purpose of this bylaw is:

- Minimize and prevent the loss of life and property, the disruption of commerce, the impairment of the tax base, and the extraordinary public expenditures and demands on public services that result from flooding and other flood related hazards; and

- Ensure that the design and construction of development in flood and other hazard areas are accomplished in a manner that minimizes or eliminates the potential for flood and loss or damage to life and property; and
- Manage all flood hazard areas designated pursuant to 10 V.S.A. § 753; and
- Make the state, municipalities, and individuals eligible for federal flood insurance and other federal disaster recovery and hazard mitigation funds as may be available.

The Town Zoning Administrator is responsible for monitoring compliance with the NFIP.

River Corridor Regulations

In 2016, the Town of Montgomery adopted a river corridor overlay district as part of its zoning regulations with guidance from the Agency of Natural Resources. A 50 foot riparian buffer on each side of stream is required for any proposed development. The goal is to protect the health, welfare and safety of the public, help control soil erosion and protect water quality.

The Town Zoning Administrator is responsible for monitoring compliance with the River Corridor Regulations.

8. PLAN IMPLEMENTATION, MONITORING & EVALUATION

Monitoring and Updating the Plan – Yearly Review

Once the plan is approved and adopted, the Emergency Prep. and Management Director in Montgomery, along with interested and appointed volunteers and stakeholders, will continue to work with the Emergency Planner at the Northwest Regional Commission to monitor, evaluate, and update the plan throughout the next 5-year cycle. The plan will be reviewed annually at the May Selectboard meeting along with the review of the town’s Local Emergency Operations Plan (LEOP). . During the annual review, the Selectboard will evaluate the plan effectiveness at achieving its stated purpose and goals This meeting will allow town officials and the public to discuss the town’s progress in implementing mitigation actions and determine if the town is interested in applying for grant funding for projects that can help mitigate future hazardous events; e.g., bridge and culvert replacements, road replacements and grading, as well as buying out any repetitive loss structures that may be in the Special Flood Hazard Area, and revise the plan as needed. Northwest Regional Commission’s emergency planner will assist the Montgomery Emergency Management Director with this review, as requested by the Town. Progress on actions will be kept track using a table the NRPC will provide to the Town EMD to update. There will be no changes to the plan, unless deemed necessary by the Town. If so, the post disaster review procedure will be followed.

Plan Maintenance (5 Year Update and Evaluation Process)

The Hazard Mitigation Plan is dynamic and should not be static. 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 hazard mitigation planning committee. The team will include a Montgomery Emergency Management Director who will chair the meeting. Others members should include local officials such as Selectboard members, Fire Chief, Zoning Administrator, Public Works Director, Road Commissioner, Health Officer and interested stakeholders. The Emergency Management Director will work with the Northwest Regional Planning Commission Emergency Planner and be the point person for the Town.

2. The NRPC Emergency Planner will guide the Committee through the update process. This update process will include several publicly warned meetings. At these meeting the Committee will use the existing pan and update as appropriately guided by the NRPC Emergency Planner to address:
 - a. Update of hazard events and data gathered since the last plan update.
 - b. Changes in community and government processes, which are hazard-related and have occurred since the last review
 - c. Changes in community growth and development trends and their effect on vulnerability.
 - d. Progress in implementation of plan initiatives and projects
 - e. Incorporation of new mitigation initiatives and projects.
 - f. Effectiveness of previously implemented initiatives and projects.
 - g. Evaluation of the plan for its effectiveness at achieving its state purpose and goals.
 - h. Evaluation of unanticipated challenges or opportunities that may have occurred between the date of adoption and the date of the report, and their effect on capabilities of the town.
 - i. Evaluation of hazard-related public policies, initiatives and projects.
 - j. How mitigation strategy has been incorporated into other planning mechanisms.
 - k. Review and discussion of the effectiveness of public and private sector coordination and cooperation.
3. From the information gathered at these meetings, along with data collected independently during research for the update, the NRPC Emergency Planner will prepare and updated draft in conformance with the FEMA *Local Hazard Mitigation Plan Review Crosswalk* document.
4. The Selectboard will review the draft report. Consensus reached on changes to the draft. Emphasis in plan updates will be put on critically looking at how the plan can become more effective at achieving its stated purpose and goals.
5. The changes will be incorporated into the Plan by the NRPC Emergency Planner.
6. The Selectboard will notify the public that the draft is available for public comment and review. The Town will advertise and make available the draft plan for comments both electronically and in hard copy. The draft plan will be distributed electronically to the neighboring municipalities of Belvidere, Eden, Westfield, Lowell, Bakersfield, Enosburgh, and Richford for review and comment.
7. Public comments will be incorporated by the NRPC Emergency Planner. The final draft will be provided to the plan development participants and town staff for final review and comment with review comments provided to the Emergency Management Director and incorporated into the plan.
8. The NRPC Emergency Planner will finalize the plan, with any remaining comments from the plan participants and town staff incorporated, and then submitted electronically to DEMHS State Hazard Mitigation Officer (SHMO) who will then submit to FEMA Region 1.
9. The Plan will be reviewed by the DEMHS SHMO and FEMA Region 1.
10. SHMO and FEMA comments will be addressed in the Plan by the NRPC Emergency Planner.
11. The Plan will be resubmitted as needed until the plan is approved pending adoption by FEMA Region 1. Once the plan is approved by FEMA, it will be ready for adoption.

12. The Selectboard will adopt the plan and distribute to interested parties.
13. The final adopted plan will be submitted by the NRPC Emergency Planner to DEMHS and FEMA.
14. FEMA will issue final approval of the adopted plan.

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 Selectboard 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 this plan, such as identified projects, into capital planning initiatives and annual budget reviews during Town Meeting.

Post-Disaster Review/Update Procedure

Should a declared disaster occur, a special review will occur amongst the Selectboard, the Emergency Management Coordinator, the NRPC Emergency Planner, and those involved in the five year update process described above. This review will occur in accordance with the following procedures:

1. Within six months of a declared emergency event, the town will initiate a post disaster review and assessment. Members of the State Hazard Mitigation Committee will be notified that the assessment process has commenced.
2. This post disaster review and assessment will document the facts of the event and assess whether existing Hazard Mitigation projects effectively lowered community vulnerability/damages. New mitigation projects will be discussed, as needed.
3. A draft After Action Report of the review and assessment will be distributed to the hazard mitigation committee.
4. A meeting of the committee will be convened by the Selectboard to make a determination of whether the plan needs to be amended. If the committee determines that NO modification of the plan is needed, then the report is distributed to local communities.
5. If the committee determines that modification of the plan IS needed, then the committee drafts an amended plan based on the recommendations and forwards to the Selectboard for public input.
6. The Selectboard adopts the amended plan after receiving approval-pending-adoption notification from FEMA.

Attachment A

Hazard Identification and Risk Assessment

Town of Montgomery

Hazard	Impacted Area (% Community Affected)	Frequency Of Occurrence	Consequence of Occurrence				Total
			Health & Safety	Property	Environment	Economic	
Flooding / Fluvial Erosion	3	5	1	2	1	2	45
Severe Winter Storm / Ice Storm	3	5	1	2	1	2	45
Severe Thunderstorms (High Winds, Lightning/Hail)	3	5	0	1	1	1	30
Loss of Electrical Service	1	4	1	1	0	2	20
Structure Fire	0	4	1	1	1	1	16
Hazardous Materials	0	4	1	1	1	1	16
Drought	3	1	1	1	2	2	8
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 Risk Rating 209

Attachment B

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

Facility Name or Designation	Facility Owner	Function	Street or Location
PSB Building	Montgomery DPS	Emergency operations center	86 Mountain Road
Lutz' Automotive		Hazardous materials facility	71 Main St
Montgomery Water Reservoir	Town of Montgomery	Water system facility	S. Richford Road/Fuller Bridge Road
Montgomery 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 Reservoir	Town of Montgomery	Water system facility	Regan Road and Route 242
Montgomery Elementary School	Town of Montgomery	School/Library, Emergency Shelter, and Hazardous materials facility	249 School Drive
St. Isidore (Catholic)		Religious facility/Emergency Shelter	Jay Mountain Road
State Garage	Vermont Agency of Transportation	Public works facility and Hazardous materials facility	Route 118
Stix Country Store		Hazardous materials facility	Route 118
Sylvester's Grocery		Community Supplier and Hazardous materials facility	Main St
Public Works Building / Garage	Town of Montgomery	Public works facility and Hazardous materials facility	1800 North Main St
Town Hall	Town of Montgomery	Government facility	Main St
Town Office Building	Town of Montgomery	Government offices	Route 118
United Methodist	Pastor Ed Sorrell	Religious facility	Rte 118
US Postal Station	US Postal Service	Government office	18 Black Falls Road
US Post Office (Town Office)	US Postal Service	Government office	98 Main St. (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?
12. Is the action environmentally sound?

	Criteria												Total Score	
	1	2	3	4	5	6	7	8	9	10	11	12		
Mitigation Action	Hazen’s Notch Road Culvert Replacement.	3	3	3	3	2	3	3	3	3	3	3	2	34
	Deep Gibou Road Culvert Replacement	3	3	3	3	2	3	3	3	3	3	3	2	34
	Updated Bridge and Culvert Inventory	3	3	3	3	2	3	3	3	3	3	3	2	34
	Culvert Replacement on Hannah Clark Brook Road	3	3	3	3	2	3	3	3	3	3	3	2	34
	Culvert Replacement on Amidon Road	3	3	3	3	2	3	3	3	3	3	3	2	34
	Longley Bridge Road Retrofit	3	3	3	3	2	3	3	3	3	3	3	2	34
	West Hill Road Culvert Replacement	3	3	3	3	2	3	3	3	3	3	3	2	34
	Replace Damaged Culvert on Brady Road	3	3	3	3	2	3	3	3	3	3	3	2	34
	Replace Bridge on Cote Drive	3	3	3	3	2	3	3	3	3	3	3	2	34
	Culvert Upgrade Hill West Road	3	3	3	3	2	3	3	3	3	3	3	2	34
	Flood buyout for four residents along Black Falls Brook affected by flooding/fluvial erosion	3	3	2	1	2	3	3	3	3	3	3	3	32
	Enhance Public Awareness of the Dangers of Severe Winter Weather	3	3	3	3	3	3	3	3	3	3	3	3	36

Protect critical facilities and infrastructure from lightning damage	3	3	3	3	3	3	3	3	3	3	3	3	3	36
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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 Disaster Prep. and Emergency Management
- Northwest Regional Planning Commission
- Town of Montgomery Planning Commission
- Town of Montgomery Public Works Department
- Northwest Regional Planning Commission GIS
- Local Emergency Planning Committee (Franklin County)
- Town of Montgomery Fire and Rescue Department
- Town of Montgomery Ambulance Service
- Vermont Department of Transportation District 8
- Vermont Department of Emergency Management and Homeland Security
- 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 – Areas of Concern

LEGEND

Transportation Features

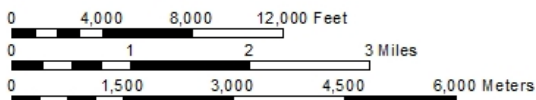
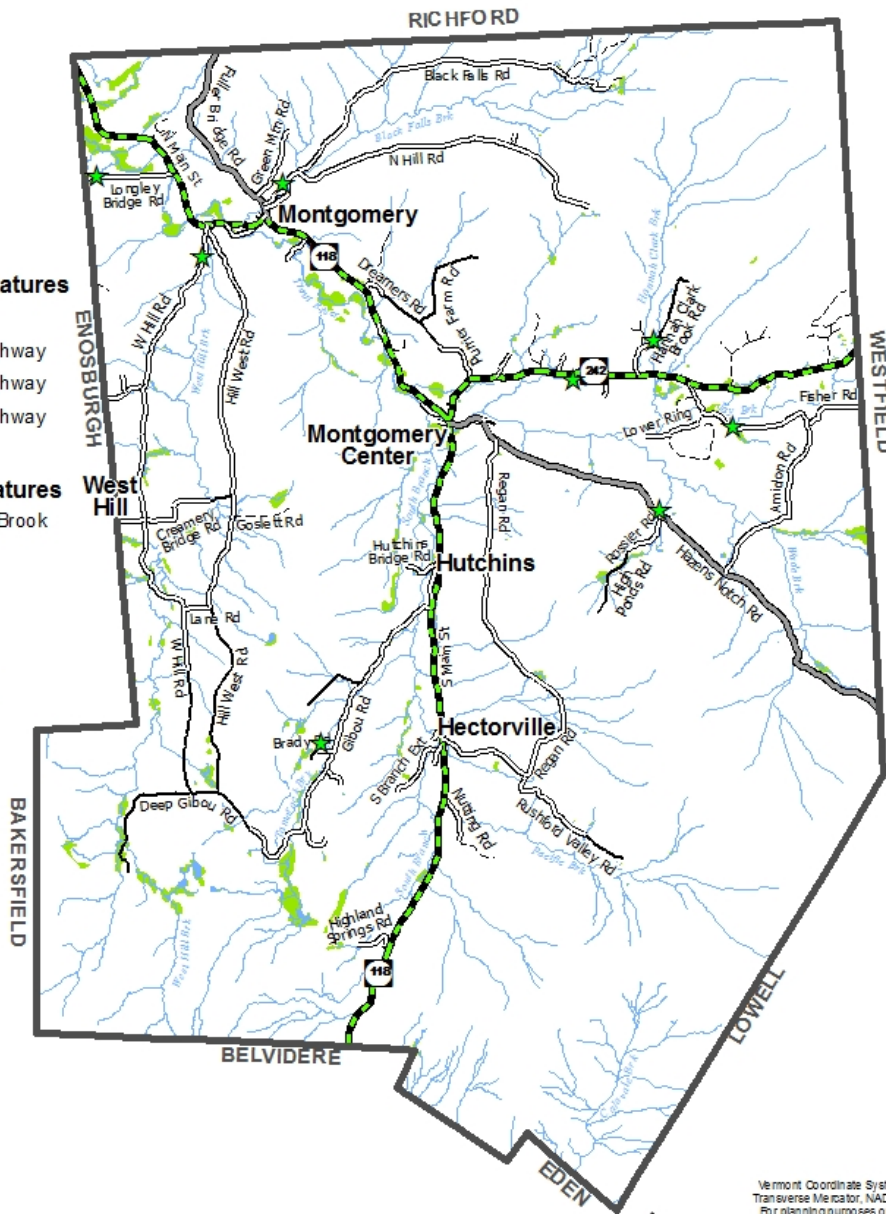
- State Highway
- Class 2 Town Highway
- Class 3 Town Highway
- Class 4 Town Highway
- Private Road

Surface Water Features

- River, Stream or Brook
- Pond
- Wetland

Other Feature

- Town Boundary
- Area of Concern



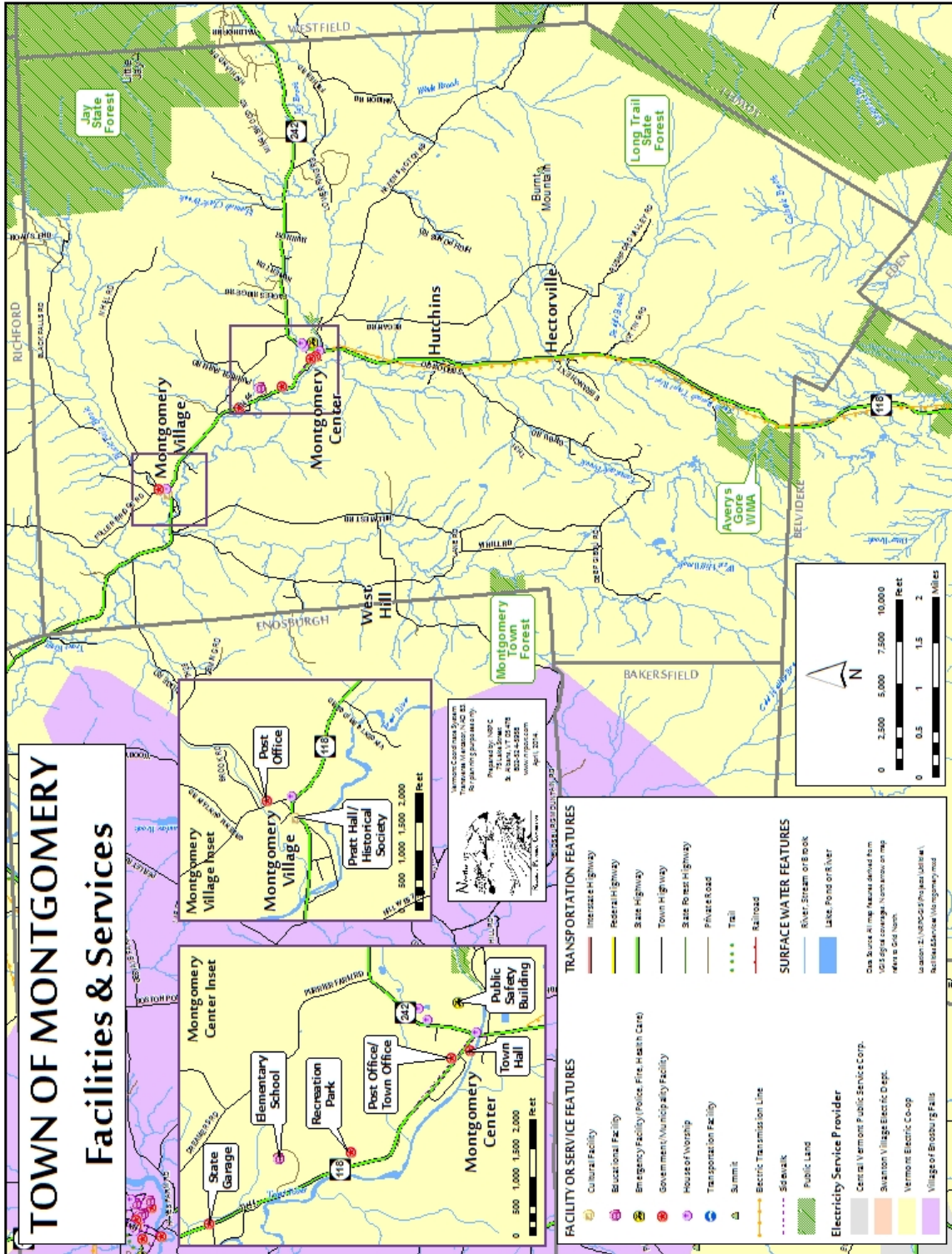
Data Sources: All map features derived from VGIS digital coverages. North arrow on map refers to Grid North.

Vermont Coordinate System
Transverse Mercator, NAD 83.
For planning purposes only.

Prepared by:
Northwest Regional
Planning Commission
75 Fairfield Street
St. Albans, VT 05478
(802) 524-6958
www.nrpvt.com
February, 2016

Location: nropgis/projects/county/franklin/montgomery/townplan2015

Attachment E
Town of Montgomery Map –



Attachment F

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