TOWN OF Huntington, Vermont
2017 All-Hazards Mitigation Plan

Annex 8 to the
2017 Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan

Prepared by:

The Chittenden County Regional Planning Commission

and the

Town of Huntington, Vermont

Adopted by the Town of Huntington Selectboard on June 5, 2017

Approved by FEMA on July 11, 2017

U.S. Department of Homeland Security
FEMA Region I
99 High Street, Sixth Floor
Boston, MA 02110-2132

FEMA

JUL 11 2017

Lauren Oates
State Hazard Mitigation Officer
Vermont Department of Public Safety
45 State Drive
Waterbury, Vermont 05671-1300

Dear Ms. Oates:

We would like to congratulate the participating jurisdictions and the State of Vermont for their dedication and commitment to mitigation planning. The Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA) Region I Mitigation Planning Team has completed its review of the 2017 Chittenden County, Vermont Multi-Jurisdictional All-Hazards Mitigation Plan and determined it meets the requirements of 44 C.F.R. Pt. 201. This plan approval includes the following participating jurisdictions that provided a copy of their resolution adopting the plan. The newly approved jurisdictions are highlighted in **bold.**

Colchester	**Huntington**	**Jericho**	Milton
Richmond	**Underhill**	**Westford**	Williston

With this plan approval, the communities above are eligible to apply to the Vermont Division of Emergency Management & Homeland Security for mitigation grants administered by FEMA. Requests for mitigation funding will be evaluated individually according to the specific eligibility requirements identified for each of these programs. A specific mitigation activity or project identified in your community's plan may not meet the eligibility requirements for FEMA funding; even eligible mitigation activities or projects are not automatically approved.

Approved mitigation plans are eligible for points under the National Flood Insurance Program's Community Rating System (CRS). Complete information regarding the CRS can be found at http://www.fema.gov/national-flood-insurance-program-community-rating-system, or through your local floodplain administrator.

JUL 11 2017

The 2017 Chittenden County, Vermont Multi-Jurisdictional All-Hazards Mitigation Plan must be reviewed, revised as appropriate, and resubmitted to FEMA for approval within **five years of the plan approval date of March 6, 2017** in order to maintain eligibility for mitigation grant funding. We encourage Chittenden County Regional Planning Commission communities to continually update the plan's assessment of vulnerability, adhere to its maintenance schedule, and implement, when possible, the mitigation actions proposed in the plan.

Once again, thank you for your continued dedication to public service demonstrated by preparing and adopting a strategy for reducing future disaster losses. Should you have any questions, please do not hesitate to contact Melissa Surette at (617) 956-7559.

Sincerely,

Paul F. Ford
Acting Regional Administrator

PFF: ms
cc: Ben Rose, Recovery and Mitigation Section Chief, VT DEMHS
Stephanie Smith, Hazard Mitigation Planner, VT DEMHS

Enclosure

Town of Huntington, VT

CERTIFICATE OF ADOPTION
June 5, 2017

TOWN OF HUNTINGTON VERMONT SELECTBOARD
A RESOLUTION ADOPTING THE 2017 Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan and Annex #8, the 2017 Town of Huntington All-Hazards Mitigation Plan (Plan).

WHEREAS, the Town of Huntington has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **2017 Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan and Annex #8, the 2017 Town of Huntington All-Hazards Mitigation Plan** which result in loss of property and life, economic hardship, and threats to public health and safety; and

WHEREAS, the Town of Huntington has developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for **the 2017 Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan and Annex #8, the Town of Huntington All-Hazards Mitigation Plan (Plan)** under the requirements of *44 CFR 201.6;* and

WHEREAS, the **Plan** specifically addresses hazard mitigation strategies, and Plan maintenance procedures for the Town of Huntington; and

WHEREAS, the **Plan** recommends several hazard mitigation actions (projects) that will provide mitigation for specific natural hazards that impact the Town of Huntington with the effect of protecting people and property from loss associated with those hazards; and

WHEREAS, adoption of this **Plan** will make the Town of Huntington eligible for funding to alleviate the impacts of future hazards; now therefore be it

RESOLVED by the Town of Huntington Selectboard:

1. The **2017 Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan and Annex #8, the 2017 Town of Huntington All-Hazards Mitigation Plan (Plan)** is hereby adopted as an official plan of the Town of Huntington;

2. The respective officials identified in the mitigation action plan of the **Plan** are hereby directed to pursue implementation of the recommended actions assigned to them;

3. Future revisions and **Plan** maintenance required by 44 CFR 201.6 and FEMA are hereby adopted as part of this resolution for a period of five (5) years from the date of this resolution; and

4. An annual report on the process of the implementation elements of the Plan will be presented to the Selectboard by the Emergency Management Director or Coordinator.

IN WITNESS WHEREOF, the undersigned have affixed their signature on June 5, 2017.

Dori Barton, Chair

Nancy Stoddard, Vice-Chair

Andrew Hendrickson

Roman Livak

Dan Rissacher

Received for record this 6 day of January, A.D., 2017 by _____
Heidi Racht, Town Clerk

Executive Summary

Hazard Mitigation is a sustained effort to permanently reduce or eliminate long-term risks to people and property from the effects of reasonably predictable hazards. The purposes of this updated Local All-Hazards Mitigation Plan are to:

- Identify specific natural, technological and societal hazards that impact the Town of Huntington;
- Prioritize hazards for mitigation planning;
- Recommend town-level goals and strategies to reduce losses from those hazards; and
- Establish a coordinated process to implement the plan, taking advantage of a wide range of resources.

This plan is a local annex to the *Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan*. **In order to become eligible to receive various forms of Federal hazard mitigation grants, a Chittenden County municipality must formally adopt its Local All-Hazards Mitigation Plan along with the *Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan*, or develop and adopt an independent, stand-alone Local All-Hazards Mitigation Plan.**

Section 1: Introduction and Purpose explains the purpose, benefits, implications and goals of this plan. This section also describes municipal demographics and development characteristics, and describes the planning process used to develop this plan.

Section 2: Hazard Identification expands on the hazard identification in the *Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan* with specific municipal-level details on selected hazards.

Section 3: Risk Assessment discusses identified hazard areas in the municipality and reviews previous federally-declared disasters as a means to identify what risks are likely in the future. This section presents a hazard risk assessment for the municipality, identifying the most significant and most likely hazards which merit mitigation activity. The top hazards by type with the most risk in Huntington are:

Natural Hazards:	Severe Winter Storm, Severe Rainstorm and Flooding
Technological Hazards	Power Loss and Telecommunications Failure
Societal Hazards	Economic Recession, Key Employer Loss and Crime

Section 4: Vulnerability Assessment discusses buildings, critical facilities and infrastructure in designated hazard areas, vulnerable populations and the issue of estimating potential losses.

Section 5: Mitigation Strategies is the heart of this All Hazards Mitigation Plan. This section begins with an overview of goals and policies in the *2014 Huntington Town Plan* that support hazard mitigation. This is followed by an analysis of existing municipal actions that support hazard mitigation, such as planning and zoning and public works. This section presents the following municipal all-hazards mitigation goals:

1) Reduce at a minimum, and prevent to the maximum extent possible, the loss of life and injury resulting from all hazards.

2) Mitigate financial losses and environmental degradation incurred by municipal, educational, residential, commercial, industrial and agricultural establishments due to various hazards.
3) Maintain and increase awareness amongst the town's residents and businesses of the damages caused by previous and potential future hazard events as identified specifically in this Local All-Hazards Mitigation Plan and as identified generally in the Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan.
4) Recognize the linkages between the relative frequency and severity of disaster events and the design, development, use and maintenance of infrastructure such as roads, utilities and stormwater management and the planning and development of various land uses.
5) Maintain existing municipal plans, programs, regulations, bylaws and ordinances that directly or indirectly support hazard mitigation.
6) Consider formal incorporation of this Local All-Hazards Mitigation Plan into the municipal comprehensive plan as described in 24 VSA, Section 4403(5), as well as incorporation of proposed new mitigation actions into the municipality's/town's bylaws, regulations and ordinances, including, but not limited to, zoning bylaws and subdivision regulations and building codes.
7) Consider formal incorporation of this Local All-Hazards Mitigation Plan, particularly the recommended mitigation actions, into the municipal/town operating and capital plans and infrastructure, utilities, highways and emergency services.

This section includes the following Mitigation Actions planned by the Town:

Category A: Complete fluvial geomorphology assessment and address identified vulnerable infrastructure to mitigate against Severe rainstorm, Flooding, Fluvial Erosion and Water Pollution

- Action A-1: Fluvial Erosion Hazard Mitigation Implementation

Category B: Upgrade Existing Road and Stormwater Management Infrastructure to mitigate against Severe Rainstorms, Flooding, Fluvial Erosion and Water Pollution

- Action B-1: Plan for Repair of Vulnerable Infrastructure
- Action B-2: Erosion Mitigation
- Action B-3: Road Improvement

Category C: Implement Road Stormwater Management Plan consistent with Vermont Municipal Roads General Permit (MRGP) to mitigate against Severe Rainstorms, Fluvial Erosion and Water Pollution

- Action C-1: Obtain MRGP and develop Road Stormwater Management Plan
- Action C-2: Implement Road Stormwater Management Plan and file annual reports

Finally, this section includes an Implementation Matrix to aid the municipality in implementing the Mitigation Actions and annual monitoring and evaluation of this Plan.

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[Note: See appendices of Chittenden County Multi-Jurisdictional AHMP for weblinks to the various data sources used to generate many of the tables noted above.]

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SECTION 1: INTRODUCTION AND PURPOSE

1.1 Purpose and Scope of this Plan

The purpose of this Local All-Hazards Mitigation Plan is to assist this municipality in identifying all hazards facing their community and in identifying strategies to reduce the impacts of those hazards. The plan also seeks to coordinate the mitigation efforts of this municipality with those outlined in the *Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan* as well as efforts of quasi-governmental organizations such as Local Emergency Planning Committee, District #1 and the Chittenden County Regional Planning Commission.

This annex, when used with the appropriate sections of the Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan, constitutes an All-Hazards Mitigation Plan for the Town of Huntington. Community planning can aid in significantly reducing the impact of expected, but unpredictable natural and human-caused events. The goal of this plan is provide hazard mitigation strategies to aid in creating disaster resistant communities throughout Chittenden County.

1.2 Hazard Mitigation

The *2013 Vermont State All-Hazards Mitigation Plan* defines hazard mitigation as

> *Any sustained action that reduces or eliminates long-term risk to people and property from natural and human-caused hazards and their effects. The Federal Emergency Management Agency (FEMA) and state agencies recognize that it is less expensive to prevent disaster or mitigate its effects 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, Mitigation Response and Recovery. Hazards cannot be eliminated, but it is possible to determine what the hazards are, where they are most severe and to identify actions that can be taken to reduce the severity of the hazard.*

Hazard mitigation strategies and measures can reduce or eliminate the frequency of a specific hazard, lessen the impact of a hazard, modify standards and structures to adapt to a hazard, or limit development in identified hazardous areas.

1.3 Hazard Mitigation Planning Required by the Disaster Mitigation Act of 2000

Hazard mitigation planning is the process that analyzes a community's risk from natural hazards, coordinates available resources, and implements actions to reduce risks. According to 44 CFR Part 201, Hazard Mitigation Planning, this planning process establishes criteria for State and local hazard mitigation planning authorized by Section 322 of the Stafford Act as amended by Section 104 of the *Disaster Mitigation Act of 2000*. Effective November 1, 2003, local governments now have to have an approved local mitigation plan prior to the approval of a local mitigation project funded through federal Pre-Disaster Mitigation funds. Furthermore, the State of Vermont is required to adopt a State Pre-Disaster Mitigation Plan in order for Pre-Disaster

Mitigation funds or grants to be released for either a state or local mitigation project after November 1, 2004.

There are several implications if the plan is not adopted.

- Flood Mitigation Assistance Grant Program (FMAGP) funds will be available only to communities that have adopted a local Plan
- A community without a plan is not eligible for HMGP project grants but may apply for planning grants under the 7% of HMGP available for planning.
- For the Pre-Disaster Mitigation (PDM) program, a community may apply for PDM funding but must have an approved plan in order to receive a PDM project grant.
- Under Vermont's Emergency Relief Assistance Fund rules, contributions from the State to cover the non-Federal share of a municipality's FEMA Public Assistance project costs varies depending on whether a community has a plan. A community without a plan would have to cover 17.5% of the overall project cost, but a community with a plan would have to cover only 7.5% to 12.5% of the cost.

1.4 Benefits

Adoption and maintenance of this Plan will:

- Make certain funding sources 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.
- Support effective pre- and post-disaster decision making efforts.
- Lessen each local government'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, such as in emergency operations plans, comprehensive plans (aka "town plans"), capital improvement plans and budgeting, open space plans, and stormwater master plans.

1.5 All-Hazards Mitigation Plan Goals

The Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan establishes the following general goals for the county as a whole and its municipalities:

1) Hazard mitigation planning should take into account the multiple risks and vulnerabilities of the significant hazards in the County due to its mixed urban-suburban-rural nature, its economic importance to the State and its significant presence of public and private infrastructure.
2) Promote awareness amongst municipalities, residents and business in the county of the linkages between the relative frequency and severity of disaster events and the design, development, use and maintenance of infrastructure such as roads, utilities and stormwater management and the planning and development of various land uses.

3) Ensure that regionally-initiated mitigation measures are consistent with municipal plans and the capacity of municipalities to implement them.
4) Encourage municipalities to formally incorporate their individual Local All-Hazards Mitigation Plan into their municipal plan as described in 24 VSA, Section 4403(5), as well as incorporate their proposed mitigation actions into their various bylaws, regulations and ordinances, including, but not limited to, zoning bylaws and subdivision regulations and building codes.
5) Encourage municipalities to formally incorporate elements of their Local All-Hazards Mitigation Plan, particularly their recommended mitigation strategies, into their municipal operating and capital plans and programs, especially, but not limited to, as they relate to public facilities and infrastructure, utilities, highways and emergency services.
6) Educate regional entities on the damage to public infrastructure resulting from all hazards and work to further incorporate hazard mitigation planning into the regional land use and transportation planning program conducted by the Chittenden County Regional Planning Commission.
7) Maintain existing mechanisms, develop additional processes, or explore funding mechanisms and sources to foster regional cooperation in hazard mitigation, specifically and emergency management planning, generally.

1.6 Town of Huntington: Demographics and Development Characteristics

The Town of Huntington (*cf. Figure 1-1)* is located in the southeastern corner of Chittenden County. The town is bounded on the west by Hinesburg and Starksboro (the latter in Addison County), on the south by Buel's Gore, on the east by Duxbury and Fayston (both in Washington County) and on the north by Richmond and Bolton. It encompasses 38.31 square miles.

Based on U.S. Census data, the University of Vermont's Center for Rural Studies reports a population of 1,938 people in 2010. Selected population characteristics are as follows:

Table 1-1 Town of Huntington, selected population characteristics, 2010

Category	Number	%
Total Population	1,938	--
Median Age	41.1 years	--
Population age 65 years and over	126	6.5
Population (and %) under 10 years old	245	12.6
Population (and %) in group quarters	0	0

U.S. Census Bureau, 2010 Census of Population and Housing, Population and Housing Unit Counts

The following shows the types of housing within Huntington, also based on the 2010 U.S. Census data:

Table 1- 2 Town of Huntington, selected housing unit data, 2010 Census

Category	Number	%
Total Housing Units	821	--
Occupied housing units	753	91.7
Vacant housing units	68	8.3
Vacant housing units used for seasonal, recreational or occasional use	37	4.5
Detached 1-unit housing units	583	78.2
Housing units with 5 or more units in structure	5	0.7
Mobile homes	121	16.2
Housing structures built in 1939 or earlier	145	19.4

U.S. Census Bureau, 2010 Census of Population and Housing, Population and Housing Unit Counts

Housing is concentrated in the Texas Hill Road area, the Lower Village, Huntington Center, Shaker Mountain Road area, and the southern hamlet of Hanksville (*cf. Figure 1.2*). Scattered development of single-family homes is concentrated along roads in the various river and stream valleys of the town. The concentration of residential and commercial/ industrial development in Huntington is shown in Map 2. With regards to land use, town zoning is depicted in Map 2.

Table 1-3 Town of Huntington, Historic Population Trends

Year	Population
1980	1,161
1990	1,861
2000	1,938
2010	1,986
2014	1,986
Source: April 1 Census Counts for 1980-2010, July 1 ACS Estimates for 2014	

1.7 Summary of Planning Process

As noted above, the update of this municipal All Hazard Mitigation Plan (AHMP) was part of the planned update of the Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan and the municipal AHMPs that are annexes to the Multi-Jurisdictional Plan. The CCRPC, with funding provided by the State of Vermont via a FEMA Hazard Mitigation Grant, began this update process in the spring of 2015.

1.7.1 Development of the 2017 Huntington All Hazards Mitigation Plan

CCRPC staff met several times with various Town staff and officials during the course of the development of this plan. Initial Meetings focused on the following issues:

1. Reviewing the matrix used in 2011 to identify and prioritize hazards facing Huntington, and determining whether the overall scoring still makes sense

2. Discussing any newly significant hazards in Huntington and identifying any new actions that could be taken to address them.
3. Discussing any progress that has been made on the strategies and tasks from the 2011 plan.

In August 2015, CCRPC Staff met with the Planning Commission Chair. In November 2015, CCRPC Staff met with the Town Administrator (Barbara Elliott), a Selectboard member (Roman Livak), the Planning Commission chair (Everett Marshall), and the Road Foreman (Yogi Alger).

Based on these meetings, CCRPC Staff developed memos for Huntington's Selectboard and Planning Commission outlining proposed changes to the 2011 materials and summarizing the reported progress. The memos also clearly stated how CCRPC staff could be reached for comment. The Planning Commission reviewed the draft during September and October, and Selectboard received the memo in October 2015. The meetings were open to the public and was duly warned in compliance with the Vermont Open Meeting Law *(1 V.S.A. §§ 310-314).* The memos, as meeting materials, were also available to the public. Members of the public who attended the meeting were able to review the memo and provide comments on the development of the plan. The Planning Commission and Selectboard offered changes regarding the ranking of hazards and the prioritization of mitigation strategies, which were incorporated into the plan.

In addition, the following materials were reviewed:

1. The 2014 Huntington Town Plan
2. River corridor plan for the Huntington River
3. FEMA Information on previous disasters
4. Information from Vermont Agency of Natural Resources on fluvial erosion hazards and flood hazards
5. Information from the Vermont Agency of Transportation on town roads, bridges, culverts and high crash locations.
6. Information from the Vermont Department of Emergency Management and Homeland Security on prior disaster and hazardous materials reporting.

Demographic information for this Plan was updated by a CCRPC intern in 2015. New information, relative to the 2011 AHMP, from review of the Land Development regulations and the Comprehensive Plan was incorporated into Section 5. Information on prior disasters, fluvial erosion hazards and flood hazards and various transportation data was incorporated into Sections 2, 3 and 4. Throughout the plan development process CCRPC staff sent rough drafts of the plan to numerous town staff to review for accuracy and conferred with these same staff regularly via phone and email. CCRPC staff produced new versions of the 2011 maps and also produced new maps desired in this 2017 update.

1.7.2 Opportunities for involvement in the planning process and formal public review and governing body approval

Emergency management planners are obligated to provide opportunities for the general public, neighboring communities, local, regional and state agencies, development regulation agencies and other interests to be involved in the review and development of Hazard Mitigation Plans.

Additionally, the CCRPC, as a public agency is obligated to provide public notice and opportunities for input into its programming and processes. With regard for public involvement in the develop of the first drafts of this Municipal AHMP *prior to release of public drafts,* there was no formal solicitation process to recruit or invite the public to come to staff level meetings wherein the first process of updating data in the old 2011 Plan. That being said, however, the public has been free to review the 2011 Plans on the CCRPC website since they were first posted in 2011. Additionally as noted in Section 1.10.2.4 of the Multi-Jurisdictional AHMP, in the period before the first municipal draft AHMPs were publicly released in August 2016 (see below) there were twelve public meetings held by the CCRPC Board and the Plan Update Committee wherein the overall Hazard Mitigation planning process was discussed including the content and purpose of the local, Municipal AHMPs as well as the planned timeline for their development starting in 2015 and extending well into 2016. *[Note that opportunities for public review and development of the Multi-Jurisdictional AHMP are described in Section 1.10.2 of the that document.]*

Commencing with an August 5**,** 2016 press release and with a comment deadline of August 19, 2016, the CCRPC issued a press release and also posted to all of the electronic bulletin boards of Front Porch Forum in every municipality in the County to solicit and receive comments on the first drafts of this Town of Huntington All-Hazards Mitigation Plan as well as the AHMPs of the other 18 municipalities in the County. On August 5, 2016, emails to the same state agency staff and executive directors of neighboring Regional Planning Commissions as noted above, were also sent to encourage their review and comment. The public, agency staff and RPC staff were directed to provide comments to Dan Albrecht, Senior Planner at the CCRPC.

With regard to opportunities for public involvement and input from neighboring communities in development of individual Local All-Hazards Mitigation Plans including this Plan for the **Town of Huntington,** opportunities were as follows:

a) On August 5, 2016, the CCRPC posted all the first drafts of the 18 local AHMPs on the CCRPC website and via various means (press release, electronic newsletter, etc) made the public aware of the opportunity to comment. The public was advised to send comments directly to Dan Albrecht, CCRPC Senior Planner by August 19, 2016.
b) On August 5, 2016 the CCRPC staff sent direct emails to the Agency staff noted above notifying them as well of the opportunity to review the 18 local AHMPs posted on the CCRPC website and encouraging them to send any comments directly to Dan Albrecht, CCRPC Senior Planner by August 19, 2016.
c) On August 5, 2016 direct emails were also sent to the municipal Mayors/ Managers/ Administrators and/or Clerks of the abutting 12 communities outside of Chittenden County (South Hero, Georgia, Fairfax, Cambridge, Stowe, Waterbury, Duxbury, Fayston, Lincoln, Starksboro, Monkton and Ferrisburgh) that abut the County notifying them of the opportunity to review the 18 local AHMPs posted on the CCRPC website and encouraging them to send any comments directly to Dan Albrecht, CCRPC Senior Planner by August 19, 2016.

No comments were received on the draft Town of Huntington AHMP prior to the August 19th deadline. Additionally, no inquiries were received concerning this AHMP after August 19th through December 31, 2016 while the Plan was posted on the CCRPC website.

1.7.3 Submission of drafts to VDEMHS and FEMA for Review and final adoption process

On June 12, 2016 the first draft of this local Town of Huntington AHMP was sent to the Vermont Department of Emergency Management and Homeland Security (VDEMHS) for review. Comment and required revisions were received from VDEMHS on August 8, 2016. CCRPC staff, working in concert with municipal staff, then made revisions to the Plan to address the required revisions and formal submissions to VDEMHS and FEMA then progressed as follows:

The revised final draft annex was submitted to VDEMHS and FEMA for formal review and approval pending municipal adoption on March 17, 2017. On April 25, 2017 FEMA Region One issued a notice that the Town of Huntington AHMP was approved pending adoption by the relevant municipal governing body. CCRPC staff provided the final versions of the Multi-Jurisdictional Plan and this Municipal Annex to the Town Administrator for distribution to the Town of Huntington Selectboard members on May 4, 2017. CCRPC also provided draft language for a resolution of adoption to be discussed at a regularly scheduled and properly warned Town of Huntington Selectboard meeting on June 5, 2017.

The revised annex was adopted by the Selectboard on June 5, 2017 and a copy of the resolution sent to VDEMHS and FEMA Region One on June 20, 2017. On July 11, 2017 FEMA issued a letter that the Town of Huntington Plan was approved.

1.7.4. Monitoring, Evaluation and Updating of the Plan

Section 6 of the Multi-Jurisdictional AHMP document provides extensive details on the role each municipality and the Chittenden County RPC will play to be certain that progress on the implementation of this local AHMP is monitored and evaluated and that the AHMP is updated as needed and no later than its anticipated expiration in early 2022. In short, the Town of Huntington will:

- in the fall of 2017 and each fall thereafter, the municipal departments as noted in Section 5.5 as the conclusion of this document shall respond to CCRPC's questionnaire seeking information on the status (progress, problems if any, etc.) of each identified mitigation strategy detailed in Section 5;
- in the fall of 2018 and the fall of 2020, provide information to aid CCRPC in its more comprehensive review of the Multi-Jurisdictional AHMP and this local AHMP which will address issues such as goals, risks, resources, implementation problems, and partners; in partnership with the municipalities, the CCRPC will make the public aware of the availability of these review documents (via press releases, posting on the CCRPC website, electronic newsletters, one formal announcement in a paper of general circulation in the County, and other mechanisms) and provide detailed instructions on how to provide comment on these reviews;

- provide at least one representative of the Town to participate as a member of the Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan Update and Review Committee which, after the current Plan update process is completed, to resume meeting in 2018; and
- participate in the Plan update process (assumed to commence in 2020 and conclude in early 2022).

Finally, it should be reemphasized that the Town of Huntington may review and update their own programs, initiatives and projects more often by working directly with the State Hazard Mitigation Officer (SHMO) based on changing local needs and priorities. Formal changes to individual municipal annexes may be made at any time by each municipality's governing body in order to reflect changing conditions, priorities, and opportunities during the 5-year life cycle of their single jurisdiction plan.

SECTION 2: HAZARD IDENTIFICATION

Detailed descriptions of the natural, technological, and societal hazards affecting the municipalities of Chittenden County are contained in Section 2 of the *Multi-Jurisdictional All-Hazards Mitigation Plan*. Designated and non-designated hazard areas are described in Section 3 of this annex. Vulnerability of structures and infrastructure to hazards is also described in Section 4 and depicted in *Figure 4.1*.

2.1.1 Profiled Hazards

This Plan profiles six (6) Natural Hazards: Severe Winter Storm, Flooding, Fluvial Erosion, Severe Rainstorm, Extreme Temperatures and Wildfire. Prior to this discussion of Hazards and the subsequent analysis of Risk and Vulnerability, it will be first helpful to summarize the general state of knowledge regarding Location, Extent and Impact in the Town of Huntington for these hazards:

Hazard (section of MJAHMP where discussed)	**Are Location data available?**	**Are Extent data available?**	**Are Impact data available?**
Severe Winter Storm (2.1.1.1)	No, occurs across the municipality and not mapped	No, only long-term data is at single point of National Weather Service station in South Burlington	Yes, if FEMA declares disaster. See 3.3 below.
Flooding (2.1.1.3)	Yes, 100 & 500 year flood areas delineated in the municipality (*See Figure 2.1*)	*Yes, but only at a few discrete locations with gauge data such as USGS gauge on Winooski River downstream of the Town	Yes, if FEMA declares disaster but co-mingled with fluvial erosion and severe rainstorm hazards events. See 3.3 below.
Fluvial Erosion (2.1.1.4)	Yes, fluvial erosion hazards areas (now termed river corridor protection areas) are mapped in the municipality (*See Figure 2.1*)	Though fluvial erosion is considered a significant hazard in the municipality, the number of feet-acres of soil lost in any one event has not been recorded nor is there a record with such data.	Yes, if FEMA declares disaster but data co-mingled with flood and severe rainstorm events. See 3.3 below.
Severe Rainstorm (2.1.1.2)	No, occurs across the municipality and not mapped. Damage	*Yes but only long-term data is at single point of National	Yes, if FEMA declares disaster but data co-mingled with

	locations are mapped but damages can just as easily be a function of poorly designed road and/or driveway drainage as it is a function of heavy rain exceeding infrastructure capacity.	Weather Service station in South Burlington.	flood and fluvial erosion events. See 3.3 below.
Extreme Temperatures (2.1.1.5)	No, occurs across the municipality and not mapped.	*Yes but only at single point of National Weather Service station in South Burlington	†Data not systematically collected on impacts.
Wildfire (2.1.1.6)	No, occurs across the municipality and not mapped.	Some compiled data on a countywide basis as shown in the Multi-Jurisdictional Plan but no systematic data collected after 2010.	‡Data not systematically collected on impacts.

** It is useful to note that while this NWS data is reliable it represents one discrete location in a county that has an area of 620 square miles in area. Likewise, while there are likely other systematic point-specific records being collected by individuals, business or organizations these data do not appear to be easily accessible. Finally, even if such data were accessible, only if the data was collected by mutually compatible means would it be useful.*

†An intensive search of municipal public works records may reveal documentation of some prior repair or labor costs associated with frozen or burst sewer and/or water pipes caused by Extreme Cold. However, such analysis would show where past events happened not the location of inadequately buried pipes which might be vulnerable to future events.

‡ An intensive search of fire department records may reveal documentation of locations and acres burned caused by Wildfire. However, such analysis would show where past events happened but would not show the location of areas susceptible to future events (warnings by the US Forest Service and local fire departments are not location-specific) nor the location of individuals who are likely to unwisely burn trash or leaves or fail to extinguish a campfire during dry conditions.

This Plan profiles several Technological Hazards. Prior to this discussion of Hazards and the subsequent analysis of Risk and Vulnerability, it will be first helpful to summarize the general state of knowledge regarding Location, Extent and Impact in Town of Huntington for these hazards:

Hazard (section of MJAHMP where discussed)	**Are Location data available?**	**Are Extent data available?**	**Are Impact data available?**
Water Pollution (2.2.1)	Streams with water quality concerns are identified in Tactical Basin	Phosphorus-loading for general locations is known but non-point sources are	Annual budgetary impacts to individual municipalities are significant but vary

	Plans. Additionally, a reach of the Huntington River has been identified as impaired in terms of E. coli contamination.	varied and dispersed. A road erosion inventory was performed in 2016 but data analysis is not yet complete and projects have not yet been prioritized or scoped.	depending upon location and whether they are a designated MS4 community. Huntington is not an MS-4, however the municipality is subject to the requirements of the pending Municipal Roads General Permit.
Hazardous Materials Incident (2.2.2)	No storage locations in Huntington (of substances in excess of 10,000 lbs.). Incidents occurring during transportation could occur anywhere	Rough estimates of spill amounts are recorded.	No formal data readily available on cleanup costs.
Power Loss (2.2.3)	Outage locations not mapped	During an actual outage some data is recorded on duration although typically this is stated as "x,000 customers within the power company's service area".	Outage data is broad and refers to total customers within a county.
Invasive Species (2.2.4)	Several species known to occur in upland and agricultural areas, but no systematic mapping has taken place.	No formal damage has been documented to date	No formal damage has been documented to date
Multi-Structure Fire (2.2.5)	Could happen anywhere within the more developed portions of the municipality	Data not formally collated across agencies	Data not formally collated across agencies
Major Transportation Incident (2.2.6)	Depending upon type of incident, could happen	No formal database of damages.	Varies depending upon type of incident.

	anywhere		
Water Supply Loss (2.2.7)	Water distribution systems are mapped (*cf. Figure 1-4*). Most residences and businesses use private wells.	Data not formally collated across agencies	Data not formally collated across agencies
Sewer Service Loss (2.2.8)	Sewer lines are mapped (*cf. Figure 1-4*). Most residences and businesses use private septic systems.	Data not formally collated across agencies	Data not formally collated across agencies
Natural Gas Service Loss (2.2.9)	No natural gas distribution.	Information for this rare occurrence not publicly available.	No formal damage has been documented to date.
Telecommunications Failure (2.2.10)	Depending upon type of incident, could happen anywhere	Information for this rare occurrence not publicly available.	No formal damage has been documented to date
Other Fuel Service Loss (2.2.11)	Distribution points of fuels such as firewood, fuel oil and propane are individual addresses and not mapped nor publicly available.	No formal loss of service has been documented.	No formal damage has been documented to date

The following discussion of societal hazards is based upon qualitative information from discussions with Chittenden County law enforcement professionals as well as quantitative data from the State of Vermont.

Hazard (section of MJAHMP where discussed)	**Are Location data available?**	**Are Extent data available?**	**Are Impact data available?**
Crime (2.4.1.1)	Significant incidents could happen anywhere in the municipality.	Data collection is not standardized across municipalities.	Significant socio-economic impacts
Economic Recession (2.4.1.2)	Would occur across the community.	Historic data on unemployment levels & poverty rates	Longer lasting impacts hard to measure below county level

Terrorism (2.4.1.3)	The FBI does not share a list of potential targets.	Unknown but assumed to be significant if incident occurs	Unknown but assumed to be significant if incident occurs
Civil Disturbance (2.4.1.4)	County-wide. Significant incidents can happen anywhere. The likelihood of an event may not be geographically likely but rather related to the type of event (political event, sporting event, protest, etc.)	No formal damage has been documented to date	No formal damage has been documented to date
Epidemic (2.4.1.5)	Could happen anywhere	Data not formally collated across agencies	Other than 1917 Influenza epidemic no formal damage has been documented to date
Key Employer Loss (2.4.1.6)	Depending upon type of employer. The town has no major employers, and depends on the regional economy.	No formal database of damages.	No formal database of key employer loss is maintained

SECTION 3: RISK ASSESSMENT

3.1 Mapped Hazard Areas

3.1.1 Flood Hazard Areas

Huntington began participating in NFIP in 1978. The Town has been issued official FEMA Floodplain maps, including most recently issuance of Digital Flood Insurance Rate Maps (DFIRM) by FEMA in 2011. The town is participating in the regular NFIP as of January 2017. The 2011 Huntington Flood Hazard Area Regulations permits only accessory structures that will not be used for residential uses to be built in the Special Flood Hazard Area. Conditional use review is required for any new or substantially improved residential structures, which must be elevated 1 foot above the base flood elevation.

A simple GIS intersection analysis reveals that portions of town roads are also located within the 100-year floodplain as well as culverts, bridges and utility poles. Unfortunately, this level of analysis does not take into account the fluvial geomorphology (volume, velocity, direction, etc.) nor, most critically, does it factor in the elevation of the road relative to flood elevation. Analysis also reveals farmland located within the floodplain, however, without detailed studies at each location it is not currently possible to predict how many cubic yards of productive soils would be a net loss during a flood event.

Figure 2.1 shows the current extent of the FEMA-FIRM flood hazard area in Huntington, as well as structures, infrastructure, and critical facilities located in the flood hazard area.

3.1.2 Fluvial Erosion Hazard and River Corridor Areas

During development and adoption of both the 2005 and 2011 Multi-Jurisdictional Plan and the municipal AHMPs, threats from stream erosion were identified as Fluvial Erosion Hazard (FEH) Areas through the analytical lens of Stream Geomorphic Assessment (SGA). The SGA approach is still used by the Vermont Agency of Natural Resources but the Vermont General Assembly adopted two related terms that are now used in managing fluvial erosion hazards. The ANR now identifies and maps:

- *River Corridor,* which is the land area adjacent to a river that is required to accommodate the dimensions, slope, planform, and buffer of the naturally stable channel and that is necessary for the natural maintenance or natural restoration of a dynamic equilibrium condition, as that term is defined in 10 V.S.A. §1422, and for minimization of fluvial erosion hazards, as delineated by the Agency in accordance with the ANR Flood Hazard Area and River Corridor Protection Procedures.
- *River Corridor Protection Area,* which is the area within a delineated river corridor subject to fluvial erosion that may occur as a river establishes and maintains the dimensions, pattern, and profile associated with its dynamic equilibrium condition and that would represent a hazard to life, property, and infrastructure placed within the area. The river corridor protection area is the meander belt portion of the river corridor without an additional allowance for a riparian buffer to serve the functions of bank stability and slowing flood water velocities in the near-bank region.

SGA work has been completed on the Huntington River and some of its tributaries, as well as portions of Brush Brook. Phase 2 SGA based River Corridor Protection Areas (formerly

Fluvial Erosion Hazard Areas) were developed for those portions of streams where SGA was completed. Map 3 shows the progress of geomorphic assessments and identified Phase 2 SGA based River Corridor Protection Areas (RCPA) in Huntington. Additional portions of Hollow Brook, Jones Brook and Cobb Brook that did not have Phase 2 SGA work, but have a watershed area greater than 2 sq. miles, would also be included in the River Corridor Protection Area and/or River Corridor. Figure 2.1 indicates all portions of the streams in Huntington that would be captured by the RCPA and/or RC.

3.1.3 Repetitive Loss Properties and National Flood Insurance Program

Repetitive loss properties are public or private buildings insured under the National Flood Insurance Program that have made at least two insurance claims of more than $1,000 each during a ten year period.

According to the National Flood Insurance Program there are no such properties located in the Town of Huntington.

The status of the town participation's in the National Flood Insurance Program is as follows:

Initial Flood Hazard Boundary Map	Initial Flood Insurance Rate Map	Current effective Map Date	Date of joining Regular NFIP	Date of most recent Community Assistance Visit
7/26/74	7/17/78	08/04/14	7/17/78	6/12/1998

The Town Zoning Administrator and the Town's Development Review Board (DRB) monitor compliance with the National Flood Insurance Program. The DRB reviews and adjudicates applications for development within the floodplain including any proposed new construction in the SFHA which is highly regulated. The Town also works with DEC to respond to any local requests for Floodplain identification including questions about mapping.

3.2 Other Information

The following hazards are not formally analyzed nor mapped due to the random nature of where such damage occurs. However they occur with some frequency and therefore are discussed here.

3.2.1 1998 Ice Storm Damage

No residential or developed areas were impacted by the storm. Heavy tree damage did occur along the ridgeline of the Green Mountains that runs along the eastern boundary of the Town. Mapping the locations of potential future events is not feasible as their occurrence is a function of numerous climatic variables.

3.2.2 Severe Rainstorm

In prior versions of this Annex and the County Plan, damage to roads, culverts and bridges from thunderstorm events was discussed as either the result of flooding or fluvial erosion. It was assumed that overflowing nearby streams, rivers or lakes were the cause of the damage. Analysis has shown that this damage is caused by intense, localized thunderstorms which cause excessive and rapid water flows on and over paved and gravel roads, roadside ditches, driveway culverts,

stormwater systems, etc. In many cases, damaged infrastructure is located nowhere near a formally mapped Floodplain or Fluvial Erosion Hazard Area or River Corridor. This was the case in more recent FEMA-declared disasters in the summer of 2013 and 2015. Because of this new information, CCRPC has decided to add "Severe Rainstorm" to the 2016 Update to the County Plan and its annexed local AHMPs. While past damage locations can sometimes be mapped (depending upon the degree and accuracy of data collection efforts) this may or may not provide any degree of predictability of the potential locations for future events.
The Town of Huntington's road infrastructure as well as the driveways of private homes and businesses consist primarily of gravel and/or dirt and are therefore susceptible to damage from severe rainstorms. Damage occurring in DR 4120 (noted below) included significant damage from severe rainstorms.

Ridgeline and hilltop homes, utility lines, and homes located in the midst of mature forests are the most vulnerable to damage from falling trees and tree limbs. Five high wind events have been specifically identified as affecting Huntington by the National Climatic Data Center. According to the National Climatic Data Center, lightning has not struck and damaged structures in Huntington, although local officials indicate that many more lightning incidents have occurred than are recorded in the database.

3.2.3 High Crash Locations

No high crash locations have been identified by the Vermont Agency of Transportation in Huntington.

3.2.4 Road Infrastructure Failure

Of the 30 bridges inventoried by VTrans for Huntington, four are rated functionally deficient, and four are rated structurally deficient. Four bridges in Huntington are rated Scour Critical with regards to fluvial undermining of bridge structure (two over Cobb Brook and two over Brush Brook).

3.2.5 Hazardous Substances

No hazardous materials are stored in Huntington in amounts in excess of 10,000 lbs, and no extremely hazardous substances are stored in Huntington. No other data are available on hazardous substances storage.

3.3 Previous FEMA-Declared Natural Disasters and Snow Emergencies

3.3.1 Public Assistance

Since 1990, Huntington has received public assistance funding from FEMA for the following natural disasters:

Table 3-1 Town of Huntington, FEMA-declared disasters and snow emergencies, 1990-2016

Date (FEMA ID#)	Type of Event	Total repair estimates
June 1990 (DR 875)	Flooding	$3,111
January 1996 (DR 1101)	Flooding/high winds	$11,333

April 2001 (EM3167)	Snow emergency	$12,460
June 2011 (DR 1995)	Flooding	$151,252
September 2011 (DR 4022)	Tropical Storm	$128,104
August 2013 (DR 4140)	Flooding	$331,838
December 2014 (DR 4207)	Snow emergency	$142,074
June 2015 (DR 4232)	Severe Storm and Flooding	$138,232

Sources: Vermont Department of Housing & Community Affairs; Vermont Agency of Transportation, FEMA Dollar value figures represent the total estimated repair costs for damages suffered to municipal resources. This table does not include damage claims submitted to FEMA by non-municipal organizations or by private individuals or businesses.

The Town of Huntington was reimbursed at a rate of 75 percent by FEMA for the estimated repair costs coupled with additional dollars from the State's Emergency Relief Assistance Fund (ERAF) typically averaging 12.5%. Funds provided in response to these natural disasters were used as follows:

- June 1990 (DR 875): Slide on Main Road at south edge of property 9248 Main Road. Funds were used to rebuild the side of the road bed, clear the stream of debris, and place rip rap as well as associated expenses.
- January 1996 (DR 1101): Funds were used for debris and snow removal, gravel, culverts, equipment use, and labor to repair damaged portions of Sherman Hollow Road, Hinesburg Hollow Road, Salvas Road, Happy Hollow Road, Keir Road, and the intersection of Main and Shaker Mountain Roads.
- April 2001 (EM3167): Increased contractual costs for snow removal.
- June 2011 (DR 1995): Money was used to repair gravel roadway and associated ditch on Trapp Road, Handy Road, Moody Road, Keir Road, and Salvas Road, to repair gravel roadway and ditches and to replace guard rail on Camel's Hump Road and Bert White Road, and to repair gravel roadway, ditches and culverts on Terrien Road, Economou Road and Taft Road.
- September 2011 (DR 4022): Money was used to repair damage to the rip rap and wing walls of Town Bridges #41, #33 and #34 on Camel's Hump Road, to repair damage to the rip rap of Town Bridge #30, #31 and #32 on Camel's Hump Road and to repair road failure on Camel's Hump Road.
- August 2013 (DR 4140): Money was used to repair road and ditch damage along Bert White Road, Happy Hollow Road, Sherman Hollow Road, Economou Road, Taft Road, and Texas Hill Road, to repair road, ditch and culvert damage on Handy Road, Moody Road, Mayo Road and Keir Road, and to repair road, ditch, culvert and dry hydrant damage to Texas Hill Circle.
- December 2014 (DR 4207): Snow and ice accumulation resulted in roadways and town right of ways being severely compromised by concentrated amounts of wood debris. Class 2 and Class 3 roads were hardest hit.

- June 2015 (DR 4232): Money was used to repair gravel roadway and guard rails and rip rap along Beane Road, to repair roadway and ditches along Salvas Road, Taft Road, Shaker Road and Trapp Road, and to repair gravel roadway and rip rap along Happy Hollow Road.

See *Figure* 3.1. to see locations where repairs funded in part with FEMA Public Assistance took place for disasters between 2001 and 2015. As the map shows, damage has tended to be concentrated in upland areas. Note that some Debris Removal and Protective Measures locations are shown at the location of the municipal office. This indicates assistance was at various locations throughout the municipality, not that damages were incurred at the office.

3.3.2 Individual Assistance funds

As noted in Section 3.3 of the County Plan, due to privacy concerns, the individual homes or businesses which received Individual Assistance funds are not public information. However, the names of the streets of such homes or businesses from which claims are filed is available as are the funds provided. With regards to the Town of Huntington, data indicate that four individual assistance claims were approved on Main Road and Camel's Hump following the June 2011 disaster and Tropical Storm Irene in Fall 2011. These streets are shown in Figure 3.1.1.

Table 3-2 Town of Huntington, location of individual assistance claims, Spring 2011 flood & Tropical Storm Irene, September 2011

Disaster	Damaged Address Street	Amount
June 2011	ECONOMOU RD	$4,927.44
June 2011	MAIN RD	$6,961.34
June 2011	SALVAS RD	$4,987.03
Tropical Storm Irene	CAMELS HUMP RD	$8,677.35
Tropical Storm Irene	EAST ST	$191.82
Tropical Storm Irene	TAFT RD	$6,815.22

3.4 Future Events

Although estimating the risk of future events is far from an exact science, CCRPC staff used best available data and best professional judgment to conduct an updated Hazards Risk Estimate analysis, which was subsequently reviewed and revised by town officials in Fall 2015. This analysis assigns numerical values to a hazard's affected area, expected consequences, and probability. This quantification allows direct comparison of very different kinds of hazards and their effect on the county, and serves as a rough method of identifying which hazards hold the greatest risk. CCRPC staff applied the following scoring system:

Area Impacted, scored from 0-4, rates how much of the municipality's developed area would be impacted.

Consequences consists of the sum of estimated damages or severity for four items, each of which are scored on a scale of 0-3:

- Health and Safety Consequences
- Property Damage
- Environmental Damage
- Economic Disruption

Probability of Occurrence (scored 1-5) estimates an anticipated frequency of occurrence.

To arrive at the overall risk value, the sum of the Area and Consequence ratings was multiplied by the Probability rating. The highest possible score is 80.

As explained in detail in Section 3.4 of the Multi-Jurisdictional Plan, for the 2011 Plan, the following Hazards were considered to occur or have the potential to occur with sufficient frequency and/or severity to be profiled for the Risk Estimation of that Plan:

Natural Hazards:
- Drought
- Flooding
- Fluvial erosion
- High winds
- Landslide
- Lightning
- Multi-structure fire
- Radiological (natural)
- Wildfire
- Winter storm

Technological Hazards:
- Gas service loss
- Hazardous materials incident
- Major transportation incident
- Military ordnance incident
- Power loss
- Radiological incident
- Sewer service loss
- Telecommunications failure
- Water service loss

Societal Hazards:
- Crime
- Civil disturbance
- Economic recession
- Epidemic
- Key employer loss
- Terrorism

For the 2017 update, the CCRPC and its All-Hazards Mitigation Plan Update Committee made slight changes to this list by consolidating some hazards or delineating hazards with more specificity as follows:

Natural Hazards:
- Flooding
- Fluvial erosion
- Severe rainstorm
- Wildfire
- Winter storm
- Extreme temperatures

Technological Hazards:
- Hazardous materials incident
- Major transportation incident
- Multi-structure fire
- Natural gas service loss
- Pollution
- Power loss
- Sewer service loss
- Telecommunications failure
- Water service loss
- Other fuel service loss
- Invasive Species

Societal Hazards:
- Crime
- Civil disturbance
- Economic recession
- Epidemic
- Key employer loss
- Terrorism

3.4.1 Natural Hazards

For the 2011 Hazard and Risk Estimation analysis for Huntington, the following natural hazards received the highest risk ratings out of a possible high score of 80:

- Severe Winter Storm (40)
- Flooding (28)
- Fluvial Erosion (24)

For the 2016 update, the following natural hazards received the highest risk ratings out of a possible high score of 80 (see Table below):

- Severe Winter Storm (40)
- Severe Rainstorm (35)
- Flooding (32)
- Fluvial Erosion (30)

While flooding and fluvial erosion are likely to have a significant impact over a smaller area, severe winter storms tend to affect the entire town and are more common, hence the higher rating. Severe rainstorms have been responsible for several road and ditch washouts in the past five years, leading to an increase in its ranking.

Table 3-3 Natural hazards risk estimation matrix, Huntington

		Severe Winter Storm	Severe Rainstorm	Flooding	Fluvial Erosion	Extreme Temperatures	Wildfire
Area Impacted							
Key:	0 = No developed area impacted					0	0
	1 = Less than 25% of developed area impacted				1		
	2 = Less than 50% of developed area impacted			2			
	3 = Less than 75% of developed area impacted		3				
	4 = Over 75% of developed area impacted	4					
Consequences							
Health & Safety Consequences					0	0	0
Key:	0 = No health and safety impact	1	1	1			
	1 = Few injuries or illnesses						
	2 = Few fatalities or illnesses						
	3 = Numerous Fatalities						
Property Damage							
Key:	0 = No property damage					0	
	1 = Few properties destroyed or damaged	1	1	1	1		1
	2 = Few destroyed but many damaged						
	2 = Few damaged and many destroyed						
	3 = Many properties destroyed and damaged						
Environmental Damage							
Key:	0 = Little or no environmental damage						
	1 = Resources damaged with short-term recovery	1	1		1	1	1
	2 = Resources damaged with long-term recovery			2			
	3 = Resources destroyed beyond recovery						
Economic Disruption							
Key:	0 = No economic impact						
	1 = Low direct and/or indirect costs	1	1			1	1
	2 = High direct and low indirect costs			2			
	2 = Low direct and high indirect costs						
	3 = High direct and high indirect costs				3		
Sum of Area & Consequences Scores		***8***	***7***	***8***	***6***	***2***	***3***
Probability of Occurrence							
Key:	1 = Unknown but rare occurrence						1
	2 = Unknown but anticipate an occurrence						
	3 = 100 years or less occurrence						
	4 = 25 years or less occurrence			4		4	
	5 = Once a year or more occurrence	5	5		5		
TOTAL RISK RATING							
	Total Risk Rating =	**40**	**35**	**32**	**30**	**8**	**3**
	Sum of Area & Consequences Scores						
	x Probability of Occurrence						

3.4.2 Technological Hazards

In the 2011 Hazard and Risk Estimation analysis for Huntington, the following technological hazards received the highest risk ratings out of a possible high score of 80:

- Power Loss (35)
- Telecommunications Failure (25)
- Major Transportation Incident (21)

For the 2016 update, the following technological hazards received the highest risk ratings out of a possible high score of 80 (see Table below):

- Power Loss (50)
- Telecommunications Failure (30)

Huntington is vulnerable to power loss and telecommunications failure because the population is dispersed and repairing utility infrastructure in rural areas can take more time. Huntington does not have municipal water service, but town residents and businesses rely on well water, so it should be noted that a power loss also results in a water service loss.

Power loss and telecommunications failure were both identified as the most significant technological hazards in the 2011 plan. Both issues remain significant for residents of rural areas.

Table 3-4 Technological hazards risk estimation matrix, Huntington

		Power Loss	Telecommunications Failure	Invasive Species	Pollution	Water Supply Loss	Major Transpor-tation Incident	Multi-Structure Fire	Hazardous Materials Incident	Sewer Service Loss	Natural Gas Service Loss	Other Fuel Servi
Area Impacted					0				0	0	0	
Key:	0 = No developed area impacted											
	1 = Less than 25% of developed area impacted			1	1		1	1	1			
	2 = Less than 50% of developed area impacted											
	3 = Less than 75% of developed area impacted		3									
	4 = Over 75% of developed area impacted	4										
Consequences												
Health & Safety Consequences				0					0		0	
Key:	0 = No health and safety impact											
	1 = Few injuries or illnesses		1		1	1		1	1		1	
	2 = Few fatalities or illnesses	2					2					
	3 = Numerous Fatalities											
Property Damage			0							0		
Key:	0 = No property damage											
	1 = Few properties destroyed or damaged			1	1	1	1		1	1		1
	2 = Few destroyed but many damaged	2						2				
	3 = Few damaged and many destroyed											
	4 = Many properties destroyed and damaged											
Environmental Damage												
Key:	0 = Little or no environmental damage	0	0				0	0			0	0
	1 = Resources damaged with short-term recovery				1	1			1	1		
	2 = Resources damaged with long-term recovery			2								
	3 = Resources destroyed beyond recovery											
Economic Disruption												
Key:	0 = No economic impact				0							
	1 = Low direct and/or indirect costs			1		1			1	1	1	1
	2 = High direct and low indirect costs	2	2				2	2				
	2 = Low direct and high indirect costs											
	3= High direct and high indirect costs											
Sum of Area & Consequences Scores		***10***	***6***	***5***	***4***	***4***	***6***	***6***	***5***	***3***	***2***	***2***
Probability of Occurrence												
Key:	1 = Unknown but rare occurrence								1	1	1	
	2 = Unknown but anticipate an occurrence							2	2			
	3 = 100 years or less occurrence						3					
	4 = 25 years or less occurrence											
	5 = Once a year or more occurrence	5	5	5	5	5						
TOTAL RISK RATING												
	Total Risk Rating =	**50**	**30**	**25**	**20**	**20**	**18**	**12**	**10**	**3**	**2**	**2**
	Sum of Area & Consequences Scores											
	x Probability of Occurrence											

3.4.3 Societal Hazards

In the 2011 Hazard and Risk Estimation analysis for Huntington, the following societal hazards received the highest risk ratings out of a possible high score of 80:

- Epidemic (21)
- Economic Recession (21)

For the 2016 update, the following societal hazards received the highest risk ratings out of a possible high score of 80 (see Table below):

- Economic Recession (28)
- Key Employer Loss (20)
- Crime (20)

Economic recession is highly ranked for both its direct impacts and its secondary effects on health, safety, and the environment. In a recession, property owners may not be able to maintain their properties, which are then more vulnerable to natural hazards. Many Huntington residents are employed by large firms such as Global Foundries, raising concerns about the risk of a key employer loss. Major crime is rare in the town, but small crimes are very common.

Economic recession was identified as threats in the 2011 plan, and the risk of it remains low but still exists. The risk of crime is perceived as being higher now. This is related to Vermont's opioid epidemic. Drug use and crimes related to drug use, while still rare compared to the situation in major cities, are a major point of discussion in Vermont. Residents of small towns no longer feel immune to crime, increasing the ranking of this hazard.

Table 3-5 Societal hazards risk estimation matrix, Huntington

		Economic Recession	Crime	Key Employer Loss	Epidemic	Terrorism	Civil Disturbance
Area Impacted		3	1	2	2	1	0
Key:	0 = No developed area impacted						
	1 = Less than 25% of developed area impacted						
	2 = Less than 50% of developed area impacted						
	3 = Less than 75% of developed area impacted						
	4 = Over 75% of developed area impacted						
Consequences							
Health & Safety Consequences		1	1	0	2	1	0
Key:	0 = No health and safety impact						
	1 = Few injuries or illnesses						
	2 = Few fatalities or illnesses						
	3 = Numerous Fatalities						
Property Damage		0	1	0	0	1	1
Key:	0 = No property damage						
	1 = Few properties destroyed or damaged						
	2 = Few destroyed but many damaged						
	3 = Few damaged and many destroyed						
	4 = Many properties destroyed and damaged						
Environmental Damage		1	0	0	0	0	0
Key:	0 = Little or no environmental damage						
	1 = Resources damaged with short-term recovery						
	2 = Resources damaged with long-term recovery						
	3 = Resources destroyed beyond recovery						
Economic Disruption		2	1	3	1	1	1
Key:	0 = No economic impact						
	1 = Low direct and/or indirect costs						
	2 = High direct and low indirect costs						
	2 = Low direct and high indirect costs						
	3 = High direct and high indirect costs						
Sum of Area & Consequences Scores		***7***	***4***	***5***	***5***	***3***	***2***
Probability of Occurrence		4	5	4	3	1	1
Key:	1 = Unknown but rare occurrence						
	2 = Unknown but anticipate an occurrence						
	3 = 100 years or less occurrence						
	4 = 25 years or less occurrence						
	5 = Once a year or more occurrence						
TOTAL RISK RATING							
	Total Risk Rating =	**28**	**20**	**20**	**15**	**3**	**2**
	Sum of Area & Consequences Scores						
	x Probability of Occurrence						

3.4.4 Hazard Summary

According to the risk estimation analysis, the highest rated hazards for Huntington are:

Natural Hazards

- Winter Storm (40)
- Severe Rainstorms (35)
- Flooding (32)
- Fluvial Erosion (30)

Technological Hazards

- Power Loss (50)
- Telecommunications Failure (30)

Societal Hazards

- Economic Recession (28)
- Key Employer Loss (20)
- Crime (20)

It should be noted that the four natural hazards on the list—flooding, fluvial erosion, severe rainstorm and winter storm—could be the cause of the highest-rated technological hazards, power loss and telecommunications failure. Winter storms are the highest rated hazard for Huntington, due in large part to their widespread nature and frequent occurrence.

SECTION 4: VULNERABILITY ASSESSMENT

As discussed in Section 4 of the County Plan, typical vulnerabilities from the County's common hazards consist primarily of:

- Damage to public infrastructure especially roads and culverts;
- Temporary closures of roads and bridges including from debris;
- Temporary loss of power and/or telecommunications
- Temporary isolation of vulnerable individuals such as the elderly or those in poverty.

More specifically, these vulnerabilities typically occur in association with the Profiled Natural Hazards as follows:

Table 4-1 Town of Huntington: Natural Hazards and typical vulnerabilities

Hazard	**Typical vulnerabilities**	**Occasional additional vulnerability**
Severe Winter Storm	-temporary closures of roads and bridges including from debris; -temporary loss of power and/or telecommunications, and -temporary isolation of vulnerable individuals	-budget impacts from debris cleanup
Flooding	-temporary closures of roads and bridges including from debris; -temporary loss of power and/or telecommunications, and -temporary isolation of vulnerable individuals -damage to public infrastructure	-budget impacts from road/bridge closures and repairs to public infrastructure -damages to individuals' properties and businesses
Fluvial Erosion	-temporary closures of roads and bridges including from debris; -temporary loss of power and/or telecommunications, and -temporary isolation of vulnerable individuals -damage to public infrastructure	-budget impacts from road/bridge closures and repairs to public infrastructure -damages to individuals' properties and businesses
Severe Rainstorm	-temporary closures of roads and bridges including from debris; -temporary loss of power and/or telecommunications, and -temporary isolation of vulnerable individuals -damage to public infrastructure	-budget impacts from road/bridge closures and repairs to public infrastructure -damages to individuals' properties and businesses
Extreme Temperatures	-damage to public infrastructure -loss of water service	-budget impacts due to needed repairs
Wildfire	-damage to private and/or municipal	

	property	

Relative to the County as a whole, the Town of Huntington has a higher vulnerability to:

- Severe Rainstorms, Fluvial Erosion due to high amount of gravel roads and mountainous terrain.
- Flooding due to the presence of the Huntington River.

Vulnerabilities with regard to Technological Hazards are harder to project as these incidents occur with less frequency and less predictability.

Table 4-2 Town of Huntington: Technological Hazards and typical vulnerabilities

Hazard	**Typical vulnerabilities**	**Occasional additional vulnerability**
Major Transportation Incident	-temporary closures of transportation infrastructure -injuries, deaths	-if major event, potential long term closure of infrastructure.
Power Loss	-temporary loss of electrical service -temporary impacts to vulnerable individuals -damage to public infrastructure	-if extended event, damage to perishable goods or business income. -if extensive loss, potential budget impacts to service providers.
Hazardous Materials Incident	-temporary closures of roads and bridges during cleanup.	-if large event, potential high cleanup costs. -injuries to persons
Water Service Loss	-temporary loss of service -temporary impacts to vulnerable individuals	-if extensive loss, potential budget impacts to service providers.
Gas Service Loss	-temporary loss of service -temporary impacts to vulnerable individuals	-if extensive loss, potential budget impacts to service providers.
Telecommunications Failure	-temporary loss of service -temporary impacts to vulnerable individuals	-if extensive loss, potential budget impacts to service providers.
Other Fuel Service Loss	-temporary loss of service	-if extensive loss,

	-temporary impacts to vulnerable individuals	potential budget impacts to service providers.
Sewer Service Loss	-temporary loss of service -temporary impacts to vulnerable individuals	-if extensive loss, potential budget impacts to service providers.
Water Pollution	-ongoing budgetary impacts due to permit requirements.	-if repeat events, impacts to tourism-based businesses
Invasive Species	-small but ongoing cost to monitoring level of occurence	-unknown at this point.

Relative to the County as a whole the Town of Huntington has a slightly higher vulnerability to:

- Power Loss and Telecommunications Failure due to its mountainous terrain

With regard to Societal Hazards, vulnerabilities are typically more dispersed among individuals and societal sectors compared to the natural environment and to technology which is fixed.

Table 4-3 Town of Huntington: Societal Hazards and typical vulnerabilities

Hazard	**Typical vulnerabilities**	**Occasional additional vulnerability**
Crime	-increased demands on police services and social services	-injuries -deaths
Epidemic	-temporary closures of schools, businesses, places of assembly -increased demand on medical services	-if an epidemic is widespread and long-lasting, impact could be severe
Key Employer Loss	-loss of economic activity -loss of portion of tax base -increased demands on social services	-effects increased if employer is of significant size
Economic Recession	-loss of economic activity -increased demands on social services -some loss of tax revenue	-effects increased if event is of extended duration
Civil Disturbance	-injuries to persons -damage to public and private property	-budget impacts to police services depending upon

		severity of event -deaths
Terrorism	-injuries to persons -damage to public and private property	-budget impacts to police services depending upon severity of event -deaths

Relative to the County as a whole there are insufficient data to conclude whether the Town is more vulnerable to one of the six Societal Hazards noted above.

With regard to the vulnerability of critical facilities, infrastructure and vulnerable populations, quantitative and locational data for the Town are available as follows.

4.1 Critical Facilities

The Center for Disaster Management and Humanitarian Assistance defines critical facilities as: "Those structures critical to the operation of a community and the key installations of the economic sector." *Figure 1.4* shows the geographic distribution of some critical facilities and utilities. The table below identifies critical facilities in Huntington excluding critical facilities designated as hazardous materials and petroleum storage sites, which are shown in Section 3.2.5. This list includes all critical facilities, not only the facilities located in designated hazard areas.

Table 4-4 Critical facilities in the Town of Huntington

Facility Type	Number of Facilities
Education Facility	1
Fire Station	1
Emergency Shelters	1
Emergency Operations Center	1
Government and Military	2
Mail and Shipping	1

Source: VCGI

None of these facilities are located in mapped Flood Hazard Areas
None of these facilities are located in mapped River Corridors.
None of these facilities are located in mapped River Corridor Protection Areas.

4.2 Infrastructure

4.2.1 Town Highways

The following is a statistical overview of roads in the Town of Huntington. These tables show the range of road types within the town, from state highway to unimproved unpaved roads. Different road types have different hazard vulnerabilities. Unpaved roads are more vulnerable to washing out in a flood or storm, while traffic incidents are more likely to occur on large, arterial roads.

Municipal highways, bridges and dams are well mapped in Chittenden County. The following three tables show the diversity of municipal highways and road surface in the Town of Huntington.

The Vermont Agency of Transportation divides municipal (town) highways into various classes as follows:

Class 1 town highways are subject to concurrent responsibility and jurisdiction between the municipality and VTrans. Class 1 town highways are state highways in which a municipality has assumed responsibility for most of the day to day maintenance (pot hole patching, crack filling, etc.). The state is still responsible for scheduled surface maintenance or resurfacing. In Chittenden County Class 1 highways are generally paved.

Class 2 town highways are primarily the responsibility of the municipality. The state is responsible for center line pavement markings if the municipality notifies VTrans of the need. The municipality designates highways as Class 2 with approval from VTrans. These are generally speaking the busier roads in a given town second to Class 1. In Chittenden County, most Class 2 highways are generally paved although in the more isolated areas these are gravel roads.

Class 3 town highways are the responsibility of and designated by the municipality. These are to be maintained to an acceptable standard and open to travel during all seasons. In Chittenden County, Class 3 roads are both paved or gravel.

Class 4 town highways are all other highways and the responsibility of the municipality. However, pursuant to Vermont State Statutes, municipalities are not responsible for maintenance of Class 4 town highways. These are generally closed during the winter and minimally maintained and almost exclusively dirt.

Table 4-5 Town highway mileage by class, Town of Huntington

Class 1	Class 2	Class 3	Class 4	State Hwy	Fed Hwy	Interstate	Total 1, 2, 3, State Hwy
	11.179	32.780	2.070				43.959

Source: derived from VTrans TransRDS GIS data – surface class and arc length

Table 4-6 Town highway mileage by surface type, Town of Huntington

Paved	Gravel	Soil or Graded	Unimproved	Impassable	Unknown	Total
12.15	27.56	4.25	1.78	0.29	0	46.03

Total Known	Total Unpaved	% Paved	% Unpaved
46.03	33.88	26.4%	73.6%

Source: derived from VTrans TransRDS GIS data – surface class and AOTmiles

See Figure 3.2 for locations of paved versus gravel and/or soil roads.

4.2.2 Bridges, Culverts, and Dams

There are a variety of bridges, culverts and dams located in the municipality. The following bridges are contained in an inventory maintained by VCGI, VTrans and the CCRPC. A GIS intersection was performed to determine which bridges are located in the designated flood hazard area (aka Special Flood Hazard Area or 100-year floodplain.) and /or the River Corridor Protection Area (aka Fluvial Erosion Hazard Area).

Table 4-7 Bridges located in SFHA and RCPA

# of Structures in RCPA (FEH)	# of *Insufficient* Structures in RCPA	# of Structures in River Corridor	# of *Insufficient* Structures in RC	# of Structures in SFHA	# of *Insufficient* Structures in SFHA
20	0	27	0	20	0
A structures could be a bridge, culvert or arch. *Data came from ANR DMS. A structure is insufficient if its % bankfull width is 50% or less.*					

As noted in Section 4 of the County Plan, a large portion of the County's stream have had detailed Phase II Stream Geomorphic Assessments conducted. With regards to Huntington, studies identify specific stream reaches where fluvial erosion is a concern as well as where infrastructure, primarily culverts, as noted in the table below is at risk

Table 4-8 Culverts with a geomorphic compatibility rating of "Mostly Incompatible" or "Incompatible"

Bankfull Width	Compatibility Score	Location	Road Name	Stream Name
40.00	6	Above Audobon Center	SHERMAN HOLLOW RD	Trib to Huntington River
40.00	7		HANDY RD	Trib to Huntington River
35.71	9		TRAPP RD	Cobb Brook, Huntington River
44.44	9	Next to a house with an old porch on the lawn	MAIN RD	Trib to Huntington River
40.00	9	Farthest structure up Happy Hollow Road	HAPPY HOLLOW RD	Trib to Johns Brook
23.53	10	On Dead end Road	HAPPY HOLLOW RD	Johns Brook
60.71	10		TEXAS HILL RD	Texas Brook

Mostly incompatible *5<GC<10*
% Bankfull Width + Approach Angle scores < 2

Structure mostly incompatible with current form and process, with a moderate to high risk of structure failure. Re-design and replacement planning should be initiated to improve geomorphic compatibility.

Fully incompatible *0<GC<5*
% Bankfull Width + Approach Angle scores < 2 ***AND*** *Sediment Continuity + Erosion and Armoring scores < 2*

Structure fully incompatible with channel and high risk of failure. Re-design and replacement should be performed as soon as possible to improve geomorphic compatibility.

Information on dams is available from two sources: a database of dams regulated by the Vermont Department of Environmental Conservation and the National Dam Inventory maintain by the U.S. Army Corps of Engineers. There are no dams regulated by DEC in Huntington, and the National Dam Inventory shows no dams located in the municipality.

4.2.3 Water, Wastewater and Natural Gas Service Areas

The town operates no wastewater or water delivery systems. All residents and businesses receive water from wells and dispose of wastewater through septic systems. There are no natural gas distribution facilities in the town.

4.2.4 Electric Power Transmission Lines and Telecommunications Land Lines

There are no high tension power transmission lines or substations in the town. Above ground telecommunication land lines and Green Mountain Power electrical distribution lines run along the street grid. However, Vermont Electric Coop power lines run directly through wooded areas, contributing to power losses.

4.3 Estimating Potential Losses in Designated Hazard Areas.

A simple GIS intersection of e-site data with the 2010 FIRM floodplain data indicates the following with regards to structures located in mapped flood hazard areas (cf. Figure 2.1):

- There are 1,093 total structures in Huntington.
- There are 15 residential structures and no commercial/industrial structures located within the 100-year floodplain.
- Based on the 2014 median grand list values, the estimated potential loss due to a major flood event inundating the floodplain is $3,296,284.

A simple GIS intersection of esite data with the 2016 River Corridor Protection Area data indicates the following with regards to structures vulnerable to Fluvial Erosion:

- There are 1,093 total structures in Huntington
- There are 51 residential structures and 2 commercial/industrial structures located within the RCPA.
- Based on the 2014 median grand list values, the estimated potential loss due to an event in a river corridor is $11,494,038.

These estimates only take structures into account. They does not account for personal property or business losses. At this time, a more detailed analysis of potential losses to infrastructure, and agricultural lands cannot be made. Such an analysis would require individual site visits and analysis conducted by both river geomorphologists and structural engineers which is beyond the capacity of the CCRPC due to funding limitations.

4.4 Vulnerable Populations

Like most of the County's rural communities, census data more detailed than the town boundaries is not available to see if there are concentrations of either elderly populations or low-

income populations. In other words, the town's boundaries form one single census tract. Demographic information on the relative percentages of vulnerable populations is as follows:

Table 4-9 Vulnerable populations, Huntington

	Huntington	Chittenden County	Vermont	National
Percent Minority (non-white)[1]	2.7%	7.7%	4.8%	26.7%
Children <18 in poverty[1]	10.8%	11.1%	14.8%	21.6%
Families w/children in poverty[1]	8.6%	10.5%	13.4%	17.8%
Families w/ female householder, no husband present w/children in poverty[1]	13.6%	37.0%	37.4%	40%
Population, age 65+ in poverty[1]	3.6%	6.5%	7.5%	13.4%

[1]*US Census Bureau, 2010-2014 5-Year Estimates, American Community Survey*

Given the coarseness of the available data, CCRPC is not able to determine specific locations with a concentration of vulnerable individuals within individual municipalities. However, a useful analysis known as a Social Vulnerability Analysis has been prepared by the Vermont Department of Health. Data for the Town is shown in *Figure 4.1*.

The Social Vulnerability Index (SVI) draws together 16 different measures of vulnerability in three different themes: socioeconomic, demographic, and housing/transportation. The 16 individual measures include poverty, unemployment, per capita income, educational attainment, health insurance, children/elderly, single parent households, disability, minority, limited English, location of apartment buildings, mobile homes, crowding, no vehicle access, and population living in group quarters. The measures are combined to create relative vulnerability index. For every vulnerability measure, census tracts above the 90th percentile, or the most vulnerable 10%, are assigned a flag. The vulnerability index is created by counting the total number of flags in each census tract. It is important to remember that this Social Vulnerability Index is just a first step in screening for populations that may be more or less vulnerable to a variety of hazard. Depending on the situation, different measures could be more or less important and should be looked at more closely. These data are NOT saying that one census tract is more vulnerable than another. Rather it is saying that there is a higher concentration of various vulnerable populations living within a tract and seeks to identify the conditions that make a population vulnerable.

4.5 Land Use and Development Trends Related to Mitigation

As noted in the Introduction, Huntington's land use is primary residential and agricultural. An analysis of GIS data shows the following percentages for land use and the percentages of land allocated to each zoning district.

Table 4-10 Structures compared to zoning, Town of Huntington

Huntington Structures	Percent		**Huntington Zoning**	Percent

Residential	78.96%		Conservation	7.28%
Commercial	1.37%		Forest	28.69%
Industrial	0.37%		Neighborhood	4.23%
Institutional / Infrastructure	0.37%		Rural Residential	58.60%
Mass Assembly	0.18%		Special Dist-School	0.03%
Leisure / Recreation	0.00%		Village A	0.12%
Natural Resources	0.27%		Village B	1.05%

Source: 2015 e911 Data and 2013 Town of Huntington Zoning Regulations, Note: The structure categories relate to the Land Based Classification System (LBCS) used in the 2011 AHMP not E-911 site types. E-911 site types were assigned to each LBCS category to create synergy between the 2011 AHMP and 2017 AHMP.

4.5.1 Conserved or Undevelopable Parcels

There are a number of conserved parcels in Huntington, including part of Camel's Hump State Park. Most parcels have been conserved for their scenic, agricultural or natural resource values.

Table 4-11 Conserved Land, Town of Huntington

Acres	Acres of Public Land	Percent Public	Acres of Conserved Land	Percent Conserved	Total Public & Conserved	Percent Conserved Land
24,526.57	6,339.16	26%	1,046.73	4%	7,386.15	30%

Source: VLT Data and ANR Public Lands

The Huntington Conservation Commission administers the town's Conservation Reserve Fund, which can be used for land conservation or open space purchases, as well as for other projects, such as buildings.

Additionally, as noted below in Table 5.1, the Town's Flood Hazard Regulations prevent most construction in the Special Flood Hazard Area, effectively creating conserved lands. The Town's Zoning Regulations also include stream setbacks, which prevents new construction in the River Corridor and conserves vulnerable land, and a conservation district.

4.5.2 Recent and Future Development

At present and for the foreseeable future the current development pattern will continue: some residential and commercial growth in the Village Districts and continued, dispersed residential growth on 5 and 25 acre lots in the Rural and Woodland districts. At this time, the main way CCRPC has to predict future development is by analysis of municipal zoning bylaws. As the municipality participates in the NFIP, zoning bylaws heavily regulate development in designated flood hazard areas. As a result, little to no development is likely to take place in flood hazard areas. Additionally, the Town also regulates development near other waterbodies and wetlands. As a result, little to no development is likely to take place in flood hazard areas or river corridor protection areas. These zoning requirements effectively mitigate damages from Flood and Fluvial Erosion hazards to future structures.

As shown in Figure 4.2, from 2011 through 2014, the municipality has seen 8 housing units (in single family and multi-family structures) and no new commercial/industrial buildings

constructed. **None** of these units or structures were constructed in the Special Flood Hazard Area nor in the River Corridor Protection Area.

As best can be ascertained based upon data maintained by the Chittenden County RPC and the Town of Huntington, since the adoption of the last municipal AHMP in 2011, development activity in the Town has not increased vulnerability. Additionally, through at least 2021, there is no known or projected development of new buildings or infrastructure anticipated to be constructed in areas known to be particularly vulnerable to Natural Hazards.

SECTION 5: MITIGATION STRATEGY

The Town considered a range of mitigation actions across the categories of Planning and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, and Education and Awareness Programs. As is demonstrated in the discussion that follows the Town carries out numerous efforts as part of its day-to-day operations that fit within these categories and address and serve to mitigate the impacts of various hazards. The section concludes within an analysis of which vulnerabilities need additional attention and therefore stipulates discrete tasks to be carried out by the Town during the 5-year period this Plan is in effect to address these vulnerabilities.

5.1 Existing *2014 Huntington Town Plan* Implementation Tasks That Support Hazard Mitigation

These tasks are described in the 2012 Huntington Town Plan. The following selected excerpts illustrate how mitigation is formally promoted and supported through the Town Plan.

Land Use
Objective 6. Discourage development within flood hazard area and along river corridors by educating citizens and establishing zoning regulations that follow guidelines in the FEMA All-Hazard Mitigation Plan. If new development is to be built in such areas, it must not worsen flooding, fluvial erosion, or wildlife access to water.

Implementation 7. Propose changes in zoning and subdivision regulations to adequately protect private property, public safety, and Town infrastructure in Fluvial Erosion Hazard Zones.

Transportation
Goal 1: Preserve and continue to improve the physical condition, resiliency, and operational performance of the existing transportation system.
Goal 5: Incorporate environmental stewardship into the maintenance, rehabilitation, and construction of Town highways.

Objective 1: Continue to update and enhance inventories and condition assessments of all Town bridges, culverts, and roadways.
Objective 2: Identify bridges, culverts, and road segments that are vulnerable to floods. Implement strategies, including repair or replacement at high risk locations, in order to mitigate the consequences of failure.
Objective 4: Continue to maximize the use of state and federal funding for bridge, culvert, and roadway rehabilitation and replacement projects through collaboration with the Chittenden Country Regional Planning Commission (CCRPC) and the Vermont Agency of Transportation (VTrans).
Objective 6: Consider the safety and accommodation of all transportation system users including motorists, bicyclists, public transportation users, and pedestrians of all ages and abilities in the implementation of maintenance and construction activities. (This is required by Vermont's 2011 Complete Streets legislation, which all Towns are required to follow. It does not apply to gravel roads.)
Objective 8: Create and maintain safe roadway conditions.

Objective 9: Preserve water quality by adopting and implementing the January 23, 2013 VT Agency of Transportation and Agency of Natural Resources Town Road and Bridge Standards to reduce pollution and erosion through proper management of stormwater runoff from roadways.

Bridges and Culverts 1. Implement an annual bridge maintenance program (bridge washing, painting, patching, maintaining drainage, protecting decks, etc.) to extend the useful life of new and existing infrastructure.
Bridges and Culverts 2. Review, revise and/or adopt a Town culvert policy for private roads that provides for Town oversight and control, and that keeps the cost burden with property owners who own access roads.
Bridges and Culverts 4. Maintain the various inventories and assessments so that the data remains up-to-date. This should be incorporated into highway work plans and reporting.

Roads 1: Following the existing gravel road plan, utilize best management techniques on gravel roads (Vermont Better Backroads Program standards) in order to provide adequate drainage, structural stability, consistent riding surface, dust control, and right-of way maintenance.
Roads 3: Maintain the existing sections of fabric and installation of new fabric for the trouble sections of roads.
Roads 4: Continue to seek free consultation from VTrans, Vermont Local Roads, the Better Backroads program and other resources for road rebuilding projects.

Resiliency 1: Ensure all roadway, bridge, and culvert repair and replacement projects are upgraded as appropriate and are designed to increase resiliency to floods and major storm events.

Management 2: Adopt a schedule for the implementation of recommendations from the November 2011 study titled, An Inventory of Road Drainage Problems on Class 3 Roads and a Capital Improvement Plan, Town of Huntington, VT.
Management 3: Improve the prioritization rating system for road maintenance projects to include the importance of the road to the community at large and available budget dollars. Consider less expensive options for lower priority roads that serve a small segment of the population.
Management 4: Consult Vermont Forest, Parks, and Recreation and the Green Mountain Club regarding current and predicted traffic to Camel's Hump trails in order to address State funding for maintenance of trail access roads.

Funding 1: Prepare and annually update a capital improvement plan to ensure adequate funding for the timely implementation of transportation infrastructure projects (bridges, culverts, roadways, guardrails, signs, etc.).
Funding 2: Continue to provide funding for road and bridge reserve funds to minimize the impact on a single year's budget for higher cost roadway and bridge projects.

<u>Natural Resources</u>
Implementation 6(b) and (f): The Planning Commission will consult with the Conservation Commission and others to determine the feasibility of and necessity to review the corridor management plan for the Huntington River to identify ways to protect the Town and landowners

from flood and erosion damage, and identify opportunities to utilize Conservation Fund money for projects such as mitigation of invasive species, riparian buffer restoration projects, etc.

5.2 Existing Town of Huntington Actions That Support Hazard Mitigation

The following table illustrates how mitigation activities and plans are carried out by various municipal departments, and whether such capabilities are adequate to address hazard vulnerabilities and whether the department, if needed, has the ability to improve policies and programs and programs to unmitigated vulnerabilities.

Table 5-1 Existing municipal capabilities addressing hazard mitigation, Town of Huntington

Types of Programs & Policies	**Description / Details**	**1) Adequacy of municipal capabilities to address hazards 2) and ability to expand upon or improve policies & programs**
Highway Services	Town Highway Department	1) Generally adequate with regards to mitigating the impacts of common hazards. 2) However, the Town Highway Department, through the strategies noted below is taking on a stronger role to mitigate against damages caused by Severe Rainstorm, Fluvial Erosion and Water Pollution.
Highway personnel	4 FTE field personnel	1) Generally adequate with regards to mitigating the impacts of common hazards. 2) However, the Town Highway Department, through the strategies noted below is taking on a stronger role to mitigate against damages caused by Severe Rainstorm, Fluvial Erosion and Water Pollution.
Water / Sewer Department	None	N/A
Planning and Zoning personnel	1 FTE zoning administrator	1) Generally adequate with regards to mitigating the impacts of common hazards. 2) No need to expand upon or improve policies & programs with regard to hazards under its purview.
Residential Building Code / Inspection	No local building code.	1) Generally adequate with regards to mitigating the impacts of common hazards. New construction must obtain a zoning permit. 2) No need to expand upon or improve policies & programs with regard to hazards under its purview. 3) Note that commercial properties open to the public and all multi-family buildings of 3 units or more must be inspected and permitted by the Vermont Division of Fire Safety.
Town / Municipal Comprehensive Plan	2012	1) As noted at the start of Section 5, several elements of the municipal Comprehensive Plan promote Hazard Mitigation. 2) The Town is currently updating its Plan and will be referencing this 2017 AHMP accordingly.
Zoning Bylaws and Subdivision Regulations	2012	1) Generally adequate with regards to mitigating the impacts of common hazards.. 2) No need, at this time, to expand upon or improve policies & programs with regard to hazards under its purview.

Hazard Specific Zoning (slope, wetland, conservation, industrial, etc.)	Flood Hazard Overlay; Non-Developable Portions	1) Generally adequate with regards to mitigating the impacts of common hazards. 2) No need, at this time, to expand upon current flood hazard bylaws. 3) The Town is currently working with CCRPC staff to develop River Corridor bylaws
Participation in National Flood Insurance Program (NFIP) and Floodplain/ Flood Hazard Area Ordinance	Yes / Yes	1) New DFIRMS adopted in 2014. The Town Zoning Administrator and the Town's Development Review Board (DRB) monitor compliance with the National Flood Insurance Program. The DRB reviews and adjudicates applications for development within the floodplain. 2) No need, at this time, to expand upon NFIP participation
Open Space Plans; Conservation Funds	Conservation fund: $16,000 annual amount in town budget. No Open Space Plan.	1) Yes 2) Municipality considers regulatory programs and voluntary conservation efforts as adequate to address any hazard mitigation concerns. However, various areas may be conserved in the future by the use of the Fund but as of now, specific parcels conducive to hazard mitigation have not yet been targeted.

The following table illustrates how Emergency Preparedness, Response & Recovery actions are carried out in the Town.

Table 5-2 Existing municipal emergency services & plans, Town of Huntington

Type of Existing Protection	**Description /Details/Comments**
Emergency Services	**Emergency response personnel may have overlapping responsibilities with other town response organizations.**
Police Services	Vermont State Police
Police Department Personnel	Vermont State Police
Fire Services	Huntington Volunteer Fire Department
Fire Department Personnel	-0- FTE, ~21 volunteers
Fire Department Mutual Aid Agreements	FD participates in the Chittenden County Mutual Aid compact
EMS Services	Huntington First Response, Richmond Rescue
EMS Personnel	Huntington: 6 EMTs Richmond: 3 paid FTE personnel, ~38 volunteers
EMS Mutual Aid Agreements	Various throughout VT EMS District #3
Emergency Plans	
Local Emergency Operations Plan (LEOP)	2016
Primary Shelter	Community Church of Huntington

Replacement Power, backup generator	Yes
Secondary Shelter	Fire Station, Town Office
Replacement Power, backup generator	One generator shared between three buildings

5.3Town of Huntington All-Hazards Mitigation Goals

The following goals were first approved by the Town in its 2005 and 2011 AHMPs and approved by Town of Huntington officials during the development of this 2017 annex.

1) Reduce at a minimum, and prevent to the maximum extent possible, the loss of life and injury resulting from all hazards.
2) Mitigate financial losses and environmental degradation incurred by municipal, educational, residential, commercial, industrial and agricultural establishments due to various hazards.
3) Maintain and increase awareness amongst the town's residents and businesses of the damages caused by previous and potential future hazard events as identified specifically in this Local All-Hazards Mitigation Plan and as identified generally in the *Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan*.
4) Recognize the linkages between the relative frequency and severity of disaster events and the design, development, use and maintenance of infrastructure such as roads, utilities and stormwater management and the planning and development of various land uses.
5) Maintain existing municipal plans, programs, regulations, bylaws and ordinances that directly or indirectly support hazard mitigation.
6) Consider formal incorporation of this Local All-Hazards Mitigation Plan into the municipal comprehensive plan as described in 24 VSA, Section 4403(5), as well as incorporation of proposed new mitigation actions into the municipality's/town's bylaws, regulations and ordinances, including, but not limited to, zoning bylaws and subdivision regulations and building codes.
7) Consider formal incorporation of this Local All-Hazards Mitigation Plan, particularly the recommended mitigation actions, into the municipal/town operating and capital plans & programs especially, but not limited to, as they relate to public facilities and infrastructure, utilities, highways and emergency services.

With regard to a more formal process by which the Town will integrate the requirements of this mitigation plan into the Town's Comprehensive Plan, as required by Vermont law, municipalities must update their Comprehensive Plans every eight years. During any update process undertaken while this Plan document is in effect, the Town will review the recommended Actions detailed below to see if formal incorporation within the Comprehensive Plan (or any Plan implementation tasks) is warranted. Note that the Town will be updating its Town Plan in 2019.

Additionally, as the CCRPC is tasked with also reviewing and approving each such municipal comprehensive plan for consistency with various requirements in state statute and consistency with the Chittenden County Regional Plan (aka the *ECOS 2013 Plan*). This review includes a detailed staff critique with recommendations for improvement. This CCRPC review provides

another opportunity to formally integrate elements of this local AHMP into the Town's Comprehensive Plan.

With regard to a more formal process by which the Town will integrate the requirements of this mitigation plan while developing the Town's annual capital improvement plans/budgets, for periods , the Town will review the recommended Actions detailed below to see if formal incorporation within these annual capital plans is warranted prior to annual review and voting by Town residents. Additionally, CCRPC staff can assist the town with drafting grant applications to fund mitigation projects.

With regards to a more formal process by which the Town will integrate the requirements of this mitigation plan into the Town's annual capital improvement plans/budgets, for periods, the Town will review the recommended Actions detailed below to see if formal incorporation within these annual capital plans is warranted prior to annual review and voting by Town residents. Additionally, CCRPC staff can assist the town with drafting grant applications to fund mitigation projects.

5.4 Mitigation Actions

The following table records the strategies from the 2011 Plan and progress on their implementation. This table also encapsulates the Town's decision making with regards to which Actions to continue, which to establish as new actions and which to discontinue. During the development of this Municipal AHMP and its parent Multi-Jurisdictional AHMP, FEMA staff indicated to the CCRPC a need to separate out or remove strategies which are more properly considered to be Preparedness, Response or Recovery strategies rather than Mitigation. Additionally, upon revisiting and reviewing the 2011 actions and devising action for this 2017 local AHMP, CCRPC and municipal staff thought it would be best to focus on known and likely actions with a high likelihood of implementation versus consideration of more expansive but largely aspirational strategies.

Table 5-3 Progress on the actions of the 2011Huntington All-Hazards Mitigation Plan

Action **Primary Responsible Entity**	**Task**	**Brief Description**	**Progress since 2011 and recommendations for 2017 Plan**
#1 Complete fluvial geomorphology assessment and develop strategies in response to identified risk			
Planning Commission, Town Administrator	Fluvial Erosion Hazard Mitigation Implementation	Based on completed fluvial geomorphology assessments, develop strategies in response to identified risks	SGA work has been completed on the Huntington River and some of its tributaries, as well as portions of Brush Brook. Phase 2 SGA based River Corridor Protection Areas (formerly Fluvial Erosion Hazard Areas) were developed for those portions of streams where SGA was completed. Map 3 shows the progress of geomorphic assessments and identified Phase 2 SGA based River Corridor Protection Areas (RCPA) in Huntington. For new Plan: The Huntington Planning Commission will continue their work to develop a River Corridor/Fluvial Erosion Hazard Zone overlay zoning district to restrict

			development/disturbance in areas threated by fluvial erosion
Town Manager, Town Planner	Fluvial Erosion Hazard Mitigation Implementation	Implement strategies from above referenced Corridor Management Plan to mitigate losses from identified fluvial erosion hazards.	**DELETING THIS SECTION AS BY THE TIME FUNDS IF/ARE OBTAINED, PLAN DEVELOPED AND PROJECTS SCOPED, 5 YEAR PERIOD OF AHMP PLAN WOULD BE OVER.**
#2 Evaluate capabilities of existing road and stormwater management infrastructure			
Road Foreman	Infrastructure Assessment for Stormwater Vulnerability	Assess the vulnerability and operational capability of municipal roads, culverts and stormwater infrastructure.	CCRPC completed an inventory for the town in 2016, which will be used to identify culverts for replacement. **ASSESSMENT IS NOT CONSIDERED MITIGATION. REMOVE FROM NEW PLAN**
Road Foreman	Infrastructure Assessment for Fluvial Erosion/Landslide Vulnerability	Assess the vulnerability and operational capability of municipal roads, culverts, bridges and other infrastructure to fluvial erosion.	All bridges in Huntington are addressed by the state bridge inspection reports. Culvert assessment by the road crew is ongoing. **ASSESSMENT IS NOT CONSIDERED MITIGATION. REMOVE FROM NEW PLAN**
Road Foreman	Culvert and Other Infrastructure Upgrades	Upgrade culverts and ditching along roads to mitigate against repeated damages from stormwater or spring snowmelt.	The road crew has stone lined many ditches to mitigate against erosion risk. Culverts are upsized during replacement. Hydrological studies are completed before any culvert over 36" is installed. Other infrastructure is also evaluated for mitigation opportunities as it needs replacement. **CONTINUE FOR 2017 PLAN**
Road Foreman	Continued Monitoring of Vulnerable Infrastructure	Monitor bridges and culverts with erosion and scouring concerns.	Monitoring is ongoing. **MONITORING IS NOT CONSIDERED MITIGATION. REMOVE FROM NEW PLAN**
Road Foreman	Road Improvement	Consider paving certain road sections to lower overall maintenance costs, improve snow plowing speeds and improve overall	The town has completed erosion mitigation projects on Beane Road and at the intersection of Main Road and Carse Road, as well as landslide mitigation projects on Happy Hollow Road and Economou Road. **CONTINUE FOR 2017 PLAN**

		capability of roads to handle current and projected traffic volumes.	

5.4.1 Current Capabilities and Need for Mitigation Actions

The Town Comprehensive Plan's policies and programs that support hazard mitigation and the progress noted above demonstrate the variety of policies and actions forming the foundation of this All Hazards Mitigation Plan. As detailed in the *Table* below, generally, the Town considers its existing capabilities, regulatory structure and programs as adequate to address its vulnerabilities however continuation of existing mitigation actions or the implementation of new actions are warranted for the 5-year period this Plan is effect.

Table 5-4 Town of Huntington: Capabilities to address vulnerabilities from natural hazards

Hazard	**Adequacy of Municipal Capabilities to address associated vulnerabilities (Excellent, Good, Average, Below Average)**	**Additional expansion or improvement in policies & programs needed to address hazard given long-term vulnerability**
Severe Winter Storm	Excellent	No
Flooding	Excellent	**Yes, see actions below.**
Fluvial Erosion	Good	**Yes, see actions below**
Severe Rainstorm	Good	**Yes, see actions below.**
Extreme Temperatures	Good	No, rare occurrence and extent, impact & vulnerabilities are limited.
Wildfire	Excellent	No, rare occurrence and extent, impact & vulnerabilities are limited.

Table 5-5 Town of Huntington: Capabilities to address vulnerabilities from technological hazards

Hazard	**Adequacy of Municipal Capabilities to address vulnerabilities (Excellent, Average, Below Average)**	**Additional expansion or improvement needed to address hazard given long-term vulnerability**
Major Transportation Incident	Good + State agencies provide support	No, rare occurrence and extent, impact & vulnerabilities are limited.
Power Loss	Average. Private utilities are primarily responsible	No given that events are limited in duration and vulnerabilities are short-lived.
Hazardous Materials Incident	Good + State agencies provide support	No, rare occurrence and extent, impact & vulnerabilities are limited.
Water Service Loss	No water service	N/A
Gas Service Loss	No gas service	N/A

Telecommunications Failure	Private utilities are primarily responsible	No, rare occurrence and extent, impact & vulnerabilities are limited.
Other Fuel Service Loss	Private businesses are primarily responsible	No, rare occurrence and extent, impact & vulnerabilities are limited.
Sewer Service Loss	No sewer service	N/A
Water Pollution	Good	**Yes, see actions below**
Invasive Species	Average	No, rare occurrence and extent, impact & vulnerabilities are limited.

Table 5-6 Town of Huntington: Capabilities to address vulnerabilities from societal hazards

Hazard	**Adequacy of Municipal Capabilities to address vulnerabilities (Excellent, Average, Below Average)**	**Additional expansion or improvement in policies & programs needed to address hazard given long-term vulnerability**
Crime	No police department—state agencies provide support	N/A. Municipality participates in programs lead by regional and state entities.
Economic Recession	Good +State Agencies provide support	No Diversity of county economy mitigates vulnerabilities. The Town considers its municipal plan as also supportive of the goal of economic diversification.
Terrorism	Good +State & Federal agencies provide support	No, rare occurrence.
Civil Disturbance	No police department—state agencies provide support	N/A
Epidemic	Average +State & Federal agencies provide support	No, rare occurrence. The Town's abilities to mitigate an epidemic are limited The Town relies on state and school efforts related to epidemic preparedness, prevention and mitigation, and medical facilities and services in neighboring communities for response.
Key Employer Loss	Good +State agencies provide support	No. Diversity of employers in municipality mitigates vulnerabilities.

Note that this Plan does not recommend a discrete mitigation action regarding "future development." Our justification for this is as follows:

- The municipality's regulations, programming and staffing have prevented and will prevent new buildings and infrastructure being constructed in areas vulnerable to hazards. As documented in detail in section 4.6.2, despite active residential and commercial development, no structures and infrastructure subject to municipal regulation, have been constructed in either the Special Flood Hazard Areas or mapped River Corridor Protection Areas.
- For the next five years, there are NO known or anticipated plans for the construction of municipal infrastructure in areas vulnerable to hazards.
- There is no evidence that unwise or poorly regulated development in the municipality has been a significant contributor to putting people or property in harm's way.

Therefore, the reader will note that the proposed Mitigation Actions for the next five years represent a much more focused and achievable list of actions focused on those hazards (e.g. Severe Rainstorm, Flooding, Fluvial Erosion, Water Pollution, etc.) that cause more frequent if less dramatic damages. It is these more mundane damages of erosion along road beds, damaged small culverts and the ongoing struggle to maintain and improve water quality (which cost the municipality and its taxpayers both time and money) that deserve the most attention rather than hazards that could hypothetically cause damage but which are rare and wherein the benefit-to-cost ratio for potential mitigation actions is weak (e.g. Major Transportation Incident, Hazardous Material Incident, Terrorism). No new discrete action is recommended with regards to Education & Awareness as the Town does not have adequate funds or staff to undertake such an effort nor is such an effort warranted given the identified vulnerabilities. **Lastly, it is also worthwhile to note that in comparison to the 2011 Plan the priorities for this 2017 Plan have not changed. The hazards and vulnerabilities remain the same as well. Indeed, the only real change is that there is a more heightened awareness due to the severity of recent disasters starting in 2011 to the present.**

5.4.2 Specific Mitigation Actions

CATEGORY A: Complete fluvial geomorphology assessment and address identified vulnerable infrastructure.

Hazards Addressed: Flooding, Fluvial Erosion and Severe Rainstorm

Vulnerabilities Addressed: damage to new/existing public buildings and infrastructure especially roads and culverts; temporary closures of roads and bridges including from debris; temporary loss of power and/or telecommunications and temporary isolation of vulnerable individuals such as the elderly or those in poverty.

Status: Ongoing

Primary Responsible Entities: Planning Commission, Town Administrator

Timeframe: January 2017-August 2017

Funding Requirements and Sources: Work will be undertaken by the Town Administrator (funded by the municipal budget) and the volunteer Planning Commission.

Rationale / Cost-Benefit Review:

Because of past work to identify fluvial erosion hazard (FEH) zones and to map river corridors, Huntington now has a better understanding of the hazard areas in the community, where they are located and what structures or infrastructure are impacted by them. Devising a River Corridor/Fluvial Erosion Hazard Zone is a relatively low-cost, highly effective strategy to mitigate fluvial erosion hazards.

Specific Identified Actions

Action A-1: Fluvial Erosion Hazard Mitigation Implementation

The Huntington Planning Commission will continue their work to develop a River Corridor/Fluvial Erosion Hazard Zone overlay zoning district to restrict development/disturbance in areas threated by fluvial erosion.

CATEGORY B: Improve capabilities of existing road and stormwater management infrastructure.

Hazards Addressed: Flooding, Fluvial Erosion and Severe Rainstorm
Vulnerabilities Addressed: damage to new/existing public buildings and infrastructure especially roads and culverts; temporary closures of roads and bridges including from debris; temporary loss of power and/or telecommunications and temporary isolation of vulnerable individuals such as the elderly or those in poverty.
Status: Ongoing
Primary Responsible Entity: Huntington Selectboard, Town of Huntington Highway Foreman, Town Administrator
Timeframe: Month 2017 through March 5, 2022 (update after FEMA approval date)

Funding Requirements and Sources: FEMA or other hazard mitigation grants; FHWA grants; VTrans grants; Municipal Operating and Capital budgets only if sufficient. Contingent on available resources and funding.
Rationale / Cost-Benefit Review:
These areas suffer low-level but consistent damage during heavy rains and snowmelt. Mitigating against these problems would reduce short and long term maintenance costs and improve the flow of traffic for personal and commercial purposes during damage events.

Specific Identified Actions:

Action B-1: Plan for Repair of Vulnerable Infrastructure
Seek funds to develop cost estimates, plans and ideally construction funds to address various bridges and culvert locations that have erosion and scouring concerns. The town is in the process of prioritizing road replacement and infrastructure improvement projects based on cost and risk.

Action B-2: Road Improvement
Within political and financial constraints, consider re-engineering certain sections of roads to lower overall maintenance costs and improve overall capability of roads to handle current and projected traffic volumes.

Action B-3: Erosion Mitigation
Undertake erosion mitigation projects at various locations where municipal roads regularly incur damage from adjacent rivers/streams.

CATEGORY C: Implement Road Stormwater Management Plan consistent with Vermont Municipal Roads General Permit

Hazards Addressed: Water Pollution, Fluvial Erosion, Severe Rainstorm,
Vulnerabilities Addressed: damage to public infrastructure especially roads and culverts; impairment of local waterways and Lake Champlain, budgetary impacts
Status: Ongoing
Lead Responsible Entities: Town of Huntington Highway Foreman, Town Administrator
Potential Partner Entities: VT ANR; Vermont Agency of Transportation (VTrans); CCRPC
Timeframe: Month 2017 through March 5, 2022 (update after FEMA approval date)

Funding Requirements and Sources: Various Federal and State grants; municipal operating funds only if sufficient. Contingent on available resources and funding.
Rationale / Cost-Benefit Review: The Vermont Clean Water Act, signed into law in the summer of 2015, authorized the development of a new Municipal Roads General Permit to lessen erosion from roads. This action is required by the Act. Additionally, the plans and their implementation will assist municipalities in mitigating against erosion of connected infrastructure.

Specific Identified Actions:

Action C-1 Develop Roads Stormwater Management Plan

The Town will first complete an Inventory of Priority Road Segments (PRS)[aka "hydrologically-connected" road segments] both currently meeting and not meeting MRGP standards. The CCRPC has already conducted an inventory of Huntington's in the summer of 2016 and has hired a consultant to begin to develop cost estimates for various erosion-reduction projects. The Town will then apply for MRGP coverage starting in July 2018. After issuance of the permit by the State, the Town will then work to use this information to develop a formal Roads Stormwater Management Plan for submission to the VT-DEC in 2019. The Plan will include a remediation plan (capital budget) and implementation schedule for each site not currently meeting standards.

Action C-2 Begin Roads Stormwater Management Plan implementation
Obtain funding for and complete projects as identified in the Roads Stormwater Management Plan. Submit annual reports to DEC, documenting progress in remediation efforts towards meeting schedule to be in compliance with the MRGP. Reports will briefly describe which segments have been improved, practices installed, and whether segments now meet MRGP standards. The MRGP standards must be implemented on all priority road segments as soon as possible, but no later than 20 years from permit issuance.

5.4.3 Prioritization of Mitigation Strategies

The above mitigation actions were listed in order of priority. Descriptions of specific projects, where available, are listed in Section 5.4.2 and in Table 5-3 below. Because of the difficulties in quantifying benefits and costs, it was necessary to utilize a simple "Action Evaluation and Prioritization Matrix" in order to effect a simple prioritization of the mitigation actions identified by the jurisdiction. The following list identifies the questions (criteria) considered in the matrix so as to establish an order of priority. Each of the following criteria was rated according to a numeric score of "1" (indicating poor), "2" (indicating below average or unknown), "3" (indicating good), "4" (indicating above average), or "5" (excellent).

- Does the action respond to a significant (i.e. likely or high risk) hazard?
- What is the likelihood of securing funding for the action?
- Does the action protect threatened infrastructure?
- Can the action be implemented quickly?
- Is the action socially and politically acceptable?
- Is the action technically feasible?
- Is the action administratively realistic given capabilities of responsible parties?
- Does the action offer reasonable benefit compared to its cost of implementation?
- Is the action environmentally sound and/or improve ecological functions?

The ranking of these criteria is largely based on best available information and best judgment, as many projects are not fully scoped out at this time. The highest possible score is 45.

It is anticipated that, as municipalities begin to implement the goals and actions of their Mitigation Strategies, they will undertake their own analysis in order to determine whether or not the benefits justify the cost of the project. Also, all proposed FEMA mitigation projects will undergo a benefit-cost analysis using a FEMA BCA template and approved methodology.

Based on feedback from FEMA, CCRPC Staff have concluded that several strategies previously identified in 2011 by the Town of Huntington as mitigation strategies are more accurately classified as preparedness, response and recovery strategies. These strategies are not intended to mitigate against the hazards identified in Section 3, and should not be evaluated as such. As such, these strategies are not included in the prioritization below. However, they are discussed at the end of the plan to serve as a record of the strategies being undertaken by the Town in order to prepare for, respond to and recover from damage caused by those hazards.

Other than the reclassification of some strategies as non-mitigation strategies, there have not been significant changes in the prioritization of strategies between 2011 and now, with one notable exception. Strategies related to landslide assessment have been removed from the plan. CCRPC and municipal staff, in consultation with FEMA, have concluded that landslides are not a discrete threat in Chittenden County and are adequately captured in the plan's discussion of fluvial erosion. Additionally, further work on the development of a Vermont-specific landslide risk estimation protocol has not progressed making landslide-specific strategies inappropriate at this time for inclusion in the County plan and its annexes.

Note that these priorities are within categories as this is more appropriate rather than ranking project that address different hazards.

Table 5-7 Huntington action evaluation and prioritization matrix

Mitigation Category & Actions	Responds to signficant (likely or high risk) hazard	Likelihood of funding	Protect threatened infra-structure	Implemented quickly	Socially / Politically acceptable	Technically Feasible	Administra-tively Realistic	Reasonable cost to benefit	Environmen-tally sound	TOTAL SCORE
CATEGORY A: Complete fluvial geomorphology assessment and address identified vulnerable infrastructure										
Action A-1: Fluvial Erosion Hazard Mitigation Implementation	5	3	5	3	4	5	4	5	5	**39**
CATEGORY B: Improve capabilities of existing road and stormwater management infrastructure										
Action B-1: Repair of Vulnerable Infrastructure	4	3	4	3	4	5	4	5	4	**36**
Action B-2: Erosion Mitigation	4	3	4	3	5	5	5	4	5	**38**
Action B-3: Road Improvement	4	3	4	3	4	4	4	4	3	**33**
CATEGORY C: Implement Roads Stormwater Management Plan										
Action C-1: Develop Roads Stormwater Management Plan	3	3	4	3	4	4	4	4	3	**32**
Action C-2: Begin Roads Stormwater Management Plan implementation	3	3	4	3	4	4	4	4	3	**32**
5 = Excellent; 4=Good; 3=Average; 2=Below Average or Uknown; 1=Poor										

5.5 Implementation and Monitoring of Mitigation Strategies

The following Table is intended to aid municipal officials in implementing their mitigation actions and to facilitate the annual monitoring & evaluation of the plan as outlined in Section 1.7.4 above.

Table 5-8 Town of Huntington Mitigation Actions: Implementation Monitoring Worksheet

CATEGORY A: Complete fluvial geomorphology assessment and address identified vulnerable infrastructure to mitigate Severe Rainstorm, Flooding, Fluvial Erosion and Water Pollution and their associated vulnerabilities of: • Damage to new/existing public infrastructure and buildings • Temporary road and bridge closure • Budgetary impacts • Temporary loss of power and/or telecommunications • Temporary isolation of vulnerable individuals	
Action **(Primary Responsible Entity)**	**Report on Progress since Plan adoption** *See Section 5.4 for details on locations identified during Plan development.*
Action A-1: Fluvial Erosion Hazard Mitigation Implementation (Town of Huntington Highway Foreman)	-note any grants or funding source investigated -note any grants applied for/obtained -note progress on geomorphic assessment and/or river corridor plan if underway
CATEGORY B: Improve capabilities of existing road and stormwater management infrastructure to mitigate Severe Rainstorm, Flooding, Fluvial Erosion and Water Pollution and their associated vulnerabilities of: • Damage to new/existing public infrastructure and buildings • Temporary road and bridge closure • Budgetary impacts • Temporary loss of power and/or telecommunications • Temporary isolation of vulnerable individuals	
Action **(Primary Responsible Entity)**	**Report on Progress since Plan adoption** *See Section 5.4 for details on locations identified during Plan development.*
Action B-1: Plan for Repair of Vulnerable Infrastructure (Town Road Foreman)	-note annual # of culvert upgrades, describe other infrastructure upgrades and note on which roads
Action B-2: Road Improvements (Town Road Foreman)	-note year and road location of drainage improvements such as ditching, rock lining, etc. -note any options scoped/costed out -note any sections of roads paved
Action B-3: Erosion Mitigation (Town Road Foreman)	-note any options scoped/costed out -note any projects completed

CATEGORY C: Implement Roads Stormwater Management Plan to mitigate Severe Rainstorm, Fluvial Erosion and Water Pollution and their associated vulnerabilities of: • Damage to new/existing public infrastructure • Impairment of local waterways and Lake Champlain • Budgetary impacts	
Action **(Primary Responsible Entity)**	**Report on Progress since Plan adoption** *See Section 5.4 for details on locations identified during Plan development.*
Action C-1 Develop Roads Stormwater Management Plan (Town Road Foreman)	-MRGP obtained from State? -note projects developed and scoped with costs -Roads Stormwater Management Plan filed with State
Action C-2 Begin Roads Stormwater Management Plan implementation (Town Road Foreman)	-note which RSMP projects underway/completed -note annual MRGP reports filed with State