Jurisdictional Annex

Town of Berne

This section presents the jurisdictional annex for the Town of Berne for the 2025 Albany County Hazard Mitigation Plan (HMP). It includes information and guidance intended to assist public and private entities in reducing losses from future natural hazard events. This jurisdictional annex focuses on actions that can be implemented prior to a natural hazard event to reduce adverse impacts to people and property; it is not intended to serve as guidance for what to do when a natural hazard event occurs or how to recover following a natural hazard event. This jurisdictional annex provides an overview of the community and its critical facilities, evaluates the community's vulnerability to various natural hazards, assesses the community's existing capability to mitigate natural hazards, and identifies actions that could be implemented to mitigate natural hazard risks and, ultimately, reduce damages to people and property resulting from natural hazard events.

1 CONTACT INFORMATION

The primary contacts for Albany County regarding this Jurisdictional Annex are identified as follows:

- Primary: Dennis Palow, Town Supervisor | supervisor@berneny.org, 518-760-5195
- Alternate: Kristin De Oliveria, Town Clerk | clerk@berneny.org, (518) 872-1448 ext. 101

Town Website: https://berneny.org

2 COMMUNITY SNAPSHOT

2.1 Demographics

The 2020 Census estimated that 2,689 people live in the Town of Berne. The Town's population has decreased by 3.7% since the 2010 Census (2,794). The median age in the Town of Berne is 49.9 years, and 21.0% of the population is over the age of 65. The median household income in the Town of Berne is $73,893.

Approximately 4% of the population in the Town is under 5 years old, and 21.3% of the population is over 65 years old. 10.6% of the residents of the Town have a disability (excluding any institutionalized residents and active-duty military members) some of whom have health problems that make them more vulnerable to extreme heat or cold. Approximately 4.4% of the Town's population is below the poverty level.

2.2 Location & Land Characteristics

The Town of Berne is located on the central-western portion of the Albany County border. The Town of Berne is the largest jurisdiction in the County and covers approximately 64.8 square miles. The properties within the Town of Berne have a total assessed value of approximately $186,302,449, which is distributed across a variety of property classes.

Major transportation corridors in the Town of Berne include five state highways – Routes 85, 157A, 157, 156 and 443. The highways run through the north-western portions of the Town, connecting it to the City of Albany. Key water features within the Town of Berne include Fox Creek, Warner Lake, and Thompsons Lake.

2.3 Governing Body

A town supervisor and three (3) trustees govern the Town of Berne.

2.4 Recent and Anticipated Future Development

According to a review of 239 Referrals since the last County HMP (2018), several new developments have been approved or proposed within the Town of Berne. The proposals that the Town of Berne received are summarized in Table 2-1 below. Some of the proposals for the Town of Berne may be located in the 0.1% or 0.2% annual chance flood event area, but this was not specified in the proposal. Additionally, building permits that have been issued for the Town of Berne between 2018 to 2023 are summarized in Table 2-2 below, based on data from the Capital District Regional Planning Commission (CDRPC). These developments may affect the Town's vulnerability to the hazards identified in this HMP.

Table 2-1. Developments from 2018 to 2023

Project Name	Project Location	Consideration	Date
Town of Berne Small Scale Solar Energy Law	Town of Berne (town-wide)	Adoption of Local Law No. 1 for 2018: Town of Berne Small Scale Solar Energy Law.	2/15/2018
John Wright Use Variance Application	555 Helderberg Tr.	Use variance request to locate an automotive repair business.	2/15/2018
Houlihan/Dollar General Site Plan Review	8 Main St., East Berne	Site plan review for a 9,100 sq. ft. Dollar General store on a 2.1-acre site.	5/14/2018
Houlihan/ Dollar General Parking Variance	8 Main St., East Berne	"Parking variance for a proposed Dollar General store, where 92 spaces are required by code and 32 will be provided. A relief of 60 spaces is requested by the applicant. *ACPB reviewed the site plan for this project in May 2018."	7/19/2018
Houlihan/ Dollar General Subdivision and Site Plan	Rt. 443/East Berne	"Proposal to subdivide 2.1 acres out of a 9.1 acre parcel to construct a 9,100 sq. ft. retail store on the 2.1 acre lot. The remaining lands will remain with the current land owner and are not part of this project. *ACPB reviewed plans for this project in 5/2018 and an area variance in 7/2018. "	10/18/2018
Schimpf/O'Donnell Subdivision	119 Pinnacle Rd.	Request to subdivide 0.8 acres from an existing 16.6-acre parcel to construct a new single family home on the 0.8-acre lot.	12/20/2018
Schimpf-O'Donnell Subdivision	119 Pinnacle Road	Area variance for proposed lot 1-new residential home (setbacks)	1/17/2019
Helderberg Christian School	96 Main Street	Special Use Permit-Renewal-For a Christian school grades k-12.	1/17/2019
Emilie and Roger Wright	1067 Helderberg Trail	Site plan review for an addition and lot line adjustment for a residential parcel.	6/20/2019
Mosbey-Pod Project	1647 Helderberg Trail	Area variance request to enable the installation of a pool.	7/18/2019
MidTel Communications FiberOptic Project	129 Canaday Hill Road	Use variance request to construct and operate a fiber optic based broadband network to serve Berne and surrounding communities.	7/18/2019
496 Long Road	496 Long Road	The applicant is seeking a special use permit to add 6 panel antennas to an existing telecommunications tower, along with 15 remote radio heads, associated equipment, and 14.5'x7' equipment platform.	12/18/2019

Project Name	Project Location	Consideration	Date
N/A	N/A	Industrial Scale Solar Energy Facilities Law	12/18/2019
Domermuth Subdivision / Lotline	993 Switzkill Rd.	A subdivision review for the proposed annexation of a part of parcel 114.-1-16.2 to be annexed to 114.-1-16.1.	2/25/2020
Grippy Mine	138 Cole Hill Rd / Grippy Lane Quarry	Special Use Permit to operate a quarry and crush bluestone.	5/21/2020
Weis Subdivision	501 Canaday Hill Road	Subdivision review to enable subdivision of parcel on the north side of Canaday Hill Road for new home construction creating one new lot.	8/20/2020
Borelli Subdivision	1040 Huntersland Road, middleburgh	Subdivision review for the proposed parcel to be divided into two for new home construction.	8/20/2020
Borelli Subdivision with Variances	1040 Huntersland Rd.	An area variance to enable the subdivision of one parcel into two lots where one of the new lots will have less than the minimum required for road frontage and front setback.	11/19/2020
John Demis for Helderberg Bluestone (Lot Line Adj)	138 Cole Hill Road East Berne, NY 12059	Lot line adjustment between tax parcels 115.-1-17 & 115.-1-18. Parcel 17 would change from 100 acres to approximately 80.5 acres and Parcel 18 would change from 57.3 to 76.8. There will be change in the usage of either parcel.	12/22/2020
Whipple/ Gifford Hollow Road Subdivision	Gifford Hollow Road	Subdivision review for vacant land to be subdivided into four lots.	2/18/2021
John Demis for Helderberg Bluestone	138 Cole Hill Road	Lot line adjustment to the existing two parcels. No new lots will be created.	2/18/2021
Wyckoff Garage	38 Craig Lane East Berne	Area variance to construct an accessory building in the side setbacks due to existing infrastructure and topography.	4/15/2021
Hilltown Healthcare	1705 Helderberg Trail	Special use permit and area variance to construct 1860 Sq.Ft primary care medical office at 1705 Helderberg Trail.	4/15/2021
Local Law - Home Occupation	Town of Berne	Amendment of local law to change zoning for Home Occupation.	6/17/2021
Teat's Minor Subdivision	1579 Thatcher Park Road	Subdivision review to subdivide the parcel into two lots to separate land and house from vacant part of acreage.	8/19/2021
Scram Subdivision	334 Sickle Hill Road	Subdivision review to create two lots. Lot #1 to be 13.14 acres and Lot #2 to be 34 acres.	9/16/2021
McDermott Lot Line Adjustment	Huntersland Road	Lot line adjustment to enlarge the property from the corner of High Point Road and Huntersland Road adding about 0.24 acre to 0.81 acre.	9/16/2021

Project Name	Project Location	Consideration	Date
Sission Minor Subdivision	123 Cole Hill Road	Subdivision Review to divide the parcel into two lots. Parcel 1 to be five (5) plus acres with existing house and Parcel 2 to be 81.6 acres to remain agricultural.	9/16/2021
Teat's Lot Line Adjustment	1579 Thatcher Road	Lot line adjustment with new lot size of 51+/- acres each. No new lots are created.	2/17/2022
Chapter 171 Property Line Adjustment Law	Town of Berne	Adoption of local law for property line adjustment for the Town of Berne.	4/22/2022
Solar Energy Facilities Law - Town of Berne	Town of Berne	Adoption of local law to implement solar energy facilities in the Town of Berne.	4/22/2022
175 Brookhaven Drive - Special Use Permit	175 Brookhaven Drive	Special use permit to allow Dog kennel sitting service.	7/21/2022
Melissa Mirabile - Variance	17 Ridge Ln	Area variance to meet setback requirements.	8/18/2022
Ground Mounted Solar Array	1330 Bradt Hollow Rd	Area variance to install ground mounted solar array next to the existing garage.	10/20/2022
Crawford Subdivision	370 Long Road	Subdivision review to subdivide the 62.17 acres parcel into two lots. Lot 1 to be 32.53 acres and Lot 2 to be 29.64 acres.	12/15/2022
Sission Subdivision	Sickle Hill Road	Subdivision review to divide the 61 acres into three lots. Lot 1 to be 40.47 acres, Lot 2 to be 5 acres and Lot 3 to be 15.46 acres.	2/16/2023
Sission Lot Line Adjustment	1607 Switzkill Road	Lot line adjustment of the property to accommodate any future needs or development.	5/18/2023
12 Koko Lane Variance	12 Koko Lane, east Berne	Area variance to allow for construction of residence on a lot smaller than the required size.	5/18/2023
Variance for 32 Glenwood Drive	32 Glenwood Drive	Area variance for the height of the proposed fence and the setback of the proposed deck.	5/18/2023
West Woodstock Minor Subdivision	West Woodstock Rd	Subdivision of 57.79 acres into Lot 1 consisting 18.20 acres, Lot 2 consisting 21.54 acres and Lot 3 consisting 18.05 acres.	7/20/2023
Area Variance for Setbacks and Lot Coverage	64 Lakeside Lane	Area variance for the construction of 1,140 SF building addition to include a mudroom, garage, art studio and a gym with storage above.	9/21/2023
Solar Array	1640 Helderberg Trail	Site plan review for the installation of 6.075 KW DC Code compliant roof mounted solar array in a historic district.	11/16/2023
JMW Estates Inc. - Minor Subdivision	631 Irish Hill Road	Two lot subdivision of the parcel into Lot 1 with 9.53 acres and Lot 2 with 5.02 acres.	11/16/2023

Table 2-2. Building Permit Issuance (2018 to 2022)

Year	Building Type	Units
2018	1	3
2019	1	2
2020	1	4
2021	1	7
2022	1	5
Total:		**21**

Data Source: Capital District Regional Planning Commission (https://cdrpc.org/data/housing)

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The Town of Berne identified the following planning mechanisms and capabilities that can support the Town in hazard mitigation efforts. These capabilities can be used to support the mitigation strategy in several ways. For example, administrative capabilities can assist in implementing the mitigation actions as identified in the mitigation strategy. Existing building codes and land use regulations provide a foundation for mitigation planning and provide guidelines for infrastructure repair, new developments, and other actions. Educational programs may be developed further in order to more fully incorporate hazard mitigation. Table 3-1 elaborates on existing building codes, land use and development ordinances/regulations, and many other capabilities which can support hazard mitigation.

Table 3-1. Planning Mechanisms & Capabilities

Planning Mechanism	In Place? (Yes/No)	Notes (Does the plan address hazards? Can the capability be used to implement mitigation actions? When was it last updated?)
Administration		
Maintenance Programs	Yes	
Mitigation Planning Committee	No	
Mutual Aid or Shared Services Agreements	Yes	• State and County for Highway • Lifepath and CDTA for Hilltown Senior services • Helderberg Ambulance • ALS/EMS County Ambulance • Mid-Hudson Library System
Planning Board	Yes	
Zoning Board	Yes	
Other		• Conservation Board • Parks & Recreation Advisory Board • Safety Committee
Development Approvals		
Building Code	Yes	International Code

Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	No	
Fire Department ISO Rating	Yes	9
Site Plan Review Requirements	Yes	
Other		
Funding Resources		
Authority to Levy Taxes	Yes	Sewer District (92 properties in the District)
Capital Improvement Project Funds	Yes	Buildings/Equipment
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	Highway/road infrastructure (CHIPS funding)
General Obligation Bonds and/or Special Tax Bonds	Yes	2014 tax bond for the sewer district $1.159M ($826K owed)
Impact Fees for New Development	Yes	Subdivision Fees
State Funding Programs (i.e., NYSEFC, NYSOCR, NYSDEC, others)	No	
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	Yes	Electric, gas, sewer, and broadband/internet (providers vary)
Other		
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	Yes	
NFIP Participant / Floodplain Ordinance	Yes	See "Floodplain Administrator" row below (under "Staff Positions")
Hillside Development Regulations	No	
Open Space Preservation	Yes	
Stormwater Management Regulations	No	
Streambank Setback Regulations	No	
Subdivision Regulations	Yes	
Zoning Ordinance	Yes	
Other	Yes	Flood Damage Prevention (Chapter 109)
Natural Resources		

Forest/Vegetation Management	No	
Stream Corridor Management	No	
Stream Dumping Regulations	No	
Urban Forestry and Landscape Management	No	
Watershed Management	No	
Wetland Regulations	Yes	Chapter 114: Freshwater Wetlands
Other	Yes	Solar, battery energy storage, and wind regulations (Chapters 157, 158, 187)
Plans		
Capital Improvement Plan	Yes	Updated Annually
Comprehensive Emergency Management Plan	Yes	
Comprehensive Plan	Yes	Adopted 2017
Continuity of Operations Plan	No	
Economic Development Plan	No	
Other		
Programs/Organizations		
Climate Smart Community	No	
Local Emergency Preparedness/Disaster Response Organizations	Yes	Town staff and volunteers
Local Environmental Protection Organizations	Yes	Conservation Board; Parks and Recreation Advisory Board
National Weather Service StormReady Certification	No	
Outreach Programs	No	
Partnerships with private entities addressing mitigation or disaster response	No	
School Programs or Adult Educational Programs	No	
Other	Yes	County POD Plan
Staff Positions		
Civil Engineer	No	Engineering is performed by outside contractors (Lamont Engineers, Jason Prisner)
Code Enforcement Officer	Yes	Building Inspector (John Heigel)
Emergency Manager	Yes	Town Supervisor (Dennis Parlow)

Floodplain Administrator	Yes	Supervisor appointing CEO; pending legal review
Planner/GIS Coordinator	No	Utilize County GIS services
Other		Building Inspector (John Heigel)
Technical Abilities		
Grant Writing	Yes	Use consultant – Grant City Consulting
Hazard Information Centers	No	
Hazard Warning Systems	Yes	With Albany County
Other		

The Town's HMP update will be incorporated into and referenced by future updates of the plans, policies, ordinances, programs, studies, and reports listed in Table 3-1. In particular, the Town should review Table 3-1 when completing updates to the Comprehensive Plan and amendments to the Zoning Code. As part of this review, the Town may strategize opportunities for building the hazard mitigation mechanisms and capabilities currently marked "No" in the table (where feasible) by designating lead agencies in charge of closing such gaps, connecting with partners and technical support resources, establishing a timeline and next steps, estimating costs, and applying for grant funding when necessary. In an update to the Comprehensive Plan, this process may result in the development and inclusion of detailed proposed action items and implementation frameworks that address gaps in hazard mitigation mechanisms and capabilities. In an amendment to the Zoning Code, this process may result in the modification of existing laws or the drafting and adoption of new laws to address gaps in hazard mitigation mechanisms and capabilities.

Furthermore, the Town would like to expand and improve the capabilities listed in Table 3-1 in the following ways:

- The Town hopes to better leverage and expand services/resources provided by the Berne Senior Center. This facility is a resource for all Hilltown communities. All municipalities contribute financially to programming, but the building is owned and maintained by the Town of Berne.
- Acquisition of funding for a new highway garage.
- Broadband/internet access is limited throughout the Town. Berne is not prioritized for fiber optic, and it can be difficult and expensive to get access to internet. Expanding access to and affordability of internet would help with emergency communications before, during, and after a disaster.
- Hold safety committee meetings on a regular basis (e.g., quarterly or annually)
- There is a Hilltown Access Office to assist seniors once a week. However, the County has not been staffing this office lately. Recommend regularly staffing the Hilltown Access Office as it's an important community outreach and support tool.
- The Town is interested in developing emergency warning systems and alerts.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10 of the main body of the HMP.

3.2 Integration of Planning Efforts

The Town of Berne understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The town intends to reference the 2025 Albany County HMP as part of the process for future updates to the plans, policies, programs, and regulations listed in Table 3-1, above, and for creating new regulations as applicable. This may include adding hazard mitigation as an agenda item at Town Board meetings where local laws are being developed or updated, including hazard mitigation considerations in any templates used to make new laws, adopting an ordinance that all new local laws need to consider hazard mitigation if applicable, or simply making local officials aware of the need to consider hazard mitigation in any plan updates. Additionally, the Town of Berne may use the local laws assessment (included in Section 4 of the main body of the HMP) to reference hazard mitigation related regulations that other jurisdictions in the County have adopted and consider implementing similar regulations if desired.

All of these actions will help expand and improve upon these existing capabilities so that they reduce risk and better support hazard mitigation.

4 HAZARD IDENTIFICATION AND RISK ASSESSMENT

4.1 Profiled Hazards

In this HMP Update, the County reviewed multiple natural hazards, and determined to profile five natural hazards: flooding, severe storm, drought, extreme temperatures, and landslide. Descriptions of each of these hazards are included in Section 6 of the main body of the HMP.

The hazard analysis criteria used to evaluate the Town of Berne's vulnerability to each natural hazard are summarized in Table 4-1, and the results are presented in Table 4-2. All rankings were completed subjectively, with the guidelines detailed in Table 4-1.

Table 4-1. Hazard Analysis Criteria

Score	Impact (Damage to property, crops, people)	Frequency*	Extent	Level of Preparedness	Total Score	Overall Vulnerability
1	Minor	Rare	One or two problem areas within the jurisdiction	Well Prepared	4 to 5	Low
2	Moderate	Infrequent	A significant portion of the jurisdiction	Moderately Prepared	6 to 8	Moderate
3	Major	Regular	The entire jurisdiction	Not Prepared	9 to 12	High

**Frequency is defined roughly as follows:*

- *Rare – Every 15 years or less*
- *Infrequent: Less than once a year but greater than once every 15 years*
- *Regular: Approximately yearly or multiple times a year*

Table 4-2. Hazard Vulnerability by Event

Hazard Event	Impact (Damage to property, crops, people, etc.)	Frequency of Occurrence	Extent of Impacts	Level of Preparedness	Overall Vulnerability	Jurisdiction Rank	Notes (Anticipated Future Changes)
Flooding (Riverine, Coastal, Urban, Flash, Ice Jam, Dam or Levee Break, Other)	2	2	1	2	7 - Moderate	2	All Town buildings have generators; Hurricane Irene had major impacts
Drought	1	1	3	3	8 - Moderate	4	
Severe Storm (Hail, Ice Storms, Wind, Thunderstorms and Lightning, Winter Storms, Hurricane, Tropical Storms, Tornado, Power Outage)	2	3	2	2	9 - High	1	Drinking water issues Excessively wet summers have negatively impacted crops Lots of power outages Have to claim State of Emergency before Highway Dept. can help residents (e.g., snow removal)
Extreme Temperatures (Cold Wave, Heat Wave, Air Pollution Effects)	1	3	1	2	7 - Moderate	3	
Landslide	1	2	1	3	7 - Moderate	5	

4.2 Hazard Event History

A complete history of natural hazard events within the County – based on NOAA's Severe Storm Database – is included in Section 6 of the main body of the HMP. The following is a subset of events that occurred specifically within the Town of Berne. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Town of Berne.

Table 4-3. Hazard Event Records, 2018-2023

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Thunderstorm Wind	5/4/2018	50		
Thunderstorm Wind	7/2/2020	50		
Total		**100**		

Note: The table above lists only the hazard events that were recorded as occurring specifically within the Town. For records of County-wide hazard events, see the Albany County Annex. Units for magnitude are expressed as the following: High Wind: knots, Thunderstorm Wind: knots.

4.3 Floodplain Statistics

Key water features in the Town are described in Section 2.2 of this annex. FEMA provides flood insurance rate maps for the municipality and GIS data on the spatial location of floodplains. The 1% annual chance (100-year) flood event area generally corresponds with areas that are at high risk of flooding, and the 0.2% annual chance (500-year) flood event area generally corresponds with areas that are at moderate risk of flooding. Out of the 64.7 square miles in the Town approximately 3.51% are located within the 1% annual chance flood event area and approximately 3.52% are located within 0.2% annual chance flood event area (inclusive of the 1% flood event area). The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-5. There are 272 parcels in the Town located within the 1% annual chance flood event area, with an estimated total structure value of $26,517,530. Inclusive of these parcels in the 1% annual chance flood event area, there are 272 parcels in the Town located within the 0.2% annual chance flood event area, with an estimated total structure value of $26,517,530.

*Table 4-4. Summary of Areas in Floodplains**

Total Area (square miles)	Percent of Total Area in 1% Annual Chance Floodplain	Percent of Total Area in 0.2% Annual Chance Floodplain
64.7	3.51	3.52

** Calculated areas and percentages are informational estimates only and are not to be used for official purposes. The 0.2% annual chance floodplain in this table includes the area in the 1% annual chance floodplain.*

Table 4-5. Estimated Number and Structure Value of Parcels within Mapped Floodplains

Property Class	Number of Parcels in 1% Annual Chance Floodplain	Approx. Structure Value* in 1% Annual Chance Floodplain	Number of Parcels in 0.2% Annual Chance Floodplain**	Approx. Structure Value* in 0.2% Annual Chance Floodplain**
Unclassified		$ -		$ -
Agricultural	19	$ 382,970	19	$ 382,970
Residential	166	$ 14,455,650	166	$ 14,455,650
Vacant	68	$ 197,300	68	$ 197,300
Commercial	9	$ 1,797,210	9	$ 1,797,210
Recreation and Entertainment	0	$ -	0	$ -
Community Services	5	$ 9,562,400	5	$ 9,562,400
Industrial	0	$ -	0	$ -
Public Services	1	$ -	1	$ -
Parks and Open Space	4	$ 122,000	4	$ 122,000
Total	**272**	**$ 26,517,530**	**272**	**$ 26,517,530**

**Structure Value for each parcel was estimated by subtracting Land Assessed Value from Total Assessed Value. If the entire parcel or a subset of the parcel was contained within the floodplain, the structure on that parcel was included regardless of the structure's location on the parcel.*

*** The 0.2% Annual Chance Floodplain in this table includes the area in the 1% Annual Chance Floodplain.*

4.4 National Flood Insurance Program

Long-term mitigation of potential flood impacts can be best achieved through comprehensive floodplain management regulations and enforcement at a local level. The National Flood Insurance Program (NFIP), regulated by FEMA, aims to reduce the impact of flooding on private and public structures by providing affordable insurance for property owners. The program encourages local jurisdictions to adopt and enforce floodplain management regulations in order to mitigate the potential effects of flooding on new and existing infrastructure (https://www.fema.gov/flood-insurance).

Communities that participate in the NFIP adopt floodplain ordinances. If an NFIP-insured structure incurs damage costs that are equal to or exceed 50% of its market value, the

owner must comply with the local floodplain regulations and the flood provisions of the International Codes when repairing or rebuilding the structure. A structure could be rebuilt at a higher elevation, or it could be acquired and demolished by the municipality or relocated outside of the floodplain. Insured structures that are located within floodplains identified on FEMA's Flood Insurance Rate Maps (FIRMs) may receive payments for structure and content losses if impacted by a flood event.

Additionally, under the NFIP, all damaged structures within the Special Flood Hazard Area (SFHA), whether they are insured or uninsured, must be assessed to determine the extent of the damage. If the cost to repair the structure is 50% or more of the market value, the structure is considered "Substantially Damaged." Furthermore, for structures that undergo reconstruction, rehabilitation, addition, or other improvements, the improvements are considered "Substantial Improvements" when the cost of the improvements equals or exceeds 50 percent of the market value of the structure. For both Substantially Damages and Substantially Improvements, the owner of the structure must comply with the local floodplain regulations and the flood provisions of the International Codes when repairing or rebuilding the structure when repairing or rebuilding the structure.

For more information on FEMA's requirements for substantial damage and substantial improvement, including guidance for uninsured structures, refer to FEMA's Substantial Damage Quick Guide and Understanding Substantial Damage Job Aid (https://www.fema.gov/fact-sheet/substantial-damage-quick-guide).

The NFIP and other flood mitigation actions are important for the protection of public and private property and public safety. Flood mitigation is valuable to communities because it:

1. Creates safer environments by reducing loss of life and decreasing property damage;
2. Allows individuals to minimize post-flood disaster disruptions and to recover quicker (homes built to NFIP standards generally experience less damage from flood events, and when damage does occur, the flood insurance program protects the homeowner's investment); and
3. Lessens the financial impacts on individuals, communities, and other involved parties (https://www.fema.gov/flood-insurance).

The Town of Berne currently participates in the NFIP (360003A), and its current FIRM(s) became effective on 03/16/15. FIRMs are available via FEMA's Flood Map Service Center (https://msc.fema.gov/portal/home). Digital FIRM data is also available for Albany County via FEMA's National Flood Hazard Layer Viewer, which was referenced during the development of this annex. Information from this digital FIRM data was incorporated into this Hazard Mitigation Plan where appropriate (for example, when identifying which critical facilities are located in the floodplain).

The Town of Berne's local law governing floodplain development and NFIP compliance is located in Chapter 109. Flood Damage Prevention. All new structures and substantially improved structures located in the special flood hazard area (as shown on the Flood Insurance Rate Map) must comply with the standards defined in the Town's Flood Damage Prevention Law. The local administrator is responsible for granting or denying floodplain development permits in accordance with the provisions of this law.

The Town's adopted building codes also support NFIP compliance; these are located in Chapter 87: Building Code Administration. The Town will continue to comply with the NFIP by enforcing floodplain management requirements and regulating new development in special flood hazard areas, among other required duties. Staff capabilities to implement the NFIP and local floodplain regulations are listed in Table 3-1 of this annex.

According to NFIP claims data provided by FEMA, there are 0 repetitive loss properties in the Town of Berne. Repetitive loss properties are properties that have had at least two paid flood losses of more than $1,000 each in any 10-year period since 1978.

4.5 Considerations for Future Hazards

The Town also considered future changes in hazards due to climate change, population changes, land use, and other factors. They identified the following concerns: Flooding, Drought, Severe Storm, Extreme Temperatures, and Landslides. These concerns were taken into consideration when developing the mitigation strategy. The effects of climate change and other factors on future hazard events in Albany County are covered in more detail in Section 6 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

FEMA defines a critical facility as one that provides services and functions essential to a community, especially during and after a disaster. Critical facilities should remain accessible and functional before, during and after disasters. Additionally, critical facilities include those that requires a special emergency response in the event of hazardous incidents, such as buildings that store hazardous materials. Examples of critical facilities include community lifelines, such as fire departments, EMS services, police stations, water and wastewater services, medical facilities, highway garages, and hazardous materials. They also include facilities such as Town halls, schools, and senior centers. In the hazard mitigation planning process, each jurisdiction ultimately decided which facilities they consider to be critical facilities for their community.

Table 5-1 denotes the name, type, and location of the critical facilities within the Town of Berne, and any particular vulnerabilities of note. More information about hazard vulnerability, including the vulnerability of community assets to natural hazard events, is included in Section 8 of the main body of the HMP. Additional vulnerabilities by location are assessed in the HAZUS analysis, included in the appendices of the HMP.

Table 5-1. Critical Facilities

[Table redacted due to sensitive content]

Per 2022 NYS Hazard Mitigation Planning Standards, jurisdictions must identify all of their critical facilities, determine the facilities' exposure to a 1% and 0.2% annual chance flood event, and document if the facilities are protected to a 0.2% annual chance flood event or previous worst case flood event (whichever is greater). For facilities that do not meet this level of protection, the jurisdiction must either include an action to meet or exceed this criterion or explain why it is not feasible to do so.

As indicated in Table 5-1, it is unknown whether several of the Town's critical facilities are protected to a 0.2% annual chance (500-year) flood event or previous worst case flood event (whichever is greater). The Town has included an action in Section 7.2: New Mitigation Actions related to these critical facilities. Section 9 of the main body of the HMP provides additional detail on how the County and local municipalities may assess critical facilities' level of protection to the 1% and 0.2% annual chance flood event.

5.2 High Hazard Potential Dams

According to the NYSDEC Division of Water Bureau and Flood Protection and Dam Safety, there are four hazard classifications of dams in New York State. A High Hazard Potential Dam is a dam located in an area where dam failure may cause loss of human life; serious damage to homes, industrial, or commercial buildings; essential public utilities; main highways or railroads; and will cause extensive economic loss.

The Town of Berne has 1 high hazard potential dam located in the municipality: Helderberg Lake Dam. Information on this dam is included in Table 5-2, as well as in the High Hazard Potential Dam Worksheet at the end of this annex. High Hazard Potential Dams can be an asset as well as pose risks to the jurisdiction and neighboring jurisdictions. Additional information about high hazard potential dams and their impacts is included in Sections 6 and 7 of the main body of the HMP, as well as in Appendix H.

There are also several privately owned dams in the Town.

Table 5-2. High Hazard Potential Dams in the Town of Berne

Dam Name	Jurisdiction where Located	Owner	Federal ID	Year Completed	Construction Type	Primary Purpose	Date of Last EAP Revision
Helderberg Lake Dam	Town of Berne	HELDERBERG LAKE ASSOCIATION	NY00276	1944	Concrete Gravity, Earth	Recreation, Water Supply	2/13/2023

Sources: National Inventory of Dams (U.S. Army Corps of Engineers, 2023)*, NYSDEC Foil Request* (NYS Department of Environmental Conservation, 2024)*, NYS Inventory of Dams (New York State Department of Environmental Conservation, 2024)*

5.3 Additional Jurisdiction/Public Identified Vulnerabilities

In addition to critical facilities, it is important to take a holistic approach to identifying assets in the jurisdiction and how they may be vulnerable to the hazards identified in the HMP. Examples of other assets considered include:

- People (residents, workers, visiting populations, and socially vulnerable populations like seniors, individuals with disabilities, lower-income individuals, etc.)
- Other structures (community centers, historic places, planned capital improvement)
- Economic assets (major employers, primary economic sectors, key infrastructure like telecommunications networks)
- Natural, historic and cultural resources (areas of conservation, beaches, parks, critical habitats)
- Critical facilities and infrastructure (hospitals, law enforcement, water, power)
- Community activities (major local events such as festivals or economic events like farming or fishing)

Aside from critical facilities listed in Table 5-1, the Town of Berne has identified the following additional assets for consideration in hazard mitigation planning:

Table 5-3. Additional Assets

[Table redacted due to sensitive content]

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

6.1 Flood

The Town of Berne has ranked their overall vulnerability to flood events as moderate, as indicated in Table 4-2. According to Town representatives, flood events occur infrequently in the jurisdiction and affect one or two problem areas within the jurisdiction, causing moderate damage. The Town feels they are moderately prepared for flood events.

Information on flood event records (Section 4.2 of this annex), high hazard potential dams (Section 5.2), floodplain statistics (Section 4.3), and participation in the NFIP (Section 4.4) are described above, illustrating the impact of flooding on critical facilities and other structures.

Future vulnerability to flood events is determined by many factors, such as climate change, land use, and population changes, as well as the implementation of mitigation and adaptation strategies. Climate change is expected to increase the Town's future vulnerability to flood events. These trends are further described in Section 4.1 of this annex and in Section 6 of the main body of the HMP.

6.2 Severe Storm

The Town of Berne has ranked their overall vulnerability to severe storm events as high as indicated in Table 4-2. According to Town representatives, severe storms occur frequently in the jurisdiction and affect a significant portion of the jurisdiction, causing moderate damage. The Town feels they are moderately prepared for severe storm events.

Records of severe storm events are described in Section 4.2 of this annex. Impacts to the Town from severe storm events include fallen trees from severe winds, which can damage overhead utility lines, resulting in power outages. These events are likely to result in damages to private and public infrastructure and property. In addition, during severe winter storm events, roadway safety is a primary concern and impacts the safety of residents and operation of critical facilities. Damages to the Town's critical infrastructure or primary transportation routes would be particularly impactful to residents. According to the Town, storms can have an especially damaging impact on homebound seniors and residents of unpaved roads.

Future vulnerability to severe storm events is determined by many factors, such as climate change, land use, and population changes, as well as the implementation of mitigation and adaptation strategies. Climate change is expected to change the types of severe storm events that the Town is vulnerable to, likely making the Town more vulnerable to severe thunderstorm, windstorm, and hail events and less vulnerable to heavy snow, ice storms, winter storms and winter weather. These trends are further described in Section 4.1 of this annex and in Section 6 of the main body of the HMP.

6.3 Drought

The Town of Berne has ranked their overall vulnerability to drought events as moderate, as indicated in Table 4-2. According to Town representatives, drought events occur rarely in the jurisdiction but would affect the entire jurisdiction, causing minor damage. The Town feels they are not well prepared for drought events.

Some, but not all, residents of the Town of Berne are served by a public water supply. Residents who rely on private wells may be especially susceptible to low water yields during a drought, as well as water quality issues. Additionally, agricultural operators would experience significant impacts from drought, especially if they rely on natural rain events, rainwater collection, and healthy soils for crop maintenance and livestock care. The public water supply, and certain critical facilities (e.g. Town of Berne Wastewater Treatment Facility) could be susceptible to impacts during a drought due to low water yields, particularly if a back-up water supply has not been formally established.

Future vulnerability to drought events is determined by many factors, such as climate change, land use, and population changes, as well as the implementation of mitigation and adaptation strategies. Climate change is expected to increase the Town 's future vulnerability to drought events. These trends are further described in Section 4.1 of this annex and in Section 6 of the main body of the HMP.

6.4 Extreme Temperatures

The Town of Berne has ranked their overall vulnerability to extreme temperature events as moderate, as indicated in Table 4-2. According to Town representatives, extreme temperature events occur frequently in the jurisdiction and affect one or two problem areas within the jurisdiction, causing minor damage. The Town feels they are moderately prepared for extreme temperature events.

Extreme temperature events tend to have greater impacts on vulnerable populations, including older adults (over 65 years), young children (under 5 years), individuals with health complications, and individuals who cannot afford to sufficiently heat or cool their homes. Approximately 4% of the population in the Town is under 5 years old, and 21.3% of the population is over 65 years old. 10.6% of the residents of the Town have a disability (excluding any institutionalized residents and active-duty military members) some of whom have health problems that make them more vulnerable to extreme heat or cold. Approximately 4.4% of the Town's population is below the poverty level. Many residents within these populations are at a higher risk of being impacted by extreme temperature events. In particular, the Town is concerned about the impacts of extreme temperature events on:

- Homebound senior citizens
- Residents without reliable broadband or internet access
- Manufactured housing park residents

Future vulnerability to extreme temperature events is determined by many factors, such as climate change, land use, and population changes, as well as the implementation

of mitigation and adaptation strategies. Climate change is expected to increase the Town's future vulnerability to extreme heat events and decrease its vulnerability to extreme cold events. These trends are further described in Section 4.1 of this annex and in Section 6 of the main body of the HMP.

6.5 Landslide

The Town of Berne has ranked their overall vulnerability to landslide events as moderate, as indicated in Table 4-2. According to Town representatives, landslide events occur infrequently and affect one or two problem areas within the jurisdiction, causing minor damage. The Town feels they are not prepared for landslide events.

Landslides can impact the structural integrity of buildings, roads, and other infrastructure in the Town. They can also impact transportation flow and the provision of supplies, can degrade the natural environment, and have the potential to cause injury and death.

Future vulnerability to landslide events is determined by many factors, such as climate change, land use, and population changes, as well as the implementation of mitigation and adaptation strategies. For example, underlying conditions that impact landslides, such as bedrock stability and heavy rain events, are influenced by climate-related trends, such as temperature increases and extreme precipitation events. These trends are further described in Section 4.1 of this annex and in Section 6 of the main body of the HMP.

6.6 Jurisdictional Priorities

Taking into account the identified natural hazards, potential impacts, assets, and vulnerabilities identified above, key vulnerabilities and priorities to be addressed in this HMP were identified for the Town.

Top concerns about hazard mitigation in the Town included:

- Severe Storm
- Flooding
- Extreme Temperatures
- Drought
- Landslide

The following populations were identified as being particularly vulnerable to hazards:

- Homebound senior citizens
- Residents without broadband or internet access
- Manufactured housing park residents

The Town has not identified any changes in priorities since the 2018 HMP Update.

6.7 Additional Impacts

Additional impacts of the hazards are summarized in the problem descriptions in the Town's past and new mitigation actions, as described in the following sections.

7 MITIGATION STRATEGY AND IMPLEMENTATION

7.1 Past, Completed, and Ongoing Initiatives

The Town had proposed two mitigation actions in the 2018 Albany County HMP Update; the last update the Town participated in was the 2007 update. The status of each action is summarized below, along with the Town's decision about whether to include the action in the 2025 HMP Update. Any revisions to actions proposed in 2007 are indicated below.

Table 7-1. Status of 2018 Mitigation Actions

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2025 HMP Update? (Yes/No)	Notes
Snow Blower Plan / new plow trucks	Cost of front mount snowblower - $35,000 to fit large loader	Severe Storm	Town of Berne Highway Superintendent	No Progress	Yes	
Community Center Kitchen	$15,000 for gas stove and hood for Community Center as second emergency shelter	Shelter	Town of Berne Supervisor	Complete	Yes	Town would like to add additional upgrades

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the Town of Berne identified new mitigation actions for inclusion in the 2025 HMP Update, in conjunction with the project team. First, a list of actions was brainstormed based on the capabilities, hazard identification, impacts, and vulnerabilities described above. This included consideration to the ways

that the Town could expand and improve the identified capabilities to achieve mitigation, as described in Section 3 of this annex. Then, a more comprehensive range of actions were evaluated as described in Section 9 of the main body of the HMP. Finally, actions that tied in most closely with the vulnerabilities identified by the Town were selected for inclusion in the HMP. These actions are included in the table below. (Note that in the table, CF = Critical Facility, EHP = Environmental and Historic Preservation.) The actions also help address climate change in the Town, since many of the hazards profiled in this HMP may be worsened by climate change. The effects of climate change on these hazards are described in Section 4.1 and Section 6 of this annex, as well as in Section 6 of the main body of the HMP.

Table 7-2. New Mitigation Actions

Project #	Project Name	Goal/Objective being Met	Hazard to be Mitigated	Description of the Problem	Description of the Solution	Related to CF?*	EHP Issues*	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority
TBerneMH1	Culvert inventory and asset management system	G1, G2, G3, G4	Multiple Hazards (Flood, Severe Storm)	The Town spends a lot of money on maintaining, repairing, and upgrading culverts. Culvert maintenance, repair, and/or replacement is often done as part of a larger road infrastructure project. However, the Town would like to more strategically track culvert maintenance and proactively upgrade culverts to reduce flood hazards. The Town does not currently have GIS inventory of culverts.	Develop a GIS-based culvert inventory and asset management system to guide and track routine maintenance, upgrades, and repairs to culverts.	No	No	3-5 years	Albany County	High	This action would facilitate the proactive and strategic upgrade of culverts to mitigate flooding hazards.	US HMGP, US BRIC, US HUD CDBG-MIT, NYS HM RLF	High

Project #	Project Name	Goal/Objective being Met	Hazard to be Mitigated	Description of the Problem	Description of the Solution	Related to CF?*	EHP Issues*	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority
TBerneMH2	Debris management plan	G1, G2, G3, G6	Multiple Hazards (Flood, Severe Storm)	Microbursts and intense rain events impact the Town. Many of these severe storms include high winds that result in fallen trees and branches, which can block culverts and create flood hazards. Beaver dams are also a constant nuisance that contribute to and often exacerbate flooding.	Develop and implement a debris management plan to address the impacts of beaver dams and other debris that block waterways and culverts in order to mitigate hazards from floods and severe storms.	No	No	1-3 years	Town of Berne with assistance from SWCD and/or Albany County	Low	This action would reduce the impacts of severe storms and mitigate flood hazards by proactively removing debris from and adjacent to waterways.	US HMGP, US BRIC, US HUD CDBG-MIT, NYS HM RLF	High
TBerneMH3	Upgrade the Community and Senior Services Center (Hilltown Senior Center)	G1, G2, G5, G6	Multiple Hazards (Flood, Severe Storm, Extreme Temperatures, Landslide, Drought)	The Community and Senior Services Center is a critical facility serving Berne residents as well as residents in adjacent rural municipalities (e.g., Knox and Westerlo). Kitchen upgrades were recently made at the Community Center to increase its ability to serve as an emergency shelter. However, the facility is not fully ADA complaint and lacks a generator, which limits the Community Center's ability to function as an emergency shelter.	Install a generator at this critical facility so that it can remain open and function during an emergency or natural disaster. Upgrade the Community and Senior Services Center to enable this critical facility to serve as an emergency shelter, including the addition of ADA-compliant bathrooms, showers, a generator, and stocking the facility with emergency shelter supplies (e.g., cots, bedding, drinking water).	Yes	Potentially	3-5 years	Town of Berne	High	This action would increase the resilience of this critical facility to natural hazards and provide a centrally located emergency shelter for the community, which can be used during natural disasters related to severe storms, flooding, landslides, drought, and/or extreme temperatures.	US CDBG-MIT, US HMGP, NYS HM RLF	Medium

Project #	Project Name	Goal/Objective being Met	Hazard to be Mitigated	Description of the Problem	Description of the Solution	Related to CF?*	EHP Issues*	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority
TBerneMH4	Enhance emergency communications system	G1, G2, G3, G4, G5, G6	Multiple Hazards (Flood, Severe Storm, Landslide)	The Town has a very rural population, and many residents are isolated due to location or lack of technology. The Town has limited ways to communicate with residents in real-time to warn them of emergencies or communicate with residents during an emergency.	Implement an emergency communications system / early warning system to notify Town residents of natural disasters so they have time to prepare and appropriately respond to emergencies (e.g., reverse 911, FEMA IPAWS). This communications system would also enable emergency responders to more effectively respond to those in need. During blue skies, the Town would also use this communications system to share information about proactively mitigating natural hazards.	No	No	1-3 years	Town of Berne with assistance from Albany County	Medium	This action would enhance emergency response during natural disasters. During blue sky days, this system could also be used to share information about proactively mitigating natural hazards.	US HMGP, US BRIC, NYS HM RLF, FEMA EMPG, NYS Climate Smart Communities	Medium

Project #	Project Name	Goal/Objective being Met	Hazard to be Mitigated	Description of the Problem	Description of the Solution	Related to CF?*	EHP Issues*	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority
TBerneMH5	Natural hazard education campaign	G1, G2, G3, G4, G5, G6	Multiple Hazards (Flood, Severe Storm, Extreme Temperatures, Landslide, Drought)	There is a Hilltown Access Office that used to assist seniors once a week. However, the County has not been staffing this office lately and it is resulting in a lack of resources and services being distributed to Hilltown Seniors.	Increase staffing at the Community and Senior Services Center to provide weekly opportunities to access resources, support, services, and learn about opportunities to mitigate local hazards. This campaign could also be expanded once a Town-wide communications system is in place and broadband/internet access is increased (see recommended actions above and below). For example, this campaign could educate the public on safety during utility failure and how to access emergency supplies and emergency power.	No	No	6 months-1 year	Town of Berne with assistance from Albany County	Low	This action would educate Town residents about local natural hazards, how they can mitigate hazards, and how they can prepare for emergencies.	NYS DEC UCFG, EPA EJSG, US BRIC	High

Project #	Project Name	Goal/Objective being Met	Hazard to be Mitigated	Description of the Problem	Description of the Solution	Related to CF?*	EHP Issues*	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority
TBerneMH6	Increase access to broadband / internet	G1, G2, G3, G4, G5, G6	Multiple Hazards (Flood, Severe Storm, Landslide)	There is a significant number of homebound seniors in the Town without access to technology and internet. This lack of access to technology makes it difficult to communicate with some Town residents before, during, and after an emergency.	Increase access to internet by expanding broadband and cell service infrastructure, subsidizing the cost of internet, and/or providing free Wi-Fi in and around public facilities.	No	No	3-5 years	Utilities; Albany County with Town of Berne	High	This action would increase residents' ability to receive information from the Town to notify them of emergencies related to natural disasters. These systems could also be used to share information about preparing for natural hazards during blue sky days.	US HMGP, US BRIC, FEMA EMPG, CDBG PICP, NYS HM RLF	Medium
TBerneMH7	Develop a strategy to deal with fuel shortages	G1, G2, G3, G5, G6	Multiple Hazards (Flood, Severe Storm, Extreme Temperatures)	Manufactured housing parks (Briarwood and Pine Mobile Home Parks) in the Town of Berne are often dependent on kerosene for fuel. Recently, fuel shortages significantly impacted residents in manufactured housing parks, as they could not heat or cool their homes during extreme temperature events.	Develop a strategy to deal with fuel shortages, especially for more vulnerable residents living in mobile home parks who rely on fuel for heating. This strategy should explore transitioning the fuel source for mobile home parks from kerosene to renewable energy as well as providing generators, battery storage, and/or a microgrid to power mobile home parks in the event of a future power outage or fuel shortage.	No	No	6 months-1 year	Town of Berne with assistance from Albany County	Low	This action would reduce reliance on fossil fuels and ensure residents' access to a fuel source during extreme temperature events.	US CDBG-MIT, US HMGP, NYS HM RLF	High

Project #	Project Name	Goal/Objective being Met	Hazard to be Mitigated	Description of the Problem	Description of the Solution	Related to CF?*	EHP Issues*	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority
TBerneMH8	Upgrade road surfacing	G1, G2, G3, G5, G6	Multiple Hazards (Flood, Severe Storm, Extreme Temperatures)	The Town has a large network of dirt roads, which are rapidly degrading due to a lack of deep, sustained freeze and more frequent freeze/thaw cycles in the winter. Repairing the dirt roads is a significant Town cost (e.g., $12,000 worth of repairs to the roads every year), as these repairs are not covered by CHIPS funding. The most impacted roads, which are also important evacuation/access routes, include: Bradt Hollow, Highpoint, and Peasley.	Upgrades to road subsurface and surfacing to address annual deterioration due to lack of sustained winter freezes. These upgrades would improve road integrity and help ensure important access and evacuation routes are available in the event of an emergency.	No	No	1-3 years	Town of Berne with assistance from Albany County	High	This action would enhance the intergrity of the Town's rural road network, ensuring residents can evacuate during an emergency.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF, US BRIC, DOT BIL Grants, USGS Landslides Hazards Program	Medium

Project #	Project Name	Goal/Objective being Met	Hazard to be Mitigated	Description of the Problem	Description of the Solution	Related to CF?*	EHP Issues*	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority
TBerneD1	Establish a back-up water supply	G1, G3	Drought	All Town residents use well water. However, there are several potential threats to the drinking water supply, including drought and salt intrusion from the use of road salt during ice and winter storms, particularly along County routes. The Town does not currently have a back-up water supply and if private well water is contaminated by salt or unavailable due to drought, there would be a public health emergency.	Establish a back-up water supply to ensure all Town residents have access to clean drinking water when private well water is not potable.	Yes	No	1-3 years	Town of Berne with assistance from Albany County, NYS DEC	High	This action would ensure continuous public access to potable drinking water.	US BRIC, HMGP, USDA WEP, USDA RDWWDLGP, CWSRF, EPA GAC, CDBG, NYS WIIA	High
TBerneMH9	Implement stormwater best management practices	G1, G2, G3, G5, G6	Multiple Hazards (Flood, Severe Storm, Extreme Temperatures)	The Town experiences salt pollution due to over-salting of roadways, especially County routes, during winter storms.	Develop and implement stormwater management strategies along County Routes to decrease the amount of stormwater and salt runoff from roads.	No	No	1-3 years	Albany County	Medium	This action would mitigate flood hazards and improve water quality.	NYS CSC, NYS EFC EPG, NYS WIIA, DEC WQIP, CDBG, US BRIC, HMGP	High

Project #	Project Name	Goal/Objective being Met	Hazard to be Mitigated	Description of the Problem	Description of the Solution	Related to CF?*	EHP Issues*	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority
TBerneMH10	Establish a network of emergency shelters	G1, G2, G4, G5, G6)	Multiple Hazards (Flood, Severe Storm, Extreme Temperatures, Landslide)	Several Town facilities serve as mustering points and temporary shelters during emergencies. However, due to the rural nature of the Town's population, providing a distributed network of emergency shelters as well as upgrading current Town facilities, would increase the ability of Town residents to access these refuges during an emergency.	Establish a network of interconnected emergency shelters. This action includes upgrades to existing public facilities, creating new emergency shelters (e.g., use of Switzkill Farm), and providing transportation services to help residents get to/from emergency shelters.	Yes	Potentially	3-5 years	Town of Berne and Albany County	High	This action would provide shelter for vulnerable populations during a natural disaster or emergency.	US BRIC, HMGP, USDA RDCFLGP, EPA SGS, CDBG, NYS HMRLF	Medium

Project #	Project Name	Goal/Objective being Met	Hazard to be Mitigated	Description of the Problem	Description of the Solution	Related to CF?*	EHP Issues*	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority
TBerneF1	Vulnerability Assessment and Flood Protection for Critical Facilities	G1, G2, G3, G6	Flood	Some of the Town's critical facilities are not protected against the 0.2% chance flood event or previous worst case flood event, while others need assessment to determine their level of protection. This leaves these facilities vulnerable to becoming inoperable during flood events.	Conduct vulnerability assessments for the critical facilities identified in the Town's annex to this HMP update, to determine their level of protection against a 0.2% chance flood event (or previous worst-case flood, if greater than the 0.2% chance flood), where unknown. If/when funding is available, protect any unprotected facilities to an 0.2% chance flood event (or previous worst case flood event, if applicable), through engineering design, building retrofits, or other measures, as necessary and feasible. These facilities are identified in Table 5-1 of the jurisdictional annex.	Yes	Potentially	3-5 years	Town of Berne and Albany County	High	This action would reduce the vulnerability of critical facilities to flood events.	US HMGP, US BRIC, US Flood Mitigation Assistance, US HUD CDBG-MIT, NYS HM RLF	High

Project #	Project Name	Goal/Objective being Met	Hazard to be Mitigated	Description of the Problem	Description of the Solution	Related to CF?*	EHP Issues*	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority
TBerneMH11	Increase Resilience at Municipal Facilities and Key Assets	G1, G2, G3, G5, G6	Multiple Hazards (Flood, Severe Storm)	According to Albany County's Climate Resiliency Plan, several municipal facilities throughout the County are vulnerable to natural hazards such as flooding and severe storms, especially older buildings and buildings that serve vulnerable populations. Some Town of Berne facilities may fall into this category.	Partner with Albany County to assess additional opportunities to increase resilience at critical facilities and other key assets. This may include, but is not limited to, action items detailed in the Albany County Climate Resiliency Plan page 180-197, such as: 1) Assess municipal buildings for resilient retrofit opportunities, 2) Assess municipal properties for resilient site improvements, and 3) Assess climate risks and identify proactive solutions for climate resilience at a local level. Particular facilities of interest may include, but are not limited to, the ones listed in the Climate Resiliency Plan (Chapter 3 and pages 180-197), as well as the ones listed in the Critical Facilities section of the jurisdictional annex.	Yes	Potentially	3-5 years	Town of Berne	High	This action would reduce the vulnerability of the community's critical facilities to natural hazards including floods and severe storms.	US HMGP, US BRIC, US HUD CDBG-MIT, NYS HM RLF	Medium

Project #	Project Name	Goal/Objective being Met	Hazard to be Mitigated	Description of the Problem	Description of the Solution	Related to CF?*	EHP Issues*	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority
T Berne, HHPD1	High Hazard Potential Dam Mitigation Plan for Helderberg Lake Dam	G1, G2, G3, G4, G5, G6	Flood, Severe Storm	Helderberg Lake Dam is classified by the New York State Inventory of Dams as a High Hazard Potential Dam, denoting the highest downstream hazard potential in the event of a dam failure. If the dam failed, it could cause significant flood damage. Severe storms with heavy rainfall could potentially overtop the dam.	Address safety deficiencies for the Helderberg Lake Dam, including those outlined in the most recent engineering reports, dam repair plans, and DEC Inspection Reports, as applicable. Undertake other repairs and actions as necessary to ensure dam safety. Collaborate with and inform any stakeholders, such as the dam safety agency, the Town of Berne, and the Town of New Scotland. Additional attention should be paid to any risks and vulnerabilities identified in the HHPD worksheet for Helderberg Lake Dam, as well as in the Emergency Action Plan.	No	Maybe	3-5 years	Helderberg Lake Association	High	High - This action will improve public safety and reduce vulnerabilities of people, homes, businesses, and other structures that could be impacted by flooding if the dam fails.	FEMA HHPD Grant Program, WQIP	Medium

**Note: CF = Critical Facility, EHP = Environmental and Historic Preservation.*

7.3 Mitigation Action Prioritization

Each of the Town's proposed mitigation actions were evaluated and prioritized according to the criteria listed in Section 9 of the main body of the HMP. This includes a cost-benefit review of the proposed actions. The results are included in Table 7-3.

Table 7-3. New Mitigation Action Prioritization

Mitigation Action ID	Mitigation Action Name	Ability to Increase Resilience	Economic Feasibility	Low Environmental Impact	Ability to Implement	Total Score	Priority
TBerneMH1	Culvert inventory and asset management system	2	3	3	3	11	High
TBerneMH2	Debris management plan	2	3	3	2	10	High
TBerneMH3	Upgrade the Community and Senior Services Center (Hilltown Senior Center)	3	2	2	2	9	Medium
TBerneMH4	Enhance emergency communications system	1	2	3	2	8	Medium
TBerneMH5	Natural hazard education campaign	1	3	3	3	10	High

Mitigation Action ID	Mitigation Action Name	Ability to Increase Resilience	Economic Feasibility	Low Environmental Impact	Ability to Implement	Total Score	Priority
TBerneMH6	Increase access to broadband / internet	2	1	2	2	7	Medium
TBerneMH7	Develop a strategy to deal with fuel shortages	2	3	3	3	11	High
TBerneMH8	Upgrade road surfacing	2	2	2	2	8	Medium
TBerneD1	Establish a back-up water supply	3	2	3	2	10	High
TBerneMH9	Implement stormwater best management practices	3	3	3	3	12	High
TBerneMH10	Establish a network of emergency shelters	3	2	2	2	9	Medium
TBerneF1	Vulnerability Assessment and Flood Protection for Critical Facilities	1	3	3	3	10	High
TBerneMH11	Increase Resilience at Municipal Facilities and Key Assets	3	2	2	2	9	Medium

Mitigation Action ID	Mitigation Action Name	Ability to Increase Resilience	Economic Feasibility	Low Environmental Impact	Ability to Implement	Total Score	Priority
TBerne HHPD1	High Hazard Potential Dam Mitigation Plan for Helderberg Lake Dam	3	1	2	2	8	Medium

Note: Feasibility/effectiveness is rated as follows: 1 = Poor, 2 = Moderate, 3 = Good. Priority is determined as follows based on total score: 4-6 = Low, 7-9 = Medium, 10-12 = High.

7.4 Mitigation Action Implementation and Administration

The Town's new mitigation actions will be implemented and administered via the lead agencies listed in Table 7-2 of this annex, using the timeframes, prioritization, and funding sources in Sections 0 and 7.3 as a guide. Further details about implementation of mitigation actions for all jurisdictions in Albany County, as well as a description of funding sources, are described in Sections 9 and 10 of the main body of the HMP.

8 ADDITIONAL PUBLIC INVOLVEMENT

Public input was solicited to guide the development of the HMP through two public information meetings and a community survey. A summary of the findings of these outreach activities can be found in Section 3 of the main body of the HMP. The Town of Berne may continue to seek public participation in hazard mitigation planning after HMP approval by including discussion of the HMP as an agenda item at public Town Board meetings and by offering opportunities for members of the public to participate in the implementation of relevant mitigation actions.

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: Albany County 2025 Multi-Jurisdictional Hazard Mitigation Plan Update	Point of Contact for this Worksheet Name: Johanna Duffy Email: Jduffy@bartonandloguidice.com
Municipality where dam is located: Town of Berne	Name of Dam: Helderberg Lake Dam
Name of the Dam Owner: Helderberg Lake Association	NYS Dam ID #: 190-1294

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Regular inspection and maintenance has been performed by the owner of the dam in accordance with schedule established in the Emergency Action Plan. The Emergency Action Plan in addition to an Annual Certification have been submitted to the NYSDEC Dam Safety Unit to demonstrate compliance. As part of this annual certification, the dam owner is required to notify the County Emergency Management office of any changes to the EAP.

Under the current Emergency Action Plan, under an emergency level 2 or 3 scenario (potential dam failure situation/dam failure appears imminent), the Helderberg Lake Association (Dam Owner) is responsible for initiating the notification process to municipalities who would be affected by this failure. There is regular reporting between the owner and the state dam safety agency, including annual certification and renewing permits. The state and county emergency management agencies are included on the distribution list for the EAP.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners? Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

An Emergency Action Plan was provided that contains the list of affected properties, an evacuation plan with precautions, notification flow charts, EAP distribution list, and emergency contractors.

Inundation maps were used to assess the locations and potential impacted areas of a dam breach.

A summary of the Engineering Assessment was used to assess dam vulnerabilities to natural hazards. This summary contained slope stability analysis, spillway capacity analysis, inspection findings, and a list of repairs to address deficiencies.

Tables 3-1, 3-2, and 3-3 in the HMP summarize jurisdictional and stakeholder participation for preparing the mitigation plan.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The HMP evaluates hazard profiles including severe thunderstorms/windstorms/hail, severe winter storms, flooding, ice jams, wildfires, extreme temperatures, ice storms, tornadoes, droughts, earthquakes, and landslides. The potential impacts of each natural hazard event are discussed in section 6 of the HMP.

There is no material risk to the dam from ice storms, droughts, seismic events, and extreme temperatures.

This dam is a 285 foot long earthen embankment with a concrete core wall and concrete spillway. This dam is vulnerable to large seismic events and severe storms with heavy rainfall that could potentially overtop the dam. The Engineering assessment determined that the spillway is undersized causing the embankment to be overtopped during the 1/2 probable maximum flood event, which makes the dam vulnerable to severe rain events. The EA also analyzed the slope stability of the embankment. The factor of safety for the high water level load case is less than 1 which indicates instability during these conditions. The NYSDEC/USACE minimum 1.3 factor of safety is not met for this condition. The embankment stability meets all NYSDEC requirements during seismic events.

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The EAP contains a list of affected properties at risk during a dam failure. The residents impacted would experience significant economic and social impacts if their property was damaged due to a failure including home/property repair and restoration costs, medical costs, temporary relocation costs, among many others. These impacts will occur in multiple jurisdictions. There are over 100 affected properties during a rainy day breach listed in the EAP.

During a sunny day breach event, numerous homes and commercial structures are located in the inundation zone including Voorheesville, Clarksville, and Feura Bush.

The Emergency Action Plan can be requested through the dam owners, Albany County Emergency Management, municipal emergency management office, or NYS Department of Environmental Conservation.

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The Emergency Action Plan contains a list of properties and the respective owners at risk in the event of a dam failure. There are over 100 properties listed that are located within the inundation zone.

Critical facilities in the Town of Berne are listed in the Jurisdictional Annex - Table 5-1 (Appendix J), and critical facilities in other municipalities are also listed in Appendix J. The Onesquethaw Volunteer Fire Dept facility in Clarksville would be inundated in a dam breach. Additionally, the Albany County Sheriff's office and E911 call center on the other side of Route 443 could potentially be impacted by a dam breach.

As shown in the inundation maps, in the event of a sunny day dam breach, several roads downstream of the breach to the Tarrytown Road Bridge will be overtopped by the flood wave. These roads include Wolf hill Road (2' overtopped), NY-443 (5' overtopped), NY-85 (5' overtopped).

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6 of the HMP includes a history of natural hazard events and associated property damage estimates. The risk data was compiled from local records and publicly available data including the 2023 NYS Hazard Mitigation Plan, NOAA, NCDC, CMRA, USACE, and CRREL. Damage estimates were compiled using data from NOAA, FEMA National Risk Index, and NWS.

Inundation maps were prepared for a sunny day dam breach and a rainy day dam breach. Elevation data was retrieved from NYSDOT Clearinghouse. The EAP states that engineering assumptions were used to develop the flood models. Cross-sections were surveyed at road crossings downstream of the dam.

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Dam-specific information about the economic, environmental, and social impacts from a dam failure, beyond those described in HHPD2-a (2), were not available. If funding resources become available, this deficiency could be addressed through a vulnerability analysis specific to the Helderberg Lake Dam, including an economic assessment of structures in the flood inundation map, a social assessment of potential impacts of a dam failure, and the environmental consequences of a dam failure.

Additionally, a more detailed HHPD assessment could be accomplished in the future with additional funding resources. For example, there were not sufficient funding resources available to assess the critical facilities that would be impacted by a dam failure or breach, beyond anecdotal evidence, and to estimate the population at risk. This will be considered in a future iteration of the HMP.

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The goals of the 2018 HMP were updated based on hazard research, input from the County and local representatives, and public comments. Reducing the vulnerability to life-safety events is one of these goals. This is accomplished by strategies such as natural resource protection, updating zoning and building codes in inundation areas, property protection which could involve raising or relocation structures, maintaining readiness in response to a disaster, and educating residents and providing them with any necessary resources. In reducing vulnerabilities to the dam, there are several objectives in the HMP such as incorporating climate change as part of all county plans, ensuring effective and accurate documentation, and identifying voids in public safety infrastructure.

Section 9.1.3 identifies the goals of the HMP update.

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Proposed mitigation actions were developed based on the goals established in the HMP update. These actions implemented by various agencies to reduce the impact of potential hazards are listed in Table 7-2 of the Town of Berne Jurisdictional Annex.

In the Hazard Mitigation Plan, mitigation actions in the Town of Berne that address vulnerabilities to/from HHPDs include Town of Berne F1: Vulnerability Assessment and Flood Protection for Critical Facilities, Town of Berne MH1: Increase Resilience at Municipal Facilities and Key Assets, and Town of Berne MH4: Enhance Emergency Communications Systems.

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The mitigation actions outlined in the HMP include measures that can be taken to address HHPDs including structural projects to dams, natural resource protection such as watershed management and stream corridor restoration, government administration such as updating zoning and building codes in inundation areas, and property protection which could involve raising or relocation structures, or enhancing property storm protection features.

In the Hazard Mitigation Plan, mitigation actions in the Town of Berne that address vulnerabilities to/from HHPDs include Town of Berne F1: Vulnerability Assessment and Flood Protection for Critical Facilities, Town of Berne MH1: Increase Resilience at Municipal Facilities and Key Assets, Town of Berne MH4: Enhance Emergency Communications Systems, and Town of Berne HHPD1: High Hazard Potential Dam Mitigation Plan for Helderberg Lake Dam. County Albany HHPD1: High Hazard Potential Dam Mitigation Plan also addresses vulnerabilities to/from HHPDs.

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

A cost-benefit analysis was performed for each proposed mitigation action and then assigned a priority level. The criteria used to assign a priority score include ability to increase resilience, economic feasibility, low environmental impact, and ability to implement.

The prioritization is summarized in Table 7-3 in the Town of Berne Jurisdictional Annex .

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Table 7-2 in the Town of Berne Jurisdictional Annex identifies a lead agency for all new mitigation actions.

The EAP identifies roles and responsibilities of various agencies during an emergency event.