

Appendix A

Jurisdictional Annexes

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County of Tioga

This section presents the jurisdictional annex for the County of Tioga for the 2024 Tioga 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

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2 COMMUNITY SNAPSHOT

A community profile of Tioga County – including geographic, climate, demographic, economic, land use, and development characteristics – is included in Section 2 of the main body of the HMP. Since the last County HMP (2018), multiple developments have progressed throughout the County. New developments that have been approved or proposed in the County are included in each municipality's jurisdictional annex.

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The County of Tioga identified the following planning mechanisms and capabilities that can support the County 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 that can support hazard mitigation.

Table 3-1. Planning Mechanisms and 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	Bridge painting, facilities improvements, preventative maintenance program for bridges
Mitigation Planning Committee	Yes	County Planning Director, SWCD, OES
Mutual Aid or Shared Services Agreements	Yes	OES
Planning Board	Yes	EDP / County Planning Director
Zoning Board	No	
Other	No	
Development Approvals		
Building Code	No	State and local level
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	No	Local level
Fire Department ISO Rating	No	Local level
Site Plan Review Requirements	No	Regulated at local level (239 review)
Other	No	
Funding Resources		
Authority to Levy Taxes	Yes	
Capital Improvement Project Funds	Yes	DPW, IT
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	BMTS (Federal Highway funds)
General Obligation Bonds and/or Special Tax Bonds	Yes	
Impact Fees for New Development	No	

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?)
State Funding Programs (i.e., NYSEFC, NYSOCR, NYSDEC, others)	Yes	BMTS, System structures, DEC WQIP
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	No	
Other	No	
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	No	
NFIP Participant / Floodplain Ordinance	No	Regulated at local level
Hillside Development Regulations	No	
Open Space Preservation	No	
Stormwater Management Regulations	No	Regulated at local level
Streambank Setback Regulations	No	
Subdivision Regulations	No	Regulated at local level
Zoning Ordinance	No	Regulated at local level
Other	No	
Natural Resources		
Forest/Vegetation Management	Yes	SWCD
Stream Corridor Management	Yes	SWCD
Stream Dumping Regulations	No	State laws apply
Urban Forestry and Landscape Management	Yes	SWCD
Watershed Management	Yes	SWCD
Wetland Regulations	No	
Other	Yes	Complies with the NYS Uniform Procedures Act (UPA), Article 70 of the Environmental Conservation Law (ECL)
Plans		
Capital Improvement Plan	Yes	DPW 5 year plan for roads, bridges, facilities (annually as part of the budget process), IT Plan
Comprehensive Emergency Management Plan	Yes	Tioga County Comprehensive EMP 2013, CEMP 2020 (updating in Fall 2023)
Comprehensive Plan	No	
Continuity of Operations Plan	Yes	Emergency Operations/Post-Disaster Recovery Plan, each department has a COOP
Economic Development Plan	Yes	Tioga County 2020 Strategic Plan (updating in 2023)
Other	Yes	Tioga County Infrastructure Plan (2004); Tioga County Agricultural and Farmland Protection Plan Update (2015); Code Enforcement in Tioga County (2020); Tioga County CEPA (2022); NYRCR Tioga (2014);
Programs/Organizations		
Climate Smart Community	No	

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?)
Local Emergency Preparedness/Disaster Response Organizations	Yes	OES, COAD, Local Emergency Planning Committee, Public Health, Medical Reserve Corp.
Local Environmental Protection Organizations	No	
National Weather Service StormReady Certification	Yes	
Outreach Programs	Yes	Coordination with non-profits (NY Citizen Preparedness Training Program)
Partnerships with private entities addressing mitigation or disaster response	No	
School Programs or Adult Educational Programs	No	
Other	No	
Staff Positions		
Civil Engineer	Yes	Environmental health staff, DPW has two full-time engineers, SWCD has one full-time engineer
Code Enforcement Officer	Yes	Part-time officer (specifically for County buildings only)
Emergency Manager	Yes	OES
Floodplain Administrator	No	Municipal level
Planner/GIS Coordinator	Yes	County Planning Director, GIS Manager
Other	No	
Technical Abilities		
Grant Writing	Yes	Each department writes its own grants
Hazard Information Centers	No	
Hazard Warning Systems	No	
Other	No	

Opportunities to expand and improve these capabilities are detailed in Section 10.3 of the main report.

3.2 Integration of Planning Efforts

The County of Tioga understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The County's current efforts and future plans to integrate Hazard Mitigation Planning into planning mechanisms are included in Section 10 of the main body of the HMP.

4 HAZARD IDENTIFICATION AND RISK ASSESSMENT

4.1 Profiled Hazards

In this HMP Update, the County reviewed multiple natural hazards and determined to profile four natural hazards: flooding, severe storm, extreme temperatures, and drought. The methodology that informed the selection of these hazards is described in Section 5 of the main body of the HMP, and descriptions of each of these hazards are included in Section 6 of the main body of the HMP. For convenience, the hazard analysis criteria and results of the analysis are also presented below.

Table 4-1. Hazard Analysis Criteria

Score	Impact (Damage and Injuries)	Frequency	Extent	Level of Preparedness	Total Score	Overall Vulnerability
1	Minor	Rare	One or two problem areas within the County	Well Prepared	4 to 5	Low
2	Moderate	Infrequent	A significant portion of the County	Moderately Prepared	6 to 8	Moderate
3	Major	Regular	County-wide	Not Prepared	9 to 12	High

Table 4-2. Hazard Vulnerability by Event for Tioga County

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	3	3	3	2	11 – High	1	Climate change is expected to impact vulnerability to this hazard.
Drought	2	2	3	3	10 – High	2	Climate change is expected to impact vulnerability to this hazard.
Severe Storm	2	3	3	2	10 – High	2	Climate change is expected to impact vulnerability to this hazard.
Extreme Temperatures (Heat/Cold Wave)	1	2	3	2	8 – Moderate	3	Climate change is expected to impact vulnerability to this hazard.

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. There were no records of County-wide hazard events since the 2018 HMP Update. For records of more localized, municipality-specific hazard events since the 2018 HMP Update, see each municipality's jurisdictional annex.

4.3 Floodplain Statistics

Key waterways in the County are described in Section 2 of the main body of the HMP. 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 334,337 acres in the County, approximately 6.10% are located within the 1% annual chance flood event area and approximately 0.56% are located within 0.2% annual chance flood event area. The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-4. 5,115 parcels in the County are located within the 1% annual chance flood event area, with an estimated total structure value of \$540,756,557. 2,357 parcels in the County are located within the 0.2% annual chance flood event area, with an estimated total structure value of \$314,284,139. More information is included in Section 6.1 of the main body of the HMP.

Table 4-3. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	100-Year Floodplain	500-Year Floodplain
334,337	6.10%	0.56%

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

Property Class	Number of Parcels in 100- Year Floodplain	Approx. Structure Value* in 100-Year Floodplain	Number of Parcels in 500- Year Floodplain	Approx. Structure Value* in 500-Year Floodplain
Agricultural	267	9,153,760	88	2,165,210
Commercial	407	65,272,015	347	45,474,781
Community Services	99	109,979,900	62	69,302,600
Industrial	41	84,710,410	32	84,386,610
Parks and Open Space	31	325,860	8	39,500
Public Services	71	92,909,311	44	38,409,647
Residential	2,818	162,602,521	1279	62,910,071
Vacant	1332	2,071,980	470	675,220
Recreation	49	13,730,800	27	10,920,500
Total	5,115	540,756,557	2,357	314,284,139

Note: The structural value for each tax parcel was calculated by subtracting its assessed land value from its total assessed value.

4.4 National Flood Insurance Program

Information on NFIP for the County is provided in Section 8.4 of the main body of the HMP. All 15 municipalities within Tioga County participate in the NFIP. The only violation identified was within the Village of Owego, which is currently working to come into full compliance. The County 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 Section 3 of this annex.

According to NFIP claims data provided by FEMA, there are 319 repetitive loss properties in Tioga County, including 34 severe repetitive loss properties. Such properties 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 County does not anticipate substantial future land use changes that would influence the impact of natural hazards on the community. However, climate change is noted as a concern, as it is expected to increase the frequency and severity of the County's natural hazards, including flooding, drought, severe storms, and extreme temperatures. Additional information about future potential impacts and the relation to climate change is included in Section 6 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response or that requires a special emergency response in the event of hazardous incidents as identified by the County. These 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 County offices, 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 Tioga County that the County has jurisdiction over, along with any particular vulnerabilities of note. More information about hazard vulnerability, including a tool for understanding the vulnerability of community assets to events of varying magnitudes, is included in Section 6 of the main body of the HMP. Additional vulnerabilities by location are assessed in the HAZUS analysis, included in the appendices of the HMP. Additional information about critical facilities is included in Section 7 of the main body of the HMP. A list of critical facilities (and high hazard potential dams where

applicable) within each jurisdiction is included in each jurisdictional annex, along with information about their protection to 1% and 0.2% annual chance flood events.

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 County'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 County has included an action in Section 0 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

The County of Tioga has 5 high hazard potential dams located in the County: Waverly Lower Reservoir Dam in the Village of Waverly, Ed Pylkas Dam in the Town of Spencer, Pelto Dam in the Town of Spencer, Nanticoke Creek Site 7b Dam in the Town of Newark Valley, and the Alexander Lake Dam in the Town of Newark Valley.

High Hazard Potential Dams can be an asset as well as pose risks to the County and to neighboring Counties. The High Hazard Potential Dam (HHPD) worksheets for these dams are located in jurisdictional annexes for the municipalities in which the dams are located. Additional information about high hazard potential dams is included in Section 6.1.1 of the main body of the HMP.

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)

Information about additional County assets, including high hazard potential dams, is included in Section 7 of the main body of the HMP. In particular, Tioga County has identified the following asset as particularly important for consideration in hazard mitigation planning, in addition to the critical facilities listed in Table 5-2.

Table 5-2. Additional Assets

Important Assets	Description
Owego Central Historic District	This asset is located in a floodplain in the Village of Owego

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

Below is a summary of the County's vulnerability to each hazard, which is also described in Section 6 of the main body of the HMP. A summary of vulnerability, including County priorities, is provided in Section 8 of the main body of the HMP.

6.1 Flood

The County of Tioga has ranked their overall vulnerability to a flood event as high, as indicated in Table 4-2. Flood events occur regularly in the County and affect the entire County, causing major damage. The jurisdiction is moderately prepared for flood events.

Information on flood event records (Section 4.2), high hazard potential dams (Section 5.2), floodplain statistics (Section 0), 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 County'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 County of Tioga has ranked their overall vulnerability to a severe storm event as high, as indicated in Table 4-2. Severe storms occur regularly in the County and affect the entire County, causing moderate damage. The County is moderately prepared for severe storm events.

Records of severe storm events are described in Section 4.2. Impacts to the County 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 County's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damages would primarily impact the more populated portions of the County, such as many of the hamlets and villages within the County, as well as residents in more remote areas who may experience long power outages and longer wait times for snow removal, among other impacts. Municipal jurisdictions within Tioga County complete tree maintenance within each jurisdiction's road right of ways to minimize potential damages to overhead utility lines. Private utility right-of-ways are generally maintained by individual utility companies.

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 County is vulnerable to, likely making the County 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 County of Tioga has ranked their overall vulnerability to a drought event as high, as indicated in Table 4-2. Drought events occur infrequently/regularly in the jurisdiction and affect the entire jurisdiction, causing moderate/major damage. The jurisdiction is not prepared for drought events.

Several municipalities in Tioga County are served by a public water supply. This water supply, and certain water and wastewater facilities, 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. Additionally, any residents who rely on private wells would also be susceptible to the impacts of a drought due to low water yields.

The many agricultural areas across the county would also experience impacts from drought. Agricultural operators who rely on natural rain events, rainwater collection, and healthy soils for crop maintenance and livestock care may be susceptible to the impacts of low water yields during a drought.

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 County'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 County of Tioga has ranked their overall vulnerability to an extreme temperature event as moderate, as indicated in Table 4-2. Extreme temperature events occur infrequently in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is 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 5.1% of the population in the County is under 5 years old, and 20.3% of the population is over 65 years old. Approximately 15.3% of the residents of the County 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 9.9% of the County's population is below the poverty level. Many residents within these populations are at a higher risk of being impacted by extreme temperature events.

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 County'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 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 County.

Top concerns about hazard mitigation in the County that were identified during the County's jurisdictional interview, included:

- Mobile home parks within the County, which often house lower-income communities with limited capacity to relocate, are often located within a floodplain; this combination of demographic and geographic characteristics increases the vulnerability of these neighborhoods.
- There has been some increase in EMS calls during extreme heat events.

The following populations were identified as being particularly vulnerable to hazards during the County's jurisdictional interview. Additional information on vulnerable populations is included in Section 2.3 of the main body of the HMP, as well as in the Community Engagement Strategy (Appendix C).

- The elderly population is vulnerable to natural hazards, and is located throughout the County. There also is a lack of public transportation to move individuals to emergency shelters, and the assistance of schools is often needed.

The plan was revised to reflect the following changes in community priorities since the 2018 HMP Update:

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

Additional concerns that the County would like addressed in the plan include:

- None identified

6.6 Additional Impacts

Additional impacts of the hazards are summarized in the problem descriptions in the County'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 County proposed 20 mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized below. 9 of these actions were re-included in the 2024 HMP Update.

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)	Notes
Purchase and distribute alternate-powered (battery, solar or hand crank) NOAA weather radios to 20,300 households in County	Residents need a dependable method to receive weather information and information before and during disasters and periods of power interruptions	All	County OES	Discontinued	No	
Purchase 6 variable message signs with back up solar power. Message boards would be placed along main travel corridors to inform the Public of impending storm events.	Residents need a dependable method to receive information before and during disasters	All	County DPW and Emergency Services	No Progress	Yes	
Purchase automated flagging assistance device and 4 portable traffic signals with backup solar power to relieve manpower during severe storm events.	Traffic safety is reduced during power interruptions during severe storm and hazard events	All	County DPW and Emergency Services	No Progress	No	

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)	Notes
Establishment of agreement with aerial photography company, Pictometry, to capture geo-referenced ortho and oblique aerial imagery during and/or immediately after hazard events to provide information for response and recovery from incidents	County has no way to document overall extent of inundation and damages after a disaster event to provide information for response and recovery	All	County GIS	Completed	No	
Mapping of relief supply routes.	County does not have accessible mapping of relief supply routes during and after a disaster	All	County GIS and Sheriff	In Progress	Yes	
Once Red Cross Shelter locations become available, identification and mapping of evacuation routes for residents living in flood zones for escape to shelters and to communicate hazard areas. Including the use of both hard copy and digital maps available on line and through mobile apps	There is no existing mapping of evacuation routes to provide guidance to residents to shelter locations during and after a disaster event.	All	County GIS and Public Health	Discontinued	No	

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)	Notes
Test and verify internet and mobile apps developed for users to pin locate road blockages and App for DPW to verify blockages, indicated areas, and constantly update map in App.	Pilot mobile app has not been beta tested prior to deployment	All	County GIS with support from NYS DOT	In Progress <i>Note: Need training in how to use it</i>	Yes	
Install rain gauges for early flood warning system. (Expand IFLOWS network of precipitation and stream gauges).	More information is needed to predict flooding	Flood, Severe Storm	County OES with support from SWCD	No Progress	Yes	Include warning for East Sidney Dam in Delaware County.
Develop flood response plan with this in place emergency responders and government personal will have a Standard Operating Procedure to facilitate their responsibility during and emergency	The County does not have a flood response plan to provide a standard operating procedure for emergency responders and government	Flood	County OES with support from municipalities	Discontinued <i>Note: To be reinstated in Plan Update.</i>	Yes	
Work with municipalities to develop individual emergency plans.	Communities currently do not have emergency plans	All	County OES with support from municipalities	In Progress	Yes	
Collect high-water marks from flood levels and subsequent floods at the existing Community Flood Awareness signs locations.	County needs to document flood levels to provide history of inundation for public outreach and to support funding opportunities	Flood	SWCD	No Progress <i>Note: Some signs have been updated, but nine need to be significantly taller</i>	Yes	

<p>Identify multiple locations for shelters in the County and develop a Countywide Sheltering Plan and program</p>	<p>There is no large capacity shelter location in the County.</p> <p>Tioga County will develop a formal countywide sheltering plan. Public Health, working with Emergency Services, Planning and each municipality, will support the Community Organization Active in Disasters (COAD) in developing this plan. The plan will include an inspection of all existing shelters to understand their ability to support residents in the time of need. This will be the basis as to identifying a pre-selected list of facilities. The list will include shelter locations in each municipality that have been pre-selected based on the following: accessibility for people with functional needs; generator accessibility to power entire facility; preference of municipal officials; capacity to shelter population in need; adequate parking; shower and restroom facilities; food storage and preparation capability; and provide sheltering service to those with and without special or functional needs. The shelters will meet standards set by the American Red Cross.</p>	<p>All</p>	<p>County Dept. of Social Services</p>	<p>Discontinued</p>	<p><i>Note: This action was formerly two separate actions (in the 2018 HMP), now combined.</i></p>	<p>No</p>
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Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)	Notes
	The plan will include, but not limited to, the following: how the plan will be updated and maintained; concept of shelter operations; dissemination of public information (where the shelters are located, evacuation routes, etc.); shelter intake procedures; shelter equipment, supplies, and staffing; and financial protocols, plans, policies, and procedures.					
Countywide Basement Clean-Out Program	Develop a countywide basement clean-out program to help residents dispose of household hazardous waste properly and prevent contamination during periods of flooding. The county proposes to hire a company to host a drop-off location in each municipality and advertise the pick-up in local news media outlets and social media. If funding is greater, the county will host a curbside pickup program. The county will also develop a public outreach program to inform residents of the importance of disposing wastes properly. This program will help with the proper disposal of household chemicals, wastes, etc.	All	County Solid Waste	In Progress <i>Note: Still looking for funding to do local events; promotional materials are released each year.</i>	Yes	

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)	Notes
County Highway & Public Works Complex	Identify new location for the facility and get building blueprints, permits, etc. to construct a new facility outside of the floodplain that will serve as the county highway and public works complex. It will hold equipment, offices, emergency shelter, roadway maintenance, and grounds/building maintenance. By having the facility complex located outside of the floodplain, it will reduce/eliminate flood damage and allow the department to fully function during an emergency.	All	County DPW	No Progress <i>Note: Funding needed</i>	No	

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)	Notes
Construction and Demolition Recycling and Debris Management Facility	Public-private partnership with Taylor Garbage – the county would work with them to obtain funding. Identify a location for the facility, obtain permits, and construct facility. This would reduce waste to the landfill, save money, save time on identifying debris sites in the county, and reuse recycled materials (i.e. mulch) around the county. This would also ensure proper disposal of materials from private homes and commercial buildings throughout Tioga County.	All	County Solid Waste	Discontinued	No	
Shared Services Satellite Facility for County Highway & Public Works	Construct a shared services satellite facility for Public Works, Buildings/Grounds, Public Health, and Public Safety to utilize during severe weather events. The facility would be located on the south side of the Susquehanna River. The office will also store equipment that can be used to aide in clean-up efforts after a flood or storm. Prior to an event, the facility will be stocked up with equipment that may be needed after the event. This facility would allow for continuity of operations.	All	County DPW	No Progress <i>Note: Funding needed</i>	No	

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)	Notes
Countywide Sheltering Plan and Program		All	County Public Health, County Emergency Services, County Planning	No Progress	No	
Develop an online tool for communities to record losses, damages, road closures, emergency responses, etc. after a hazard event occurs. This will provide the County with a central location of all loss information which will benefit the county and municipalities if a FEMA declaration is issued for the county.	There is currently no way of tracking losses in a central location after an emergency occurs. This makes it difficult for the county to understand where the damages are and how much monetary losses municipalities sustained.	All	County GIS	No Progress	Yes	
Climate Change Integration - While considering, planning, engineering and undertaking projects throughout the County, the County will review and incorporate the latest information on climate change projections.	Local municipalities need to take action to reduce greenhouse gas emissions and adapt to a changing climate.	All	County Planning and SWCD	No Progress	No	

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)	Notes
Through the NYS Climate Resilient Farming Grant, the county will conduct a streambank stabilization project with buff and wetland implementation on a farm in the Town of Spencer. The project will include stabilizing the streambank with a 14 acre buffer, creation of 3.4 acres of wetlands, and planting 3.5 acres of trees.	The current area in the Town of Spencer is prone to washouts, runoff into streams, and flooding of roadways and agricultural areas.	Flood, Severe Storm	SWCD with support from the Town of Spencer and farm owner	Discontinued <i>Note: Property owner declined project</i>	No	

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the County identified new mitigation actions for inclusion in the 2024 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 County could expand and improve the identified capabilities to achieve mitigation, as described in Section 3 of this annex and in Section 10.3 of the main body of the HMP. Then, a more comprehensive range of actions were evaluated as described in Section 9.3 of the main body of the HMP. Finally, actions that tied in most closely with the vulnerabilities identified by the County were selected for inclusion in the HMP.

The County proposed 12 new mitigation actions to be included in the 2024 HMP update. These actions are included in Table 7-1 below, and described in more detail in the Mitigation Action – Review spreadsheet (Appendix I).

Table 7-1. 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	Survey Rank
C Tioga D1	Implement an educational campaign for drought awareness and mitigation	G1, G2, G4, G5	Drought	Limited water is available in the County for people, livestock, and crops.	Implement a public education campaign that encourages residents to implement water conservation practices and raises awareness of when such water conservation measures should be taken. Moreover, the campaign would encourage farm operations to adopt climate resilient practices, such as water storage.	No	No	6 months-1 year	SWCD with assistance from the National Weather Service	\$	Residents and farmers will be equipped to implement behavioral and operational changes that conserve water and reduce the overall impact of drought.	CRF, US BRIC, EPA EJSJG	Medium	8
C Tioga F1	Implement a farmer outreach campaign for flood mitigation measures	G2, G4, G5	Flood	Flooding from agricultural lands impacting properties and infrastructure.	Implement an outreach campaign to farmers to encourage the installation of stormwater retention ponds, wetlands, and riparian forest buffers to limit flooding within the watershed.	No	No	1-3 years	SWCD in partnership with USC	\$	Farmers will be equipped to implement infrastructural changes that reduce stormwater runoff and the impacts of flooding.	CRF, USC, WQIP, US BRIC, NRCS WFPO	Medium	9
C Tioga MHI	Develop a tree management program	G1, G2, G4	Severe storm, extreme temperatures	The County is experiencing an increase in dead and dying trees due to invasive pests. Many of these trees are located along utility right-of-ways, streams, transportation routes, and other important infrastructure that could ameliorate the adverse impacts of severe storm events. Moreover, the lack of tree canopy increases temperatures in urbanized areas, contributing to the impact of heat waves.	This action includes several sub-actions: (1) Conduct a tree inventory to estimate the varieties and types of trees along public right-of-ways and in public spaces; (2) Develop a standard tree assessment protocol to determine if trees are at high risk of failure; (3) Facilitate a training series for municipal staff on how to complete tree assessments and properly remove trees; (4) Implement a public education campaign to raise awareness on how to assess their own trees and who to contact with questions or concerns; and (5) Facilitate a tree planting program.	No	No	1-3 years	DPW with assistance from EMS and SWCD	\$\$	Municipal staff and the public will be more aware of the trees in the community, how to assess tree health and level of risk, and how to properly remove hazardous trees. This will promote the removal of dead, dying, and otherwise hazardous trees prior to severe storm events, thus reducing the risk of fallen trees impacting utilities, roadways, property, and other infrastructure during a severe storm event. Such activities will all reduce the impacts of extreme temperatures – particularly heat waves – as municipalities and community members will be better equipped with the knowledge and resources to maintain healthy trees, plant new trees, and promote canopy coverage.	US BRIC, SWCD	Medium	5
C Tioga F2	SWCD Watershed Assessment	G2, G4	Flood	Severe flooding and flash flood events carry excessive sediment and debris in the floodwaters that collect around bridges and culverts, causing blockages and overtopping flows that damage roadways and public infrastructure.	Prioritize and conduct watershed assessments on select sub-watersheds which include identifying sediment sources, eroding stream segments and problem stream areas and mapping and identifying undersized culverts. Watershed assessments identify problem areas along streams to target funding for projects, in this case to reduce negative impacts at road stream interfaces by reducing the amount of sediment and debris that are produced from flood and flash flood events, and prioritizing undersized culverts for replacement. The costs would be 5,000- 40,000 per watershed depending on the scope of the assessment and size of the watershed.	No	No	3-5 years	Tioga County SWCD	\$\$	Watershed assessments will allow the County to identify priority problem areas for flooding. This will help the County understand where to utilize funding resources most effectively in order to reduce the risk of flooding to people, property, and infrastructure in the most cost-effective way.	NRCS WFPO, US BRIC, US HMGP, US FMA, NYS HM RLF, NYS GIGP, EPA CWSRF, DEC WQIP, EFC WIIA, DOS Smart Growth, Resilient NY Program, NYSDOT Bridge NY, NYS EFC CWSRF, US HUD CDBG-MIT	Medium	7
C Tioga F3	Natural flood mitigation solutions for Owego Creek	G1, G4	Flood	Owego Creek regularly experiences severe flooding, not only in the Village of Owego but also extending into other nearby municipalities. Flooding along the Creek is exacerbated by backwater flooding from the Susquehanna River. Such flooding events threaten the condition and integrity of natural habitats, infrastructure, and developments within the flood zone.	Implement nature-based solutions to mitigate the extent and severity of flooding along Owego Creek. Such strategies may include, but are not limited to, restoring and reconnecting the Owego Creek floodplains, protecting and enhancing wetlands, and implementing green infrastructure for stormwater infiltration.	No	Yes	5+ years	SWCD	\$\$\$	Implementing nature-based solutions will not only reduce damage to habitats, infrastructure, and property during flood events, but also preserve the Creek's scenic quality and ecological services.	US HMGP, US BRIC, US Flood Mitigation Assistance, US HUD CDBG-MIT, NYS HM RLF, NRCS WFPO	Medium	3

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	Survey Rank
C Tioga F4	Vulnerability Assessments of County's Critical Facilities	G1, G3, G6	Flood	It is currently undetermined whether or not several of the County's critical facilities are protected against a 0.2% chance flood event or previous worst case flood event, leaving these facilities vulnerable to flood events.	Tioga County DPW staff will conduct vulnerability assessments to the critical facilities identified in the County'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). This will serve as a first step toward protecting the facilities, if future funding becomes available. There are no local resources available at this time to conduct engineering design and retrofitting on these structures. Future efforts towards protecting these structures to an 0.2% chance flood event (or previous worst case flood event, if applicable) will be considered if funding becomes available. These may include engineering design, building retrofits, or other measures.	Yes	Maybe	3-5 Years	Department of Public Works	\$	Assessing the County's critical facilities for their level of protection against a 0.2% chance flood event (or previous worst case flood event, if applicable), is a first step to ensuring that these facilities remain operable during and after flooding events, reducing the overall risk to people and infrastructure.	US HMGP, US BRIC, US Flood Mitigation Assistance, US HUD CDBG-MIT, NYS HM RLF	Medium	1
C Tioga MH2	Fund and Expand the Healthy Neighborhoods Program	G1, G2, G3	All Hazards: Flood, Extreme Temperatures, Drought, Severe Storm	Flooding, storms, extreme heat and cold, and drought cause safety issues for residents, such as air pollution and mold. The Healthy Neighborhoods Program provides a free in-home assessment focusing on home safety, including safety issues that are caused by natural hazards such as flooding, extreme temperatures, severe storms and drought. However, funding for some areas of the program, such as supplies, is not readily available.	Fund and expand the Healthy Neighborhoods Program so that it can continue to focus on hazard mitigation and expand this focus. This may include, but is not limited to: <ul style="list-style-type: none"> Educating residents on the importance of using carbon monoxide detectors and fire alarms in their homes, especially when heating with coal and wood stoves during extreme cold events. Supplying carbon monoxide detectors and fire alarms to residents to protect them from the dangers of heating using coal and wood stoves in their homes during extreme cold events. Supplying seals for windows and doors, in order to reduce the vulnerability of residents to extreme cold and severe storms in their homes, and to protect against rodent infestations which may occur during floods and during cold weather. Educating residents on the effects of drought on water quality and health, and how to recognize the risks to health and take action. This may include supplying residents with water quality test kits or similar measures. Expanding the program to include an increased emphasis on making home improvements that mitigate safety issues caused by flooding, storms, extreme temperatures, and/or drought, such as funding for sump pumps (to protect against flood), shutters (to protect against wind), and safer heating systems in order to increase the safety of homes against hazards. Providing for other supplies and initiatives as needed to protect residents from the health impacts of hazards, such as mold from floods, and to mitigate these hazards. Promoting the program to residents through print and/or online media. 	No	No	1-3 years	Department of Public Health	\$\$	Funding and expanding the Healthy Neighborhoods Program will ensure that the County is able to continue providing supplies, assessments, and education to residents to reduce their vulnerability to flooding, extreme temperatures, severe storms, and drought and the health effects that each hazard causes.	FEMA BRIC, FEMA FMA, FEMA HMGP, FEMA EMGP, FEMA CDBG-MIT, USDA Housing Preservation Grants, NYS HM RLF, NYS DOH HNP	Low	6
C Tioga F5	Waste Collection and Disposal Programs	G1, G2, G4	Flooding	During floods, waste can pose a safety risk, create extra work, and pose pollution problems if they get carried away by floodwaters. This also leads to huge costs for state and federal government agencies to clean up hazardous waste and electronics after flood events. County programs can reduce these debris; the County does collect items such as electronics. However, the programs are costly and funding is limited and therefore the number of collection days are limited.	Explore further funding for additional disposal or collection days, in order to expand the sustainability programs for disposal or recycling of old tires, kids toys, electronics, and other items in addition to hazardous waste (e.g. household chemicals, paint, and other). In addition, conduct education and outreach on ways that residents can keep their property prepared for a flood event, in relation to waste.	No	No	1-2 years	Economic Development & Planning / Sustainability	\$\$	If the County was able to expand programs to collect waste, this could reduce the debris during a flood. This would reduce the burden of flooding on people and the County environment, because it would lead to better public safety, less labor time to clean up debris, less pollution, and greatly reduced cost by cleaning up waste before rather than after flood events.	DEC HHW, DEC MWR&R, FEMA BRIC, FEMA HMGP, FEMA FMA, NYS HM RLF, EPA Smart Growth Support, FSA & USDA Source Water Protection Program, USDA/NRCS Emergency Watershed Protection Program	Medium	4
C Tioga MH3	Online Volunteer System and Agency Contact List	G1, G2, G3, G5, G6	All Hazards: Flood, severe storm, drought, extreme temperature	Hazards such as floods, storms, drought, and extreme temperatures can affect the County with little warning. Volunteers can help reduce the impact on residents; however, currently, there is no central system for organizing these volunteers.	Establish an online system to organize volunteer corps. This system would be established in advance of natural hazard events, so that when these events do occur, people can be mobilized quickly and greatly lower the impact of hazards on residents. Before hazard events such as floods, severe storms, extreme temperatures, and drought, volunteers could be used for purposes such as calling residents to check in on them and make sure they have a safe place to go during a hazard and that their needs are taken care of. Volunteers can be used for other actions as needed. Additionally, maintain a contact list of current organizations who organize volunteers, such as faith-based groups, Tioga Opportunities, Rural Ministry, and other nonprofits.	No	No	6 months to 1 year	Economic Development & Planning	\$	An online system to organize volunteers would mean that volunteers are better able to meet people's needs so that hazards have less of an impact on people. This would reduce the impact that floods, droughts, severe storms, and extreme temperatures have on residents.	FEMA BRIC, FEMA HMGP, FEMA EMGP, EPA EJSG, NYS HM RLF	High	2

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	Survey Rank
C Tioga ET1	Publicize Cooling Centers	G1, G2, G6	Extreme temperatures	Although infrequent, extreme temperatures do occur in the County and have a minor impact on a County-wide level, especially to certain vulnerable populations such as many senior citizens. Although there are cooling centers in the County, there are some residents who are unaware of their existence.	Educate residents on where they can go during extreme heat, by conducting additional publicity regarding cooling centers in the County. This may include making more residents aware of the existing map of cooling centers, found at https://apps.health.ny.gov/statistics/environmental/public_health_tracking/tracker/#/CCMap . Publicity strategies may include social media posts, flyers in buildings frequented by senior citizens and other vulnerable residents in the County, additional signage on County cooling center buildings, partnerships with media outlets to advertise the existence of the cooling centers, and/or other strategies. If resources allow, the County may also conduct an assessment of the barriers to residents of using these cooling centers.	Yes	No	1 year	Department of Public Health	\$	Additional publicity for cooling centers would help residents be aware of existing options they have to remain safe during extreme heat, thereby reducing their vulnerability to extreme heat.	FEMA BRIC, FEMA HMGP, EPA EJSJG, EDA Disaster Recovery, NYS HM RLF, NYS CSC	High	8
C Tioga F6	Post Flood Emergency Stream Intervention (ESI) Training	G1, G3, G4, G6	Flood	Severe flooding and flash flood events carry excessive sediment and debris in the floodwaters that collect around bridges and culverts, causing blockages and overtopping flows that damage roadways and public infrastructure.	Conduct Post Flood Emergency Stream Intervention (ESI) Training(s). This is a training program for public works, highway departments and contractors demonstrating proper post flood stream work for the least cost, most value to prevent further damages to infrastructure. The goal of this training program is to educate the people who will be doing the initial work after a flood event to re-open roads, fix washed out culverts and initiate the beginning stages of infrastructure repairs on stream and road interfaces, in the most cost efficient, environmentally sensitive and safe way possible. Each training session consists of a three day training, which requires a demonstration project on a stream to be conducted simultaneously as a hands-on example for the trainees. The costs would be 5,000- 25,000 per training session depending on the demonstration site work needed.	No	Maybe	3-5 years	Tioga County SWCD	\$\$	Post Flood Emergency Stream Intervention (ESI) Training(s) would increase the knowledge base of professionals throughout the County about how to conduct stream work in ways that prevent further damage to infrastructure from flooding. Ultimately, this will result in more resilient infrastructure that can better withstand floods, thereby reducing the vulnerability of infrastructure, people, and property to flooding.	US BRIC, US HMGP, US FMA, NYS HM RLF, EPA CWSRF, DEC WQIP, EFC WIIA, Resilient NY Program, NYSDOT Bridge NY, NYS EFC CWSRF	High	N/A
C Tioga MH4	Tioga County Debris Management Plan	G1, G6	Flood, Severe Storm	Tioga County needs to be able to act quickly to remove and dispose of debris that is accumulated curbside from residents and businesses after a disaster. If debris is left sitting for a longer period of time, it begins to fester and create mold and bacteria and cause a public safety hazard. This new debris management plan will comply with FEMA requirements so FEMA approval can be obtained. Tioga County also needs to be able to act quickly to remove and dispose of vegetative debris such as trees that are blocking roadways, etc.	Establish a current-day debris management plan that includes pre-arranged contracts with disaster debris management contractors to manage clearing and collection of debris in areas of impact after a flood or other severe storm with significant countywide impacts. Tioga County will commit or secure funding to contract with an appropriate consulting firm to develop the updated Debris Management Plan.	No	No	1-2 years	Tioga County Departments of Sustainability, Public Works, & Emergency Services	\$\$	Reduction in time and cost of recovery after a natural disaster event. Reduction of incorrect disposal methods of hazardous items. Preventing a public safety hazard.	NYSDOS, FEMA	High	N/A

7.3 Mitigation Action Prioritization

Each of the County’s proposed mitigation actions were evaluated and prioritized according to the criteria listed in Section 9.3.3 of the main body of the HMP. This includes a cost-benefit review of the proposed actions. The results are included in the “Priority” columns in Table 7-1 and Table 7-2 and the full scoring is documented in Table 7-2.

In addition to the evaluation to prioritize the proposed mitigation actions, County departments were invited to participate in a survey to rank the proposed mitigation actions based on their perceived order of importance. Five individuals participated in this survey, the results of which are included in the “Survey Rank” columns in Table 7-1 and Table 7-2. These two tools, in addition to availability of funding and lead agencies, may be utilized by the County to determine which proposed mitigation actions to address in the near-term.

Table 7-2. 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	Survey Rank***
C Tioga D1	Implement an educational campaign for drought awareness and mitigation	1	3	3	2	9	Medium	8
C Tioga F1	Implement a farmer outreach campaign for flood mitigation measures	1	3	3	2	9	Medium	9
C Tioga MH1	Develop a tree management program	2	2	2	2	8	Medium	5
C Tioga F2	SWCD Watershed Assessment	2	2	3	2	9	Medium	7
C Tioga F3	Natural flood mitigation solutions for Owego Creek	3	1	2	2	8	Medium	3
C Tioga F4	Vulnerability Assessments of County's Critical Facilities	2	3	1	2	8	Medium	1
C Tioga MH2	Fund and Expand the Healthy Neighborhoods Program	2	2	1	1	6	Low	6
C Tioga F5	Waste Collection and Disposal Programs	1	2	3	1	7	Medium	4

Mitigation Action ID	Mitigation Action Name	Ability to Increase Resilience*	Economic Feasibility*	Low Environmental Impact*	Ability to Implement*	Total Score**	Priority	Survey Rank***
C Tioga MH3	Online Volunteer System and Agency Contact List	3	3	3	2	11	High	2
C Tioga ET1	Publicize Cooling Centers	2	3	3	2	10	High	8
C Tioga F6	Post Flood Emergency Stream Intervention (ESI) Training	3	2	3	2	10	High	N/A
C Tioga MH4	Tioga County Debris Management Plan	3	2	3	2	10	High	N/A

**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*

****Names and descriptions of the draft County mitigation actions may have been revised following completion of the survey. See the full survey report in Appendix E for more information.*

7.4 Mitigation Action Implementation and Administration

The County's new mitigation actions will be implemented and administered as described in Section 9 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

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 County will continue to seek public participation in hazard mitigation planning after HMP approval, as described in Section 10.4 of the main body of the HMP.

Town of Barton

This section presents the jurisdictional annex for the Town of Barton for the 2024 Tioga 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 Town of Barton regarding this Jurisdictional Annex are identified as follows:

- Primary: Donald Foster, Supervisor
 - FosterD@townofbarton.org
 - (607)565-2261 ext. 2
- Alternate: Frederick Schweiger, Highway Superintendent
 - Highway@townofbarton.org
 - (607)608-0440

Town of Barton Website: <https://www.townofbarton.org/>

2 COMMUNITY SNAPSHOT

2.1 Demographics

The 2020 Census estimated that 8,609 people live in the Town of Barton. The Town's population has decreased by 3% since the 2010 Census (8,858). The median age in the Town of Barton is 40.2 years, and 20% of the population is over the age of 65. The median household income in the Town of Barton is \$51,318.

2.2 Location & Land Characteristics

The Town of Barton is located in the southwestern corner of Tioga County and is bordered by Bradford County, Pennsylvania, to the south, Chemung County to the west, the Town of Spencer to the north, and the Town of Tioga and Nichols to the east. The Town of Barton covers approximately 59.63 square miles. The properties within the Town of Barton have a total assessed value of approximately \$364,419,458, which is distributed across a variety of property classes.

Major transportation corridors in the Town of Barton include the Southern Tier Expressway (New York State Route 17), which passes across the town next to the Susquehanna River. New York State Route 17C also follows the river but on the north side. New York State Route 34 is a north-south highway that intersects New York State Route 17C at Waverly, as described in Section 2.8 of the main body of the plan. Key water features within the Town of Barton include three waterways, the Susquehanna River, the Chemung River, and Cayuta Creek.

2.3 Governing Body

The Town of Barton is governed by a Town Board consisting of the Town Supervisor and four council people.

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. The proposals that the Town received are summarized in Table 2-1 below; none of the proposals for the Town are located in the Special Flood Hazard Area (1% annual chance flood event area) or the Moderate Flood Hazard Area (0.2% annual chance flood event area). These developments may affect the Town's vulnerability to the hazards identified in this HMP.

Table 2-1. Developments from 2018 to March 2023

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
7/5/2019	Approval of the Site Plan Review	700 Broad Street Extension	Site Plan Review	N/A	The applicant is proposing to establish a new hemp CBD extraction facility utilizing ethanol at the former Grand Union warehouse property, which is 6.8 acres.	Unspecified
7/6/2022	Approval of the Site Plan Review	131 State Route 17C	Site Plan Review	N/A	The applicant is proposing to construct and operate two new pole barns directly across the highway from his current business, NASCO Carpets.	Unspecified
9/7/2022	Approval of the Site Plan Review	565 Ellistown Road	Site Plan Review	N/A	The applicant is requesting site plan approval to construct and operate a 10 MW battery energy storage system (BESS) on approximately 3 acres of this 13.5-acre property.	Unspecified

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The Town of Barton identified the following planning mechanisms and capabilities that can support the Town of Barton 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 that 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	Highway Department
Mitigation Planning Committee	No	
Mutual Aid or Shared Services Agreements	Yes	Informal agreements with surrounding municipalities, Tioga County SWCD for equipment
Planning Board	Yes	
Zoning Board	No	
Other	No	
Development Approvals		
Building Code	Yes	Building Code of New York State Chapter 79 - Fire Prevention and Building Construction Chapter 97 - Mobile Homes and Mobile Home Parks
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	Not Available	
Fire Department ISO Rating	No	
Site Plan Review Requirements	Yes	Chapter 117: Site Plan Review
Other	No	
Funding Resources		
Authority to Levy Taxes	Yes	Town Board
Capital Improvement Project Funds	Yes	Town Board
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	FEMA
General Obligation Bonds and/or Special Tax Bonds	Yes	Water/sewer

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?)
Impact Fees for New Development	No	
State Funding Programs (i.e., NYSEFC, NYSOOCR, NYSDEC, others)	Yes	BridgeNY, CHIPS Money
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	Yes	Water and sewer, groundwater drawn from one well
Other	No	
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	Yes	
NFIP Participant / Floodplain Ordinance	Yes	Chapter 83: Flood Damage Prevention
Hillside Development Regulations	No	
Open Space Preservation	No	
Stormwater Management Regulations	No	
Streambank Setback Regulations	No	
Subdivision Regulations	Yes	Chapter 125: Subdivision of Land
Zoning Ordinance	No	
Other	No	
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	No	
Other	Yes	Chapter 141 - Wastewater Management Follows Uniform Procedures Act (UPA), Article 70 of the NYS Environmental Conservation Law (ECL) Chapter 90 - Junk Storage, Chapter 91 - Junkyards Chapter 135 - Vehicles, Junked
Plans		
Capital Improvement Plan	Yes	Water & Sewer Plan
Comprehensive Emergency Management Plan	Yes	Town Emergency Operations and Pandemic Plan (adopted 2022, 2023), Tioga County Comprehensive Emergency Management Plan (2013)
Comprehensive Plan	Yes	Comprehensive Plan (2001)
Continuity of Operations Plan	No	
Economic Development Plan	Yes	Tioga County 2020 Strategic Plan
Other	No	
Programs/Organizations		
Climate Smart Community	No	

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?)
Local Emergency Preparedness/Disaster Response Organizations	No	
Local Environmental Protection Organizations	Yes	Carantouan Greenway (volunteer-based)
National Weather Service Storm Ready Certification	Yes	Tioga County Storm Ready
Outreach Programs	Yes	Town/school website
Partnerships with private entities addressing mitigation or disaster response	No	
School Programs or Adult Educational Programs	Yes	Citizens Preparedness Academy (annual)
Other	No	Red Door Food Pantry, Broad Street Food Pantry
Staff Positions		
Civil Engineer	No	
Code Enforcement Officer	Yes	
Emergency Manager	No	
Floodplain Administrator	Yes	Code Enforcement Officer
Planner/GIS Coordinator	No	
Other	No	
Technical Abilities		
Grant Writing	No	
Hazard Information Centers	No	
Hazard Warning Systems	Yes	NY-ALERT (through Tioga County Sheriff's Office)
Other	No	Town uses an electronic roadway sign to communicate

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 during future updates to the Comprehensive Plan. 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.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10.3 of the main body of the HMP.

3.2 Integration of Planning Efforts

The Town of Barton understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The Town of Barton intends to reference the 2024 Tioga 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 of Barton 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 Barton may use the local laws assessment (included in Section 2 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.

4 HAZARD IDENTIFICATION AND RISK ASSESSMENT

4.1 Profiled Hazards

In this HMP Update, the County reviewed multiple natural hazards, and determined to profile four natural hazards: flooding, severe storm, extreme temperatures, and drought. Descriptions of each of these hazards are included in Section 5 of the main body of the HMP. The Town of Barton has chosen to profile the same hazards as the County. No hazards were omitted and there were no additional hazards identified as unique and specific to the Town of Barton.

The hazard analysis criteria used to evaluate the Town's vulnerability to each natural hazard are summarized in *Table 4-1*, and the results are presented in *Table 4-2*.

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

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 (Coastal Flooding, Riverine Flooding, Ice Jam)	3	3	1	1	8 – Moderate	2	N/A
Drought	1	1	3	3	8 – Moderate	2	N/A
Severe Storm (Hail, Ice Storm, Lightning, Strong Wind, Winter Weather, Tornado, Hurricane/ Tropical Storm)	3	2	3	1	9 – High	1	N/A
Extreme Temperatures (Cold Wave, Heat Wave)	1	1	3	2	7 – Moderate	3	N/A

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 5 of the main body of the HMP. The following is a subset of events that occurred specifically within the Town. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Town of Barton.

Table 4-3. Hazard Event Records, 2018-2022

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Flood	12/25/2020	-	\$20,000.00	-
Thunderstorm Wind	7/13/2021	50 Knots	\$5,000.00	-
Total			\$25,000.00	

4.3 Floodplain Statistics

Key waterways in the Village are described in Section 2.2. 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 38,342 acres in the Village, approximately 5.29% acres of land in the Town of Barton are located within the 1% annual chance flood event area and approximately 0.48% acres of land in the Town of Barton are located within 0.2% annual chance flood event area (Table 4-4). The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-5. 599 parcels in the Town of Barton intersect the 1% annual chance flood event area, with an estimated total structure value of \$39,085,293. 314 parcels in the Town of Barton intersect the 0.2% annual chance flood event area, with an estimated total structure value of \$25,442,208.

Table 4-4. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	1% Annual Chance Flood Event Area	0.2% Annual Chance Flood Event Area
38,342	5.29%	0.48%

Note: Data is based on political boundaries and, therefore, is inclusive of the Village of Waverly.

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

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Agricultural	28	\$1,367,300	3	\$131,700
Commercial	85	\$7,669,320	66	\$6,268,500
Community Services	11	\$1,728,100	9	\$1,224,500
Industrial	7	\$7,282,100	6	\$7,164,300
Parks and Open Space	7	\$165,760	1	\$0
Public Services	11	\$2,513,753	7	\$892,958
Residential	278	\$15,961,400	154	\$7,720,530
Vacant	168	\$315,860	66	\$90,720
Recreation	4	\$2,081,700	2	\$1,949,000
Total	599	\$39,085,293	314	\$25,442,208

*Structure Value estimated by subtracting parcel Land Assessed Value from Total Assessed Value
 Note: Data is based on political boundaries and, therefore, is inclusive of the Village of Waverly.

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 insured structure incurs damage costs that are over 50% of its market value, the owner must comply with the local floodplain regulations 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.

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 Barton currently participates in the NFIP (community ID 360832), and its current FIRM(s) became effective on 4/17/2012. FIRMs are available via FEMA's Flood Map Service Center (<https://msc.fema.gov/portal/home>). Digital FIRM data is also available for Tioga County via FEMA's National Flood Hazard Layer Viewer, which was referenced during the development of this annex. The Town joined the NFIP on 6/15/82. The Town's local law governing floodplain development and NFIP compliance is located in Chapter 83 of the Town code. There were no compliance issues identified in this hazard mitigation planning process. The Town of Barton 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 six repetitive loss properties in the Town of Barton. Such properties 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

No concerns about future changes in hazard impacts specific to the Town of Barton were identified during the hazard mitigation planning process. The effects of climate change and other factors on future hazard events in Tioga County are covered in more detail in Section 5 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response or that requires a special emergency response in the event of hazardous incidents as identified by the Town of Barton. These 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 and Village 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 Barton, and any particular vulnerabilities of note. More information about hazard vulnerability, including a tool for understanding the vulnerability of community assets to events of varying magnitudes, is included in Section 6 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 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

The Town of Barton does not have any high hazard potential dams located within the municipal boundaries.

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 Barton has identified the following additional assets for consideration in hazard mitigation planning:

Table 5-2. Additional Assets

Important Assets	Description
Bridge 2218240	Barton Rd Bridge over Norfolk Southern RR (near New York 17C and Old Barton Road in the Town of Barton)
Bridge 2218260	Barton Rd Bridge over Butson Creek (near Old Barton Road and Kinney Road in the Town of Barton)

Important Assets	Description
Bridge 2218280	Camptown Rd Bridge over Glory Gulch Creek (near Camptown Rd and Worden Rd in the Town of Barton) – the jurisdiction has identified that this bridge needs work.
Bridge 2219140	Clinton Ave Bridge over Dry Brook (near Clinton Ave and West Pine Street in the Village of Waverly)
Bridge 2219160	Pine St Bridge over Dry Brook (near Pine Street and West Pine Street in the Village of Waverly)
Assets within the Village of Waverly that are important to the Town of Barton:	
Well #1	(525 Chemung St, Waverly, NY 14892) – important for the Town of Barton’s water supply. The Town of Barton would like to install a standby generator at this location, freeing up the portable generator that is currently there.
Waverly Middle/High School	5-12th grade (1 Frederick St in the Village of Waverly)
Elm St. Elementary	1-4th grade (145 Elm St in the Village of Waverly)
Lincoln St. Elementary	3 Pre-K, 4 Pre-K, Kindergarten (45 Lincoln St in the Village of Waverly)

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

6.1 Flood

The Town of Barton has ranked its overall vulnerability to a flood event as moderate, as indicated in Table 4-2. Flood events occur regularly in the jurisdiction and affect two problem areas within the jurisdiction, causing major damage. The jurisdiction is well-prepared for flood events.

Information on flood event records (Section 1.1), high-hazard potential dams (Section 0), 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 Barton has ranked its overall vulnerability to a severe storm event as high, as indicated in Table 4-2. Severe storms occur infrequently in the jurisdiction and affect the entire jurisdiction, causing major damage. The jurisdiction is well prepared for severe storm events.

Records of severe storm events are described in Section 1.1. Impacts to the Town of Barton 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 damage 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. Damage to the Town of Barton's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damage would primarily impact the more populated portions of the Town of Barton, such as the hamlet of Barton, Glencairn, Halsey Valley, Lockwood, and North Barton. The Town of Barton completes tree maintenance within Town road right of ways to minimize potential damages to overhead utility lines. Private utility right-of-ways are generally maintained by individual utility companies.

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 Barton has ranked their overall vulnerability to a drought event as moderate, as indicated in Table 4-2. Drought events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is not prepared for drought events.

The Town of Barton is served by a public water supply. This water supply and the critical facilities (e.g., Barton Tank, Sewer Pump #1, #2, #3, and #4) could be susceptible to impacts during a drought due to low water yields, particularly if a backup water supply has not been formally established. Additionally, any residents who rely on private wells would also be susceptible to the impacts of a drought due to low water yields.

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 Barton has ranked its overall vulnerability to an extreme temperature event as moderate, as indicated in Table 4-2. Extreme temperature events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is 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 6% of the population in the Town of Barton is under 5 years old, and 20% of the

population is over 65 years old. Approximately 14% of the residents of the Town of Barton have a disability, some of whom have health problems that make them more vulnerable to extreme heat or cold. Approximately 13% 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.

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 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 of Barton.

Top concerns about hazard mitigation in the Town of Barton included:

- Certain areas are susceptible to flooding, consistently the same areas. Route 34 has flash flooding.

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

- The community near Cannon Hole Road is particularly vulnerable to hazards.

The plan was revised to reflect the following changes in community priorities since the 2018 HMP Update:

- The plan was revised to reflect the flooding that occurred in 2006 and 2011.

Additional concerns that the Town of Barton would like addressed in the plan include:

- None identified.

6.6 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 of Barton proposed 7 mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized in Table 7-1, 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 2024 HMP Update? (Yes/No)
Inventory and evaluation of streambank on the Cayuta Creek	Conduct an inventory and evaluation on this reach of Cayuta Creek to identify solutions and projects. Once inventory and evaluation are completed, projects will be prioritized.	Flood, Severe Storms	Highway Department with support from SWCD	No Progress	Yes
Foster Road over Ellis Brook Culvert mitigation	Replace existing culvert pipe with larger pipe.	Flood, Severe Storm	Town Highway Department and County SWCD	No Progress	Yes
Norris Drive Stormwater Project	Install diversion ditch to eliminate flooding to surrounding properties.	Flood, Severe Storm	Town Supervisor and Highway Department with support from SWCD	No Progress	Yes
Lockwood Fire Department - Critical Facility mitigation	Implement local flood analysis to determine if Lockwood Fire Department is in the floodplain and if LOMA is required.	Flood	Fire Department supported by Town Board	No Progress	Yes

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Advise RL and SRL property owners annually to inform location in floodplain and provide activities to reduce flood impacts and not requirements for any development in the floodplain.	Provide clear outreach materials to inform the residents on ways to reduce flood impacts.	Flood	Town Floodplain Administrator	No Progress	Yes
Schedule a meeting for RL, SRL homeowners in Old Barton Road to inform of potential grant funding for acquisition to address issues	Provide outreach and identify willing grant participants.	Flood	Town Floodplain Administrator	No Progress	Yes
Review RL, SRL list to ensure accuracy and update if necessary.	Schedule a meeting with FEMA/ISO to review the list for corrections.	Flood	Town Floodplain Administrator	No Progress	Yes

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the Town of Barton identified new mitigation actions for inclusion in the 2024 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 of Barton 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 7.2 of the main body of the HMP. Finally, actions that tied in most closely with the vulnerabilities identified by the Town of Barton were selected for inclusion in the HMP.

The Town of Barton proposed 8 new mitigation actions to be included in the 2024 HMP update. These actions are included in Table 7-2 below.

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
T Barton MH1	Hazardous Tree Inspection and Management	G1, G4, G6	Severe Storm, Flood	During severe storm events, trees and tree limbs fall on roads, power lines, and creek beds. This results in road closures and electricity outages, contributes to the severity of flooding by blocking the flow of water in creeks and streams, and pose a public safety risk.	Incorporate the regular inspection and management of hazardous trees into the Town's existing procedures for drainage system and infrastructure maintenance. Additionally, clear trees out of creeks and establish a schedule for doing so regularly.	No	Maybe – location-based action	6 months – 1 year	Highway Department	\$\$	By regularly inspecting and maintaining hazardous trees, the Town will reduce the impacts of severe storms and floods on infrastructure and public safety.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Barton S1	Backup Generators	G1, G6	Severe Storms	The Town of Barton infrequently experiences severe storms which cause major damages throughout the Town. These storms can cause power outages. Currently, the Town Hall and Highway Barn do not have generators, even though these facilities provide critical services. Town of Barton Well #1 (which is located in the Village of Waverly but supplies water for the Town of Barton) has a portable generator, but the Town would like to install a standby generator to make the portable generator available for other uses, such as at other critical facilities. The Town also lacks a portable generator to use if one of the sewer pumps loses power.	Purchase 3 standby generators and 1 portable generator. The 3 standby generators are intended for use as follows: one for the Town Hall, one for the Highway Barn, and one for Well #1. The portable generator would be available for use at one of the 4 sewer pumps in the Town if a sewer pump loses power. Additionally, explore the utility and feasibility of purchasing generators for other facilities that provide important services, and provide guidance on how to do this if these facilities are not within the Town's jurisdiction. If feasible and useful for hazard mitigation purposes, purchase additional generators as needed.	Yes	Maybe – location-based action	1-3 years	Highway Department	\$\$	The Town can reduce personal injury and property damage by ensuring that critical facilities have backup generators and do not lose power during a severe storm.	US CDBG-MIT, US HMGP, NYS HM RLF	Medium
T Barton F1	Bridge Modifications /Retrofits	G1, G5, G6	Flood	The Town of Barton regularly experiences flooding that can cause major damages throughout the Town. When flooding events occur, bridges in the Town can flood. One bridge that definitely needs work is Bridge 2218280 -- Camptown Rd Bridge over Glory Gulch Creek (Near Camptown Rd & Worden Rd, Barton, NY 14892). However, there may be other bridges that need work as well.	Implement bridge modifications and/or retrofits to improve drainage on Bridge 2218280. Evaluate other bridges within the Town to determine if improvements would provide flood mitigation benefits (a list is provided in the Additional Jurisdiction/Public Identified Vulnerabilities portion of this annex). If so, pursue funding and implement these improvements as desired. If feasible, partner with the Village of Waverly to explore funding and improvements to their bridges for the purposes of flood mitigation.	No	Maybe – location-based action	3-5 years	Highway Department	\$\$\$	By implementing improvements to bridges to reduce flooding, the Town can reduce road closures and improve the public safety of travelers.	BRIC, FMA, HMGP, NRCS Emergency Watershed Protection Program, NY CDBG Public Infrastructure, NYS HM RLF, NYS CSC, EPA Smart Growth Support, EPA Greening America's Communities	Medium
T Barton MH2	Review and Update Municipal Regulations	G1, G2, G4, G6	All Hazards	Flooding, severe storms, drought, and extreme temperatures all pose risks to the municipality. For example, many homeowners and renters experience heavy impacts when their basements flood. However, not all relevant municipal laws and ordinances incorporate hazard mitigation.	Review municipal laws and ordinances and update as necessary to incorporate hazard mitigation. This may include review of the development regulations, subdivision regulations, building codes, and other regulations. Examples that may be considered include, but are not limited to: - Requiring the submittal of a Stormwater Pollution Prevention Plan with subdivision applications, site plan applications, and applications for a special use permit, variance, or flood zone change. (flooding) - Update the building code to ensure that new developments are protected against a 500-year flood event and against other hazards (flooding and other hazards) - Encouraging tree plantings and green roofs in building codes to mitigate extreme heat (extreme temperatures) - Updating or creating site design review standards to include natural environmental features such as wind buffers, requiring regular maintenance of trees in high-wind areas, and/or require wind-resistant building techniques such as structural bracing in the building codes for high-wind areas (severe storms) - Updating or creating laws about the water system so that they include a plan for obtaining for secondary water sources that may be used during drought conditions (drought)	No	No	1-3 years	Planning Board	\$	Updated municipal regulations will help ensure that new and existing developments are protected against flooding and other hazards, by incorporating hazard mitigation directly into planning processes. This will reduce the risk that is posed to people and property from the affected hazards.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, EPA EFC Grant Program, NYS CDBG Program, NYS DOS Smart Growth program	Medium
T Barton F2	Vulnerability Assessments of Critical Facilities	G1, G3, G6	Flood	It is currently undetermined whether or not several of the Town's critical facilities are protected against a 0.2% chance flood event or previous worst case flood event, leaving these facilities vulnerable to flood events.	Town staff will conduct vulnerability assessments to 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). This will serve as a first step toward protecting the facilities, if future funding becomes available. There are no local resources available at this time to conduct engineering design and retrofitting on these structures. Future efforts towards protecting these structures to an 0.2% chance flood event (or previous worst case flood event, if applicable) will be considered if funding becomes available. These may include engineering design, building retrofits, or other measures.	Yes	Maybe	3-5 Years	Highway Dept	\$	Assessing the Town's critical facilities for their level of protection against a 0.2% chance flood event (or previous worst case flood event, if applicable), is a first step to ensuring that these facilities remain operable during and after flooding events, reducing the overall risk to people and infrastructure.	US HMGP, US BRIC, US Flood Mitigation Assistance, 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 Barton D1	Drought Mitigation & Emergency Plan for Local Agricultural Operations	G1, G2, G5, G6	Drought	The Town has many agriculture operations that rely on consistent water supplies to sustain crops and livestock. However, the Town also does not have a program for spreading awareness of strategies and resources that local agricultural operations can reference to increase resiliency to drought.	Develop and implement a Drought Mitigation & Emergency Plan that establishes an outreach campaign to raise awareness of strategies and resources for reducing agricultural operations' risk to drought (e.g. planting cover crops, reducing tillage, harvesting rainwater, etc.). The outreach campaign will also provide information on relevant resources for technical assistance and grant funding, such as the USDA Emergency Conservation Program. Include in the Plan a strategy for providing support to agricultural operations during drought.	No	No	6 months - 1 year	SWCD	\$	The Drought Mitigation & Emergency Plan will provide local agriculture operations with the resources needed to reduce the impacts of drought on crops and livestock. The Plan will also establish a system for providing direct assistance to agricultural operations impacted by drought.	HMGP, BRIC, NYS HM RLF, CDBG-MIT, WaterSMART Drought Response Program	High
T Barton ET1	Tree Planting Program	G1, G4, G5	Extreme temperatures	Areas that have less tree canopy experience hotter temperatures in the summer, contributing to the impact of heat waves.	Work with the SWCD to implement and promote a tree planting program through the SWCD's Tree and Shrub Sale.	No	Maybe - location-based action	6 months - 1 year	SWCD	\$	Planting additional trees in the County will reduce the impacts of extreme temperatures, particularly heat waves.	US BRIC, SWCD, NRCS WFPO	High
T Barton F3	Inspection / Resizing of Culverts	G1, G5, G6	Flood	Existing culverts within some municipalities in the County are not sized appropriately, resulting in increased flood risk.	Assess the condition, size, and effectiveness of culverts within the Town. Create a list of culverts that need attention, and work with the County SWCD to replace with new right-sized piping, where deemed necessary. Culverts should be up to applicable design standards, and should take into account flood risk, ecological impacts, and other factors.	No	Maybe	1-3 years	Highway Department, with assistance from SWCD	\$\$	Appropriately resizing culverts will allow for more efficient flow of water during flood events, reducing the extent of flooding and the risk of damage to and closure of bridges, roadways, and other infrastructure.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium

7.3 Mitigation Action Prioritization

Each of the Town's proposed mitigation actions were evaluated and prioritized according to the criteria listed in Section 7.2.4 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
T Barton MH1	Hazardous Tree Inspection and Management	2	2	3	2	9	Medium
T Barton S1	Backup Generators	3	2	2	2	9	Medium
T Barton F1	Bridge Modifications /Retrofits	2	1	2	2	7	Medium
T Barton MH2	Review and Update Municipal Regulations	3	1	3	1	8	Medium
T Barton F2	Vulnerability Assessments of Critical Facilities	2	3	1	2	8	Medium
T Barton D1	Drought Mitigation & Emergency Plan for Local Agricultural Operations	3	3	3	2	11	High
T Barton ET 1	Tree Planting Program	2	3	3	2	10	Medium
T Barton F3	Inspection / Resizing of Culverts	3	2	3	1	9	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 as described in Section 7 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

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 Barton 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 of Barton Board meetings and by offering opportunities for members of the public to participate in the implementation of relevant mitigation actions.

Town of Berkshire

This section presents the jurisdictional annex for the Town of Berkshire for the 2024 Tioga 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 the Town of Berkshire regarding this Jurisdictional Annex are identified as follows:

- Primary: Barbara Gehm-Jordan, Town Supervisor
 - Supervisor@berkshireny.net
 - (607)657-8678
- Alternate: Bill Spoonhower, Highway Superintendent
 - (607)657-2705

Town of Berkshire Website: <https://www.berkshireny.net/>

2 COMMUNITY SNAPSHOT

2.1 Demographics

The 2020 Census estimated that 1,480 people live in the Town of Berkshire. The Town's population has increased by 5% since the 2010 Census (1,412). The median age in the Town is 42.6 years, and 17% of the population is over the age of 65. The median household income in the Town is \$63,092.

2.2 Location & Land Characteristics

The Town of Berkshire is located in the northeast part of Tioga County and is northwest of Binghamton, NY. Broome County borders the town, and part of the town line is the border of

Tompkins County. The Town covers approximately 30.2 square miles. The properties within the Town have a total assessed value of approximately \$83,897,406, which is distributed across a variety of property classes.

Major transportation corridors in the Town include New York State Route 38, which is a north-south highway, as described in Section 2.8 of the main body of the HMP. Key water features within the Town include two principal valleys, formed by the East and West Branches of the Owego Creek, which drain the area from north to south, entering the Susquehanna River in Owego.

2.3 Governing Body

The Town of Berkshire is governed by a Town Board consisting of a Supervisor and four Board Members.

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. The proposals that the Town received are summarized in Table 2-1 below; none of the proposals for the Town were specified as being located in the Special Flood Hazard Area (1% annual chance flood event area) or the Moderate Flood Hazard Area (0.2% annual chance flood event area). These developments may affect the Town's vulnerability to the hazards identified in this HMP.

Table 2-1. Developments from 2018 to March 2023

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
1/5/2018	Approval of the Site Plan Review	West Side of State Route 38	Site Plan Review	N/A	The applicant is requesting site plan review approval to construct a 9,100-square-foot general retail commercial store on the newly subdivided 2-acre parcel. There will be one driveway for ingress and egress and 30 parking spaces provided.	Unspecified
1/22/2020	Approval of the Special Use Permit and Site Plan Review	147 McMahan Road	Special Use Permit/Site Plan Review	N/A	The applicant is requesting a telecommunications special use permit and site plan approval to construct and operate a 235-foot telecommunications tower and base (wireless communications facility) on this 111-acre agricultural property.	Unspecified
6/3/2021	Approval of the Site Plan Review Local Law Amendment	N/A	Site Plan Review LL Amendment	N/A	The Berkshire Town Board and Town Planning Board have worked together over the past several months to update this local law.	Unspecified
8/4/2022	Approval of the Site Plan Review with the Conditions Noted	32 Mill Street	Site Plan Review	N/A	The applicant is proposing to rebuild, rehabilitate, and start lumber operations in the former Howland Brothers facility on Mill Street in the Town of Berkshire.	Unspecified

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The Town of Berkshire 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 that 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	Highway Department
Mitigation Planning Committee	No	
Mutual Aid or Shared Services Agreements	Yes	Informal agreements with surrounding municipalities, Tioga County SWCD for equipment
Planning Board	Yes	
Zoning Board	No	
Others	No	
Development Approvals		
Building Code	Yes	Building Code of New York State
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	Not Available	
Fire Department ISO Rating	No	
Site Plan Review Requirements	Yes	
Others	No	
Funding Resources		
Authority to Levy Taxes	Yes	Town Board
Capital Improvement Project Funds	Yes	Town Board
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	FEMA
General Obligation Bonds and/or Special Tax Bonds	No	
Impact Fees for New Development	No	
State Funding Programs (i.e., NYSEFC, NYSOGR, NYSDEC, others)	No	
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	No	Private wells
Others	No	

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?)
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	Yes	
NFIP Participant / Floodplain Ordinance	Yes	
Hillside Development Regulations	No	
Open Space Preservation	No	
Stormwater Management Regulations	No	
Streambank Setback Regulations	No	
Subdivision Regulations	Yes	
Zoning Ordinance	No	
Others	No	
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	No	
Other	Yes	Follows Uniform Procedures Act (UPA), Article 70 of the NYS Environmental Conservation Law (ECL)
Plans		
Capital Improvement Plan	No	
Comprehensive Emergency Management Plan	Yes	Tioga County Comprehensive Emergency Management Plan (2013)
Comprehensive Plan	Yes	Comprehensive Plan (2017)
Continuity of Operations Plan	No	
Economic Development Plan	Yes	Tioga County 2020 Strategic Plan
Other	No	
Programs/Organizations		
Climate Smart Community	No	
Local Emergency Preparedness/Disaster Response Organizations	No	
Local Environmental Protection Organizations	No	
National Weather Service Storm Ready Certification	Yes	Tioga County Storm Ready
Outreach Programs	Yes	Town newsletter
Partnerships with private entities addressing mitigation or disaster response	No	
School Programs or Adult Educational Programs	No	

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?)
Other	No	
Staff Positions		
Civil Engineer	No	
Code Enforcement Officer	Yes	
Emergency Manager	No	
Floodplain Administrator	Yes	Code Enforcement Officer
Planner/GIS Coordinator	No	
Other	No	
Technical Abilities		
Grant Writing	No	
Hazard Information Centers	No	
Hazard Warning Systems	No	
Other	Yes	The Town uses a traditional roadway sign to communicate (not electronic)

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 during future updates to the Comprehensive Plan, as well as in the event that the Town establishes a 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 the creation of a 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.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10.3 of the main body of the HMP.

3.2 Integration of Planning Efforts

The Town of Berkshire understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The Town intends to reference the 2024 Tioga 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

Berkshire may use the local laws assessment (included in Section 2 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.

4 HAZARD IDENTIFICATION AND RISK ASSESSMENT

4.1 Profiled Hazards

In this HMP Update, the County reviewed multiple natural hazards, and determined to profile four natural hazards: flooding, severe storm, extreme temperatures, and drought. Descriptions of each of these hazards are included in Section 5 of the main body of the HMP. The Town of Berkshire has chosen to profile the same hazards as the County. No hazards were omitted, and there were no additional hazards identified as unique and specific to the Town of Berkshire.

The hazard analysis criteria used to evaluate the Town's vulnerability to each natural hazard are summarized in *Table 4-1*, and the results are presented in *Table 4-2*.

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

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 (Coastal Flooding, Riverine Flooding, Ice Jam)	2	3	2	2	9 – High	1	N/A
Drought	1	1	3	3	8 – Moderate	2	N/A
Severe Storm (Hail, Ice Storm, Lightening, Strong Wind, Winter Weather, Tornado, Hurricane/ Tropical Storm)	2	2	3	2	9 – High	1	N/A
Extreme Temperatures (Cold Wave, Heat Wave)	1	1	3	2	7 – Moderate	3	N/A

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 5 of the main body of the HMP. The following is a subset of events that occurred specifically within the Town. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Town.

Table 4-3. Hazard Event Records, 2018-2022

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Thunderstorm Wind	7/2/2018	50	\$5,000.00	-
Thunderstorm Wind	7/6/2021	50	\$2,000.00	-
Total			\$7,000.00	

4.3 Floodplain Statistics

Key waterways in the Village are described in Section 2.2. 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 19,494 acres in the Town, approximately 4.34% are located within the 1% annual chance flood event area and approximately 0.00% are located within 0.2% annual chance flood event area. The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-5. 222 parcels in the Town are located within the 1% annual chance flood event area, with an estimated total structure value of \$10,954,700. Two parcels in the Town are located within the 0.2% annual chance flood event area, with an estimated total structure value of \$61,000.

Table 4-4. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	1% Annual Chance Flood Event Area	0.2% Annual Chance Flood Event Area
19,494	4.34%	0.00%

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

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Agricultural	26	\$513,800	0	N/A
Commercial	1	\$84,700	0	N/A

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Community Services	5	\$470,200	0	N/A
Industrial	1	\$10,000	0	N/A
Parks and Open Space	1	\$0	0	N/A
Public Services	1	\$133,700	0	N/A
Residential	136	\$9,687,300	1	\$61,000
Vacant	49	\$44,000	1	\$0
Recreation	2	\$11,000	0	N/A
Total	222	\$10,954,700	2	\$61,000

**The structural value for each tax parcel was calculated by subtracting its assessed land value from its total assessed value.*

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 insured structure incurs damage costs that are over 50% of its market value, the owner must comply with the local floodplain regulations 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.

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 Berkshire currently participates in the NFIP (Community ID 361215), and its current FIRM(s) became effective on 4/17/2012. FIRMs are available via FEMA's Flood Map Service Center (<https://msc.fema.gov/portal/home>). Digital FIRM data is also available for Tioga County via FEMA's National Flood Hazard Layer Viewer, which was referenced during the development of this annex. The Town joined the NFIP on 5/15/85. The Town's local law governing floodplain development and NFIP compliance is located in Local Law 1 of 2012. There were no compliance issues identified in this hazard mitigation planning process. 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 no repetitive loss properties in the Town of Berkshire. Such properties 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

No concerns about future changes in hazard impacts specific to the Town were identified during the hazard mitigation planning process. The effects of climate change and other factors on future hazard events in Tioga County are covered in more detail in Section 5 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response or that requires a special emergency response in the event of hazardous incidents as identified by the Town of Berkshire. These 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 and Village 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 Berkshire and any particular vulnerabilities of note. More information about hazard vulnerability, including a tool for understanding the vulnerability of community assets to events of varying magnitudes, is included in Section 6 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 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

The Town of Berkshire does not have any high-hazard potential dams located within the municipal boundaries.

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 Berkshire has identified the following additional assets for consideration in hazard mitigation planning:

Table 5-2. Additional Assets

Important Assets	Description
First Congregational Church	The church assists with community needs.

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

6.1 Flood

The Town of Berkshire has ranked its overall vulnerability to a flood event as high, as indicated in Table 4-2. Flood events occur regularly in the jurisdiction and affect a significant portion of the jurisdiction, causing moderate damage. The jurisdiction is moderately prepared for flood events.

Information on flood event records (Section 1.1), high hazard potential dams (Section 0), 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 Berkshire has ranked its overall vulnerability to a severe storm event as high, as indicated in Table 4-2. Severe storms occur infrequently in the jurisdiction and affect the entire jurisdiction, causing moderate damage. The jurisdiction is moderately prepared for severe storm events.

Records of severe storm events are described in Section 1.1. 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 damage 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. Damage to the Town's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damages would primarily impact the more populated portions of the Town, such as the hamlets of East Berkshire and Wilson Creek. The Town completes tree maintenance within Town road right of ways to minimize potential damages to overhead utility lines. Private utility right-of-ways are generally maintained by individual utility companies.

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 Berkshire has ranked its overall vulnerability to a drought event as moderate, as indicated in Table 4-2. Drought events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is not prepared for drought events.

Agricultural areas and properties served by private wells would experience the most significant impacts from drought. Agricultural properties are located evenly within the Town. Agricultural operators who rely on natural rain events, rainwater collection, and healthy soils for crop maintenance and livestock care may be susceptible to the impacts of low water yields during a drought. Moreover, because the Town is not served by a municipal water or wastewater system, residents rely on private wells and may be susceptible to low water yields during a drought.

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 Berkshire has ranked its overall vulnerability to an extreme temperature event as moderate, as indicated in Table 4-2. Extreme temperature events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is 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 5% of the population in the Town is under 5 years old, and 17% of the population is over 65 years old. Approximately 14% 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 9% 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.

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 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:

- Flash flooding from hills

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

- Diamond Hill, East Berkshire Road, Brown Road, Barnes Hill Road, and Rejmer Road populations

The plan was revised to reflect the following changes in community priorities since the 2018 HMP Update:

- More concentrated rainfall

Outside of the information covered in this Annex, the Town did not identify any additional concerns to be addressed in the HMP.

6.6 Additional Impacts

Additional impacts of the hazards are summarized in the problem descriptions in the Village'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 proposed 3 mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized below in Table 7-1.

Table 7-1. Status of 2018 Mitigation Actions

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Letter "S" Hill Rd and Bridge (West End)	Letter "S" Hill Road and the bridge approximately 300' west of N Ketchumville Rd (approximately 42.286824, -76.115744) are prone to seasonal flooding by the Kethcumville Branch. Additionally, the stream rises during heavy rains enough to cover the bridge thus preventing passage by residents. One house is completely cutoff from emergency services (seasonal maintenance road). This flooding is occurring due to the amount of water in the stream overwhelming the opening under the roadway, rather than an issue of debris or other blockages. Due to this repetitive flooding, the bridge is being undermined/eroded and has received a yellow flag from DOT inspections.	Flood	Town of Berkshire Highway Department	No Progress	Yes

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Jewett Hill Rd Creek bank reinforcement	The banks of this creek are rapidly eroding due to heavy rains (flash floods). The creek is constrained on one side (west) by a hillside and on the other (east) by Jewett Hill Rd. The erosion, which is ongoing and expected to continue, already threatens the physical integrity of the roadway. There are approximately 12 homes in the subject area of this road lying between the upstream (42.311808, -76.195562) and downstream (42.308212, -76.191310) crossings. There are also 3 sluices at risk due to the erosion of this creek's banks, all of which are showing signs of erosion. As the problem worsens, flood risk in the area further increases and exposes other areas to increased flood risk. This will be exacerbated with the failure of any of the at-risk sluices. Flash floods causing bank erosion to have occurred approximately three times in the last decade, including two major events in 2011 and July 2018.	Flood	Town of Berkshire Highway Department	No Progress	Yes
Critical Facility – Town Hall	The Town Hall is located in a regulatory floodplain and may be susceptible to flood damage during heavy rain events. It is currently unknown if the building is protected from a 500-year event	Flood	Town Board, Town Floodplain Manager	No Progress	Yes

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the Town of Berkshire identified new mitigation actions for inclusion in the 2024 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 of Berkshire 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 7.2 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.

The Town proposed 14 new mitigation actions to be included in the 2024 HMP update. These actions are included in Table 7-2, below.

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
T Berkshire F1	Bulk Waste Reduction Program	G1, G2, G5, G6	Flood	During floods, waste can pose a safety risk, create extra work, and pose pollution problems if they get carried away by floodwaters. It can also lead to huge cleanup costs after flood events.	Incentivize the removal of large debris items and educate residents on junk removal. This may include the following actions: - Create partnerships with local companies that provide junk car removal, Cash for Junk Cars, scrap metal recycling, and related services in order to incentivize property owners to remove junk cars and other large items from their property. - Create additional incentive programs to collect debris from homeowner lots, such as offering free junk car recycling to the first 50 registrants (for reference, see https://www.juneauempire.com/news/city-offers-free-junk-car-recycling-for-first-50-registrants/) - Build partnerships with Tioga County Sustainability (within Economic Development and Planning) to expand and publicize existing programs for waste removal, such as programs for tires and electronics. - Educate homeowners about safety risks from debris carried by floodwaters and how they can protect themselves and their property. - Relocate junkyards out of floodplains so that items do not become floating projectiles during a flood; - Limit size of items in junkyards. - Increase the fees for junk cars and other items left in yards - Other actions as determined by the Town.	No	Maybe	1-3 years	Town Board	\$\$	These actions could reduce debris before flooding occurs, so that there would be less debris that cause problems during flood events. This would reduce the burden of flooding on people and the environment, because it would lead to better public safety, less labor time to clean up debris, less pollution, and greatly reduced cost by cleaning up waste before rather than after flood events.	DEC HHW, DEC MWR&R, FEMA BRIC, FEMA HMGP, FEMA FMA, NYS HM RLF, EPA Smart Growth Support, FSA & USDA Source Water Protection Program, USDA/NRCS Emergency Watershed Protection Program	High
T Berkshire MHI	Hazardous Tree Inspection and Management	G1, G4	Severe Storm, Flood	During severe storm events, trees and tree limbs fall on roads, power lines, and creek beds. This results in road closures and electricity outages, contributes to the severity of flooding by blocking the flow of water in creeks and streams, and pose a public safety risk.	Incorporate the regular inspection and management of hazardous trees into the Town's existing procedures for drainage system and infrastructure maintenance. Additionally, clear trees out of creeks and establish a schedule for doing so regularly.	No	Maybe	6 months - 1 year	Highway Department	\$\$	By regularly inspecting and maintaining hazardous trees, the Town will reduce the impacts of severe storms and floods on infrastructure and public safety.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	High
T Berkshire S1	Backup Generators	G1, G6	Severe Storm	The Town of Berkshire infrequently experiences severe storms which can cause power outages. Currently, the fire station does not have a generator.	Purchase a generator for the fire station, so that it can still have power during electricity outages. Additionally, assess the need for generators at other facilities in the Town that provide essential services.	Yes	Maybe - location-based action	1-3 years	Fire Department	\$\$	The Town can reduce personal injury and property damage by ensuring that the fire station and possibly other facilities have backup generators and do not lose power during a severe storm.	US CDBG-MIT, US HMGP, NYS HM RLF	Medium
T Berkshire F2	Infrastructure Upgrades: Brown Road, Rejmer Road, and East Berkshire Road, and Assessments of other Infrastructure	G1, G6	Flood	When flooding occurs, debris can block roads. Currently, there is no shoulder on some roads, such as Brown Road, Rejmer Road, and the lower part of East Berkshire Road. As a result, the roads can become impassable when flooding occurs. This leads to road closures and causes safety and nuisance issues for the Town.	Expand Brown Road, Rejmer Road, and the lower part of East Berkshire Road so that there is a shoulder on these roads to allow for safe passage. Assess other locations in the Town, such as Diamond Hill and Barnes Hill Road, for needed infrastructure improvements to mitigate flood risk, and pursue funding to implement those improvements.	No	Maybe - location-based action	3-5 years	Highway Department	\$\$\$	The Town can reduce road blockages and threats to public safety by implementing infrastructure improvements to these locations.	NYS CDBG-MIT, US HMGP, US Flood Mitigation Assistance, US BRIC, NYS HM RLF	Medium
T Berkshire F3	Infrastructure Upgrades on Roads by Simmons, Waites, and Rightmire Pond	G1, G4, G6	Flood	The Town of Berkshire regularly experiences floods which cause moderate damages to a significant portion of the Town. The roads by Simmons, Waites, and Rightmire Pond have been identified as places where flooding occurs.	Assess potential infrastructure upgrades on roads by Simmons, Waites, and Rightmire Pond. Select and implement appropriate upgrades. This may include installing sluices.	No	Maybe - location-based action	3-5 years	Highway Department	\$\$	The Town can reduce the impact and extent of flooding by implementing infrastructure improvements in the Town where needed. Undertaking a comprehensive assessment of where flooding is needed will allow the Town to identify additional priority areas that might otherwise have been missed.	NYS CDBG-MIT, US HMGP, US Flood Mitigation Assistance, US BRIC, NYS HM RLF	Medium
T Berkshire F4	Infrastructure Assessments	G1, G3, G6	Flood	The Town of Berkshire regularly experiences floods which cause moderate damages to a significant portion of the Town. Diamond Hill and Barnes Hill Road have been identified as priorities for addressing flooding, but there may be others.	Assess other locations in the Town, such as Diamond Hill and Barnes Hill Road, for needed infrastructure improvements to mitigate flood risk. Pursue funding to implement those improvements.	No	Maybe - location-based action	3-5 years	Highway Department	\$\$	The Town can reduce the impact and extent of flooding by implementing infrastructure improvements in the Town where needed. Undertaking a comprehensive assessment of where flooding is needed will allow the Town to identify additional priority areas that might otherwise have been missed.	NYS CDBG-MIT, US HMGP, US Flood Mitigation Assistance, US BRIC, NYS HM RLF	Medium
T Berkshire F5	Basement Flood Mitigation Program	G1, G2, G3, G6	Flood	The Town of Berkshire regularly experiences floods which cause moderate damages to a significant portion of the Town. Many homeowners and renters experience heavy impacts when their basements flood.	Conduct outreach to homeowners regarding measures they can take to mitigate flood risk on their property. For example, encourage homeowners to install sump pumps, install backwater valves, seal their basements, elevate building utilities, install a french drain, install a gutter system and keep gutters clean, use downspout extensions for gutters, slope yards away from homes, trim branches near basements or move landscaping away from homes, and/or other similar measures. Use https://www.fema.gov/sites/default/files/2020-07/fema_P1037_reducing_flood_risk_residential_buildings_cannot_be_elevated_2015.pdf as a resource. Present information about elevating homes and buyouts of property in the floodplain, where appropriate. Provide information about each action in the form of an informational brochure with local contacts for each action, technical public workshops, or other methods. Consider partnering with landscaping companies, contractors, hardware stores, or other companies to fund the outreach and offer discounts on their products. Pursue additional sources of funding for goods and services that homeowners might use to take these measures.	No	No	1-3 years	Fire Department	\$\$	The Town can reduce residents' vulnerability to flooding by providing homeowners with education about measures they can take to protect their homes.	BRIC, FMA, NYS HM RLF, EPA EJSG, USDA HPG, EDA Disaster Recovery	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
T Berkshire MH2	Review and Update Municipal Regulations	G1, G3, G4	All Hazards	Flooding, severe storms, drought, and extreme temperatures all pose risks to the municipality. For example, many homeowners and renters experience heavy impacts when their basements flood. However, not all relevant municipal laws and ordinances incorporate hazard mitigation.	Review municipal laws and ordinances and update as necessary to incorporate hazard mitigation. This may include review of the zoning code, development regulations, subdivision regulations, building codes, and other regulations. Examples that may be considered include, but are not limited to: - Requiring the submittal of a Stormwater Pollution Prevention Plan with subdivision applications, site plan applications, and applications for a special use permit, variance, or zoning change. (flooding) - Update the building code to ensure that new developments are protected against a 500-year flood event and against other hazards - Encouraging tree plantings and green roofs in building codes to mitigate extreme heat (extreme temperatures) - Updating or creating site design review standards to include natural environmental features such as wind buffers, requiring regular maintenance of trees in high-wind areas, and/or require wind-resistant building techniques such as structural bracing in the building codes for high-wind areas (severe storms) - Updating or creating laws about the water system so that they include a plan for obtaining for secondary water sources that may be used during drought conditions (drought)	No	No	1-3 years	Planning Board	\$	Updated municipal regulations will help ensure that new and existing developments are protected against flooding and other hazards, by incorporating hazard mitigation directly into planning processes. This will reduce the risk that is posed to people and property from the affected hazards.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, EPA EFC Grant Program, NYS CDBG Program, NYS DOS Smart Growth program[[@Potential Funding Sources]]	Medium
T Berkshire F6	Pump for Fire Station	G1, G6	Flood	The Town of Berkshire regularly experiences floods which cause moderate damages to a significant portion of the Town. Many homeowners and renters experience heavy impacts when their basements flood.	Purchase a pump for the fire station in order to help remove floodwaters out of people's basements in order to reduce the damage that flooding has on residents.	Yes	No	6 months - 1 year	Fire Department	\$\$	Removing floodwaters promptly out of people's basements will reduce the damage that these floodwaters have on health (e.g. mold).	EPA EJSG, USDA HPG, EDA Disaster Recovery	Medium
T Berkshire F7	Vulnerability Assessments of Critical Facilities	G1, G3, G6	Flood	It is currently undetermined whether or not several of the Town's critical facilities are protected against a 0.2% chance flood event or previous worst case flood event, leaving these facilities vulnerable to flood events.	Town staff will conduct vulnerability assessments to 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). This will serve as a first step toward protecting the facilities, if future funding becomes available. There are no local resources available at this time to conduct engineering design and retrofitting on these structures. Future efforts towards protecting these structures to an 0.2% chance flood event (or previous worst case flood event, if applicable) will be considered if funding becomes available. These may include engineering design, building retrofits, or other measures.	Yes	Maybe	3-5 Years	Highway Department	\$	Assessing the Town's critical facilities for their level of protection against a 0.2% chance flood event (or previous worst case flood event, if applicable), is a first step to ensuring that these facilities remain operable during and after flooding events, reducing the overall risk to people and infrastructure.	US HMGP, US BRIC, US Flood Mitigation Assistance, US HUD CDBG-MIT, NYS HM RLF	Medium
T Berkshire D1	Drought Mitigation & Emergency Plan for Local Agricultural Operations	G1, G3, G5, G6	Drought	The Town has many agriculture operations that rely on consistent water supplies to sustain crops and livestock. However, the Town also does not have a program for spreading awareness of strategies and resources that local agricultural operations can reference to increase resiliency to drought.	Develop and implement a Drought Mitigation & Emergency Plan that establishes an outreach campaign to raise awareness of strategies and resources for reducing agricultural operations' risk to drought (e.g. planting cover crops, reducing tillage, harvesting rainwater, etc.). The outreach campaign will also provide information on relevant resources for technical assistance and grant funding, such as the USDA Emergency Conservation Program. Include in the Plan a strategy for providing support to agricultural operations during drought.	No	No	6 months - 1 year	SWCD	\$	The Drought Mitigation & Emergency Plan will provide local agriculture operations with the resources needed to reduce the impacts of drought on crops and livestock. The Plan will also establish a system for providing direct assistance to agricultural operations impacted by drought.	HMGP, BRIC, NYS HM RLF, CDBG-MIT, WaterSMART Drought Response Program	High
T Berkshire ET1	Tree Planting Program	G1, G4, G5	Extreme temperatures	Areas that have less tree canopy experience hotter temperatures in the summer, contributing to the impact of heat waves.	Work with the SWCD to implement and promote a tree planting program through the SWCD's Tree and Shrub Sale.	No	Maybe - location-based action	6 months - 1 year	SWCD	\$	Planting additional trees in the County will reduce the impacts of extreme temperatures, particularly heat waves.	US BRIC, SWCD, NRCS WFPO	High
T Berkshire F8	Inspection / Right-sizing of Culverts	G1, G4	Flood	Existing culverts within some municipalities in Tioga County are not sized appropriately, resulting in increased flood risk. This may include the Town of Berkshire.	Assess the condition, size, and effectiveness of culverts within the Town. Create a list of culverts that need attention, and work with the County SWCD to replace with new right-sized piping, where deemed necessary. Culverts should be up to applicable design standards, and should take into account flood risk, ecological impacts, and other factors.	No	Maybe	1-3 years	Highway Department, with assistance from SWCD	\$\$	Appropriately resizing culverts will allow for more efficient flow of water during flood events, reducing the extent of flooding and the risk of damage to and closure of bridges, roadways, and other infrastructure.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Berkshire MH3	Hazardous Tree Inspection and Management	G1, G2, G4	Severe storm, flood	Dying and dead trees that fall during severe storm events damage infrastructure, result in road closures and electricity outages, contribute to the severity of flooding by blocking the flow of water in creeks and streams, and pose a public safety risk.	Incorporate the regular inspection and management of hazardous trees into the Town's existing procedures for drainage system and infrastructure maintenance.	No	Maybe	6 months - 1 year	Highway Department	\$\$	Appropriately resizing culverts will allow for more efficient flow of water during flood events, reducing the extent of flooding and the risk of damage to and closure of bridges, roadways, and other infrastructure.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	High

7.3 Mitigation Action Prioritization

Each of the Town's proposed mitigation actions was evaluated and prioritized according to the criteria listed in Section 7.2.4 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
T Berkshire F1	Bulk Waste Reduction Program	3	2	2	3	10	High
T Berkshire MH1	Hazardous Tree Inspection and Management	2	2	3	3	10	High
T Berkshire S1	Backup Generators	2	2	2	2	8	Medium
T Berkshire F2	Infrastructure Upgrades: Brown Road, Rejmer Road, and East Berkshire Road, and Assessments of other Infrastructure	2	1	2	2	7	Medium
T Berkshire F3	Infrastructure Upgrades on Roads by Simmons, Waites, and Rightmire Pond	2	2	1	2	7	Medium
T Berkshire F4	Infrastructure Assessments	3	2	2	2	9	Medium
T Berkshire F5	Basement Flood Mitigation Program	3	2	2	3	10	High
T Berkshire MH2	Review and Update Municipal Regulations	2	3	3	1	9	Medium

Mitigation Action ID	Mitigation Action Name	Ability to Increase Resilience	Economic Feasibility	Low Environmental Impact	Ability to Implement	Total Score	Priority
T Berkshire F6	Pump for Fire Station	2	2	1	3	8	Medium
T Berkshire F7	Vulnerability Assessments of Critical Facilities	2	3	1	2	8	Medium
T Berkshire D1	Drought Mitigation & Emergency Plan for Local Agricultural Operations	2	3	3	3	11	High
T Berkshire ET1	Tree Planting Program	1	3	3	3	10	High
T Berkshire F8	Inspection / Right-sizing of Culverts	3	2	2	2	9	Medium
T Berkshire MH3	Hazardous Tree Inspection and Management	3	2	3	3	11	High

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 as described in Section 7 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

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 Berkshire 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.

Town of Candor

This section presents the jurisdictional annex for the Town of Candor for the 2024 Tioga 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 the Town of Candor regarding this Jurisdictional Annex are identified as follows:

- Primary: William Strosahl, Town Supervisor
 - supervisor@townofcandor.org
 - (607)972-1677
- Alternate: Patti Reichert, Town Councilmember
 - patricia.reichert@townofcandor.org
 - (607)760-7551

Town of Candor Website: <https://towncandor.digitaltowpath.org:10613/content/>

2 COMMUNITY SNAPSHOT

2.1 Demographics

The 2020 Census estimated that 5,149 people live in the Town of Candor. The Town's population has decreased by 3% since the 2010 Census (5,305). The median age in the Town is 48.4 years, and 21% of the population is over the age of 65. The median household income in the Town is \$53,170.

2.2 Location & Land Characteristics

The Town of Candor is located in the north of Tioga County and is bordered by Tompkins County to the north, the Town of Spencer to the west, the Town of Newark Valley to the east, and the Town of Tioga to the south. The Town covers approximately 94.6 square miles. The properties within the Town have a total assessed value of approximately \$283,512,125, which is distributed across a variety of property classes.

Major transportation corridors in the Town include New York State Route 96, which intersects New York State Route 96B in the Village of Candor, as described in Section 2.8 of the main body of the HMP. Key water features within the Town include Owego Creek, which defines the east Town line.

2.3 Governing Body

The Town of Candor is governed by a Town Board consisting of a Supervisor and three Board Members.

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. The proposals that the Town received are summarized in Table 2-1 below; none of the proposals for the Town are specified as being located in the Special Flood Hazard Area (1% annual chance flood event area) or in the Moderate Flood Hazard Area (0.2% annual chance flood event area). These developments may affect the Town's vulnerability to the hazards identified in this HMP.

Table 2-1. Developments from 2018 to March 2023

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
2/7/2018	Approval of the Site Plan Review	97 Owego Road	Site Plan Review	N/A	The applicant is requesting site plan review approval to construct a 9,100-square-foot general retail commercial store on the existing 2-acre parcel. There will be one driveway for ingress and egress from NYS Route 96B and 30 parking spaces are provided.	Unspecified
3/8/2018	Approval of the Site Plan Review	1121 Owego Road (NYS Route 96)	Site Plan Review	N/A	The applicant is requesting site plan review approval to construct a 7,600-square-foot addition, for retail sale of mercantile goods, to their existing 7,600-square-foot building used now for auctions.	Unspecified
4/4/2018	Approval of the Site Plan Review	811 Owego Road (NYS Route 96)	Site Plan Review	N/A	The applicant is requesting site plan review approval to reuse an old palette-making facility on this 19.93-acre lot into a business that will store and transport repossessed vehicles.	Unspecified
10/4/2018	Approval of the Site Plan Review	269 Owego Road	Site Plan Review	N/A	The applicant is proposing to construct and operate a 250kWac solar photovoltaic system consisting of 990 solar modules via leasing 2 acres of the 186-acre property.	Unspecified
10/4/2018	Approval of the Solar Energy System Site Plan Review	Near 1140 Owego Road	Site Plan Review	N/A	The applicant is proposing to construct and operate a 250 kW/AC solar photovoltaic system consisting of 880 solar modules via leasing 1.2 acres of the 41.8-acre property.	Unspecified

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
6/7/2019	Approval of the Solar Energy System Site Plan Review	2453 West Creek Road	Solar Energy Systems Site Plan Review	N/A	The applicant is proposing to construct and operate a 5.0 MW/AC solar photovoltaic system via leasing from the owner of approximately 30 acres located in the northwestern portion of the nearly 300-acre property.	No
1/21/2020	Approval of the Site Plan Review	1040 Owego Road (NYS Route 96)	Site Plan Review	N/A	The applicant is requesting site plan approval to establish a pet funeral and cremation business in the existing building that was previously a church on this property. The property is 2.5 acres and the building is 4,000 square feet.	Unspecified
1/7/2022	Approval of the Solar Energy Systems Site Plan Review.	54 Kelsey Road/Spencer Road and State Route 96	Site Plan Review	N/A	The applicant is proposing to develop, construct, and operate a 4.98 MW/AC solar photovoltaic system via a lease agreement with the property owner located at 45 Kelsey Road, which will occupy portions of all four stated tax map properties.	Unspecified

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The Town of Candor 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 that 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	Highway Department
Mitigation Planning Committee	No	
Mutual Aid or Shared Services Agreements	Yes	Informal agreements with surrounding municipalities, Tioga County SWCD for equipment
Planning Board	Yes	
Zoning Board	No	
Other	Yes	Board of Appeals
Development Approvals		
Building Code	Yes	Building Code of New York State
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	Not Available	
Fire Department ISO Rating	No	
Site Plan Review Requirements	Yes	
Other	Yes	Uniform Fire Prevention and Building Local Law 2017
Funding Resources		
Authority to Levy Taxes	Yes	Town Board
Capital Improvement Project Funds	Yes	Town Board
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	FEMA
General Obligation Bonds and/or Special Tax Bonds	No	
Impact Fees for New Development	No	
State Funding Programs (i.e., NYSEFC, NYSOCR, NYSDEC, others)	Yes	BridgeNY

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?)
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	No	Private wells
Other	No	
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	Yes	
NFIP Participant / Floodplain Ordinance	Yes	Local Law #1 of 2012 Flood Damage Prevention
Hillside Development Regulations	No	
Open Space Preservation	No	
Stormwater Management Regulations	No	
Streambank Setback Regulations	No	
Subdivision Regulations	Yes	Subdivision Regulations of the Town of Candor (2019)
Zoning Ordinance	No	
Other	Yes	Site Plan Review Law 2019, Mobile Home Licensing Regulation (1994), Manufactured Home Law 2017 (mobile home parks)
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	No	
Other	Yes	Follows Uniform Procedures Act (UPA), Article 70 of the NYS Environmental Conservation Law (ECL) Wellhead Protection Area (Village of Candor)
Plans		
Capital Improvement Plan	No	
Comprehensive Emergency Management Plan	Yes	Tioga County Comprehensive Emergency Management Plan (2013)
Comprehensive Plan	Yes	Comprehensive Plan (2016)
Continuity of Operations Plan	No	
Economic Development Plan	Yes	Tioga County 2020 Strategic Plan
Other	Yes	Local Emergency Plan (2023)
Programs/Organizations		
Climate Smart Community	No	
Local Emergency Preparedness/Disaster Response Organizations	Yes	Candor Emergency Squad (ambulance and fire)
Local Environmental Protection Organizations	No	

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?)
National Weather Service Storm Ready Certification	Yes	Tioga County Storm Ready
Outreach Programs	No	
Partnerships with private entities addressing mitigation or disaster response	No	
School Programs or Adult Educational Programs	No	
Other	No	
Staff Positions		
Civil Engineer	Yes	Town Engineer
Code Enforcement Officer	Yes	
Emergency Manager	No	
Floodplain Administrator	Yes	Code Enforcement Officer
Planner/GIS Coordinator	No	
Other	Yes	Special municipal attorney
Technical Abilities		
Grant Writing	Yes	County Economic Development & Planning writes grants for the Town
Hazard Information Centers	No	
Hazard Warning Systems	No	
Other	No	Tioga County is upgrading its radio system

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 during future updates to the Comprehensive Plan, as well as in the event that the Town establishes a 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 the creation of a 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.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10.3 of the main body of the HMP.

3.2 Integration of Planning Efforts

The Town of Candor understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The Town intends to reference the 2024 Tioga 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 Candor may use the local laws assessment (included in Section 2 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.

Since the Susquehanna River Watershed and Chemung River Watershed fall under New York's portion of the Chesapeake Bay Watershed, the Town of Candor aims to follow the guidance of the Chesapeake Bay Program. The Chesapeake Bay Program stands as a distinctive collaborative effort with a regional focus aimed at achieving the objectives outlined in the Chesapeake Bay Watershed Agreement. It facilitates the coordination of scientific investigations into the Bay's well-being and offers corresponding funding opportunities that incentivize local contributions to pollution reduction and enhancement of water quality in nearby rivers and streams. Many recommendations of the Chesapeake Bay Program relate to hazard mitigation, particularly flood mitigation. In addition to the recommendations of the Chesapeake Bay Watershed Program, the Town may also review additional environmental considerations as listed in the main report of the HMP (Section 2.6) for inspiration for additional natural resources capabilities to implement.

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 four natural hazards: flooding, severe storms, extreme temperatures, and drought. Descriptions of each of these hazards are included in Section 5 of the main body of the HMP. The Town of Candor has chosen to profile the same hazards as the County. No hazards were omitted, and there were no additional hazards identified as unique and specific to the Town of Candor.

The hazard analysis criteria used to evaluate the Town’s vulnerability to each natural hazard are summarized in *Table 4-1*, and the results are presented in *Table 4-2*.

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

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 (Coastal Flooding, Riverine Flooding, Ice Jam)	2	3	2	2	9 – High	1	N/A
Drought	1	1	3	3	8 – Moderate	2	N/A
Severe Storm (Hail, Ice Storm, Lightening, Strong Wind, Winter Weather, Tornado, Hurricane/ Tropical Storm)	2	3	2	1	8 – Moderate	2	N/A
Extreme Temperatures (Cold Wave, Heat Wave)	1	1	3	2	7 – Moderate	3	N/A

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 5 of the main body of the HMP. The following is a subset of events that occurred specifically within the Town. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Town.

Table 4-3. Hazard Event Records, 2018-2022

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Thunderstorm Wind	6/13/2018	50 Knots	\$10,000.00	-
Thunderstorm Wind	8/18/2019	50 Knots	\$15,000.00	-
Hail	8/18/2019	1 Inch	-	-
Thunderstorm Wind	8/23/2020	50 Knots	\$10,000.00	-
Thunderstorm Wind	7/6/2021	50 Knots	\$10,000.00	-
Total			\$45,000.00	None Reported

4.3 Floodplain Statistics

Key waterways in the Village are described in Section 2.2. 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 60,781 acres in the Town, approximately 3.25% are located within the 1% annual chance flood event area and approximately 0.14% are located within 0.2% annual chance flood event area. The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-5. 493 parcels in the Town are located within the 1% annual chance flood event area, with an estimated total structure value of \$39,745,850. 97 parcels in the Town are located within the 0.2% annual chance flood event area, with an estimated total structure value of \$4,453,800.

Table 4-4. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	1% Annual Chance Flood Event Area	0.2% Annual Chance Flood Event Area
60,781	3.25%	0.14%

Note: Data is based on political boundaries and, therefore, is inclusive of the Village of Candor.

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

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Agricultural	46	\$1,870,300	9	\$368,300
Commercial	20	\$5,024,400	1	\$537,100
Community Services	11	\$13,364,800	2	\$106,400
Industrial	2	\$19,100	0	N/A
Parks and Open Space	1	\$0	0	N/A
Public Services	0	N/A	0	N/A
Residential	267	\$18,444,250	51	\$3,365,600
Vacant	142	\$580,100	34	\$76,400
Recreation	4	\$442,900	0	N/A
Total	493	\$39,745,850	97	\$4,453,800

*The structural value for each tax parcel was calculated by subtracting its assessed land value from its total assessed value.

Note: Data is based on political boundaries and, therefore, is inclusive of the Village of Candor.

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 insured structure incurs damage costs that are over 50% of its market value, the owner must comply with the local floodplain regulations 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.

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 Candor currently participates in the NFIP (Community ID 360833), and its current FIRM(s) became effective on 4/17/2012. FIRMs are available via FEMA's Flood Map Service Center (<https://msc.fema.gov/portal/home>). Digital FIRM data is also available for Tioga County via FEMA's National Flood Hazard Layer Viewer, which was referenced during the development of this annex. The Town joined the NFIP on 8/19/86. The Town's local law governing floodplain development and NFIP compliance is located in Local Law No. 1 of 2012. There were no compliance issues identified in this hazard mitigation planning process. 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 is one repetitive loss of property in the Town of Candor. Such properties 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

No concerns about future changes in hazard impacts specific to the Town were identified during the hazard mitigation planning process. The effects of climate change and other factors on future hazard events in Tioga County are covered in more detail in Section 5 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response or that requires a special emergency response in the event of hazardous incidents as identified by the Town of Candor. These 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 and Village 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 Candor and any particular vulnerabilities of note. More information about hazard vulnerability, including a tool for understanding the vulnerability of community assets to events of varying magnitudes, is included in Section 6 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 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

The Town of Candor does not have any high-hazard potential dams located within the municipal boundaries.

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 Candor has identified the following additional assets for consideration in hazard mitigation planning:

Table 5-2. Additional Assets

Important Assets	Description
Candor Highway Department	(33 Humiston Street)
Candor EMS	(62 Main Street)
Candor School District Complex	(1 Academy Street)
Bread of Life Food Pantry	(1 Water St, Candor, NY 13743)
UHS Primary	(54 Main St, Candor, NY 13743)
Additional Assets located within the Village (Identified by the Town)	
Double Aught Lumber	(1024 Owego Rd, Candor, NY 13743)
Home Central, Dollar General	Travels through the town
Power and Paddle	Travels through the town
Bostwick Antique Mall and Auctions	Travels through the town
Millenium Pipeline	Travels through the town
Mobile Home Parks	Located within the Town are susceptible to flooding
Weltonville Fire Station	Town considers the Weltonville Fire Station an asset despite being located outside of the Town boundary

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

6.1 Flood

The Town of Candor has ranked its overall vulnerability to a flood event as high, as indicated in Table 4-2. Flood events occur regularly in the jurisdiction and affect a significant portion of the jurisdiction, causing moderate damage. The jurisdiction is moderately prepared for flood events.

Information on flood event records (Section 4.2), high-hazard potential dams (Section 0), 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 Candor has ranked its overall vulnerability to a severe storm event as moderate, as indicated in Table 4-2. Severe storms occur regularly in the jurisdiction and affect a significant portion of the jurisdiction, causing moderate damage. The jurisdiction is well prepared for severe storm events.

Records of severe storm events are described in Section 4.2. 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 the operation of critical facilities. Damage to the Town's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damage would primarily impact the more populated portions of the Town, such as the hamlets of Catatonk, Fairfield, Weltonville, and Willseyville. The Town completes tree maintenance within the Town road right of way to minimize potential damage to overhead utility lines. Private utility right-of-ways are generally maintained by individual utility companies.

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 Candor has ranked its overall vulnerability to a drought event as moderate, as indicated in Table 4-2. Drought events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is not prepared for drought events.

Agricultural areas and properties served by private wells would experience the most significant impacts from drought. Agricultural properties are located evenly within the Town. Agricultural operators who rely on natural rain events, rainwater collection, and healthy soils for crop maintenance and livestock care may be susceptible to the impacts of low water yields during a drought. Moreover, because the Town is not served by a municipal water or wastewater system, residents rely on private wells and may be susceptible to low water yields during a drought.

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 Candor has ranked its overall vulnerability to an extreme temperature event as moderate, as indicated in Table 4-2. Extreme temperature events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is 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 6% of the population in the Town is under 5 years old, and 21% of the population is over 65 years old. Approximately 22% 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 11% 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.

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 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:

- Flash flooding can take out a road, and repairing one road can be the maintenance budget for the entire year.
- Isolated incidents of very heavy rain (up to 4-5 inches)
- Significant property damages along the stream

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

- Housing on Water Street
- Catatank Hill Road
- Homeless community

The plan was revised to reflect the following changes in community priorities since the 2018 HMP Update:

- Dead and dying ash trees along creeks and roadways have become a priority since the last update

Additional concerns that the Town would like addressed in the plan include:

- Flash flooding and isolated incidents of very heavy rain

6.6 Additional Impacts

Additional impacts of the hazards are summarized in the problem descriptions in the Village'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 proposed 10 mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized in Table 7-1 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 2024 HMP Update? (Yes/No)
Catatonk Creek Levee Study	The Catatonk Creek in the Town of Candor is prone to flooding in the area above the upper dam and extending past the town barns to Humiston Street. The Candor Fire Department station is located in this area was rendered inoperable in 2011 (Tropical Storm Lee) when flood waters surrounded the station. In addition, the Creek bank is eroding and approaching State Route 96B; the Candor Central School has flooded, and a primary care medical office is in jeopardy. The school serves as a Red Cross Shelter.	Flood	Candor Central School District as Lead agency. The Village of Candor & the Town of Candor as support agencies	No Progress	Yes

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Enlarge Four Culverts – Whitmarsh Hollow & Back West Creek Roads	Whitmarsh Hollow Road and Back West Creek Road are in low lying areas where flood waters overwhelm four culverts - 1 on Whitmarsh Hollow Road and 3 on Back West Creek Road. As a result of the culverts being overwhelmed, the following damage occurs: With heavy rain the existing culverts are too small to handle the volume of water. The excess water overflows the banks onto the road causing erosion and damage to the road and ditches. Whitmarsh Hollow repairs would require closure of the road. The detour would affect 60 households and up to 150-200 vehicles daily. The travel distance due to the detour would be as much as 8 miles and West Creek Road repairs would require closure of the road for several days.	Flood	Town Highway Department	In Progress <i>Whitmarsh Hollow Road is complete.</i> <i>Back West Creek Road; 1 culvert complete, 2 others are not complete.</i> <i>Bridges should be added to the New Mitigation Actions section.</i>	Yes

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Document Erosion Threat to Rt 96B	The Catatonk Creek in the Town of Candor is prone to flooding and the streambank is eroding, threatening State Route 96B near the Candor Fire Department. The stream is about 20' from the highway and eventually will reach the highway. Stabilizing the streambank would be the responsibility of the NYS Department of Transportation (NYSDOT) because the work would encroach on the State right-of-way. The Town of Candor cannot act directly to stabilize the streambank even though damage to the highway would affect the residents of the Town of Candor who use this transportation facility.	Flood	Town Highway Department (lead) SWCD supporting	No Progress <i>NYS is involved in this project.</i>	Yes
Portable Storage Pods	Purchase emergency response goods, cots, bedding, sanitary, & other recommended items.	All	Town Board	No Progress	Yes
Upper Candor Dam Rehabilitation Project Catatonk Creek	Cut and Remove concrete from a portion of the top of the dam. Install 15' steel sheet piles and replace concrete. Install 9' sheet piles below the dam, extended apron with rip rap & place grout between the joints. Remove debris below the dam & place rip rap on banks to prevent erosion	Flood	Town of Candor in conjunction with the Village of Candor as the dam is located in the village	Completed	No

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Critical Facilities in Floodplain	Work with facility owners/operators and inform them they are located in the floodplain and determine if the structures are mitigates to the 500-year flood level	Flood, Severe Storms	Town of Candor (via Municipal Engineer/NFIP Floodplain Administrator) with support from NYSOEM, FEMA	No Progress	Yes
Repetitive Loss Properties	Work with the property owners, informing them they are in the floodplain and identified as a repetitive loss property, Determine the best mitigation action to protect the property	Floods, Severe Storm	Town of Candor (via Municipal Engineer/NFIP Floodplain Administrator) with support from NYSOEM, FEMA	No Progress	Yes
Floodplain Administrator Education	Have incoming NFIP Floodplain Administrator (FPA) become a Certified Floodplain Manager through the ASFPM and pursue relevant continuing education training such as FMA Benefit-Cost Analysis.	Floods, Severe Storm	NFIP Floodplain Administrator	No Progress	Yes
Update of Comprehensive Emergency Plan	Include the Town Board in the completion of the ongoing updates of the Comprehensive Emergency Management Plan	All Hazards	Town Board	Ongoing	Yes

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Participation in programs to develop improved structure and facility inventories	Working with federal, state, and county agencies, the Town will support the performance of enhanced risk and vulnerability assessments for hazards of concern; support the update of the County's CEMP and HMP, and update their infrastructure inventories to incorporate flood and wind parameters.	All Hazards	Town Board	No Progress	Yes

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the Town of Candor identified new mitigation actions for inclusion in the 2024 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 of Candor could expand and improve the identified capabilities to achieve mitigation, as described in Section 1 of this annex. Then, a more comprehensive range of actions was evaluated as described in Section 7.2 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.

The Town proposed 10 new mitigation actions to be included in the 2024 HMP update. These actions are included in Table 7-2 below.

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
T Candor S1	Solar as Backup Power	G1, G4, G6	Severe Storm	Severe storms can cause power outages in the Town.	Evaluate the feasibility of using solar energy as a source of backup power for power outages due to severe storms. This may involve researching the use of solar energy as backup power by other Towns, identifying possible sites for new solar that can be used as backup power, scoping possible projects with contractors to determine costs, identifying environmental and social costs and benefits, and/or other activities as determined by the Town. If feasible, implement possible projects in accordance with the Town's Solar Energy Law (Appendix B of Local Law 2 of 2020: Site Plan Review Law).	No	Maybe	3-5 Years	Planning Board	\$\$\$	If feasible, implementing solar energy as a source of backup power for power outages due to severe storms would reduce the vulnerability of residents and critical Town facilities to power outages. Additionally, using solar could provide environmental benefits, decrease the cost of energy to the owners of commercial and residential properties, and increase employment and business development in the region through the installation of solar.	FEMA BRIC, FEMA HMGP, NYS CSC, FEMA EMPG, EPA Greening America's Communities, CDBG Public Infrastructure and Community Planning, EFC Green Innovation Grant Program, NYS HM RLF, DOS Smart Growth Comprehensive Planning Grant Program, EPA Smart Growth Support	Medium
T Candor MH1	Communication Plan for Homeless Residents	G1, G2, G5, G6	All Hazards: Severe Storms, Floods, Extreme Temperatures, Drought	Homeless residents in the Town are particularly vulnerable to hazards such as severe storms, floods, extreme temperatures, and drought. The Town needs a more robust way to communicate with these residents to help keep them safe from these hazard events.	Develop a communication plan to help keep homeless residents in the Town safe from hazards including severe storms, floods, extreme temperatures, and drought. As desired, partner with Cornell University and/or others to conduct research and develop the plan. Activities may include: - Conversations with homeless residents and people who work with them (for instance, social service agencies, nonprofits, social workers, and other mental health professionals) to identify current vulnerabilities to these hazards, existing ways that residents deal with these hazards, residents' priorities that would help them stay safe from these hazards, and current communication channels that these residents utilize. - Developing ideas for communication methods that may reach homeless residents, and vetting them with homeless residents and people who work with them. Examples may include automated or app-based alerts for residents who have cell phones, a phone tree system, a buddy system where each resident has a buddy who can communicate pertinent information to them, messaging developed by staff at organizations who serve homeless residents, educational materials such as flyers to prepare for events, or other methods. - If desired, drawing on research from other locations, such as https://hazards.colorado.edu/weather-ready-research/risk-communication-planning-learning-from-lived-experience-of-homelessness - If necessary, developing materials such as preparedness flyers or emergency apps. - If necessary, developing agency protocols for keeping homeless residents safe during hazards, such as increased staffing at shelters and/or opening doors of churches. - Working with existing partners such as mental health systems, food distribution centers, and/or others to develop and implement the communications plan. - And/or other ideas	No	Maybe	1 Year	Planning Board	\$	Developing a robust communications plan for homeless residents would reduce the vulnerability of these residents to hazards such as storms, floods, extreme temperatures, and drought, by ensuring that these residents are aware of the current weather and conditions and know what to do to stay safe, and ensuring that they have ways to communicate with agencies or organizations that can help them and vice versa.	FEMA BRIC, FEMA HMGP, EPA EJSC, HUD Exchange	High
T Candor MH2	Review and Update Municipal Regulations	G1, G3, G4	All Hazards: Severe Storms, Floods, Extreme Temperatures, Drought	Severe Storms, Floods, Extreme Temperatures, and Drought all cause minor or moderate damages in the Town. However, the current Site Plan Review and Subdivision Regulations do not incorporate hazard mitigation in a robust manner.	Update the Site Plan Review Law (2019) and the Subdivision Regulations of the Town of Candor (1990) and incorporate hazard mitigation into these updates. As necessary, review other municipal laws and ordinances (for instance, the zoning code, development regulations, building codes, or others) and update to incorporate hazard mitigation. Examples that may be considered include, but are not limited to: - Requiring the submittal of a Stormwater Pollution Prevention Plan with subdivision applications, site plan applications, and applications for a special use permit, variance, or zoning change. (flooding) - Updating the building code to ensure that new developments are protected against a 500-year flood event and against other hazards - Encouraging tree plantings and green roofs in building codes to mitigate extreme heat (extreme temperatures) - Updating or creating site design review standards to include natural environmental features such as wind buffers, requiring regular maintenance of trees in high-wind areas, and/or require wind-resistant building techniques such as structural bracing in the building codes for high-wind areas (severe storms) - Updating or creating laws about the water system so that they include a plan for obtaining for secondary water sources that may be used during drought conditions (drought)	No	No	1-3 years	Planning Board	\$	Updated municipal regulations will help ensure that new and existing developments are protected against flooding and other hazards, by incorporating hazard mitigation directly into planning processes. This will reduce the risk that is posed to people and property from the affected hazards.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, EPA EFC Grant Program, NYS CDBG Program, NYS DOS Smart Growth program	Medium
T Candor MH3	Tree Maintenance Program for Severe Storms	G1, G4, G5	Severe Storm, Flood	During severe storm events, tree debris can block culverts leading to flooding. Additionally, trees and tree limbs can fall on roads, power lines, and creek beds. This results in road closures and electricity outages, increases the severity of flooding, and pose a public safety risk.	Remove dead and dying trees, such as ash trees, from creeks and roadways. Additionally, pursue funding in order to incorporate the regular inspection and management of hazardous trees into the Town's existing procedures for drainage system and infrastructure maintenance. Establish a schedule for clearing tree debris out of culverts before and during floods, and pursue funding for additional resources (e.g. staff time, machinery, etc.) as necessary to accomplish this.	No	Maybe - location-based action	6 months - 1 year	Highway Department	\$\$	By regularly inspecting and maintaining hazardous trees, the Town will reduce the impacts of severe storms and floods on infrastructure and public safety.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, 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 Candor MH4	Planning for Hazard Mitigation through University Partnerships	G2, G3, G5, G6	All Hazards: Severe Storms, Floods, Extreme Temperatures, Drought	Severe Storms, Floods, Extreme Temperatures, and Drought all cause minor or moderate damages in the Town. However, the Town does not possess the resources to conduct detailed studies of how to plan for these hazards in a comprehensive manner.	Partner with Cornell University and/or other institutions to advance preliminary planning studies on how the Town can plan for Severe Storms, Floods, Extreme Temperatures, and Drought. Before conducting the partnerships, identify priority areas that the studies should address, such as flash flooding and road damages, property damages along streams, vulnerability of specific communities or geographies (e.g. housing on Water Street, Catatunk Hill Road, and the Homeless Communities), and/or other priorities. Example studies may include: - Feasibility studies on reducing stormwater runoff and implementing green infrastructure (build on existing studies or reclaim data). - Engineering studies of road repairs, and potential funding sources - Vulnerability assessments of homeless residents - Vulnerability assessment and action plan for hazards on Catatunk Hill Road - Studies of ways to incorporate hazard mitigation into existing Town laws - Updating the Town's comprehensive plan to ensure severe storm, flood, extreme temperature, and drought mitigation has been addressed - Other studies as desired.	No	No	1-3 Years	Planning Board	\$	Partnering with Cornell University and/or other institutions will provide the Town with information as to how to best mitigate the hazards in this Hazard Mitigation Plan, and may be used to address the priority areas identified in this plan.	FEMA BRIC, FEMA HMGP, EPA EJSC, FEMA FMA	High
T Candor F1	Vulnerability Assessments of Critical Facilities	G1, G3, G6	Flood	It is currently undetermined whether or not several of the Town's critical facilities are protected against a 0.2% chance flood event or previous worst case flood event, leaving these facilities vulnerable to flood events.	Town staff will conduct vulnerability assessments to 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). This will serve as a first step toward protecting the facilities, if future funding becomes available. There are no local resources available at this time to conduct engineering design and retrofitting on these structures. Future efforts towards protecting these structures to an 0.2% chance flood event (or previous worst case flood event, if applicable) will be considered if funding becomes available. These may include engineering design, building retrofits, or other measures.	Yes	Maybe	3-5 Years	Highway Department	\$	Assessing the Town's critical facilities for their level of protection against a 0.2% chance flood event (or previous worst case flood event, if applicable), is a first step to ensuring that these facilities remain operable during and after flooding events, reducing the overall risk to people and infrastructure.	US HMGP, US BRIC, US Flood Mitigation Assistance, US HUD CDBG-MIT, NYS HM RLF	Medium
T Candor F2	Infrastructure Assessment and Repairs/Replacements	G1,G3, G6	Flood	Flooding regularly occurs in the Town, causing moderate damages in a significant portion of the Town. The Town has already conducted work on infrastructure such as resizing culverts. However, there may be additional infrastructure, such as bridges, that is also in need of repairs and replacements due to concerns about flooding.	Repair bridges along Whitmarsh Hollow and Back West Creek Roads, as needed. Additionally, assess additional infrastructure, such as roads, bridges, and additional culverts, for adequacy of floodwater conveyance, extent to which flooding occurs, and necessity of replacements or repairs. If it is found that repairs and replacements are needed, pursue additional funding and implement these repairs/replacements.	No	Maybe	3-5 years	Highway Department	\$\$	By assessing the need for additional repairs and/or replacements to infrastructure and pursuing them as necessary, the Town will keep on top of these repairs. This will reduce the vulnerability of travelers to flooding, reduce road closures, and reduce damage to surrounding properties due to flooding.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Candor F3	Tree Planting Program	G1, G4, G5	Flood	Significant property damage can occur along streams due to flooding.	Work with the SWCD to implement and promote a tree planting program through the SWCD's Tree and Shrub Sale, in order to stabilize stream banks.	No	Maybe - location-based action	6 months - 1 year	Town Board with support from SWCD	\$	Planting additional trees in the County will reduce the impacts of flooding on properties along streams.	US BRIC, SWCD, NRCS WFPO	High
T Candor F4	Farmer Outreach Campaign for Flood Mitigation Measures	G1, G4, G5	Flood	Flooding from agricultural lands impacts properties and infrastructure.	Work with the SWCD to implement an outreach campaign to farmers to encourage the installation of stormwater retention ponds, wetlands, and riparian forest buffers to limit flooding within the watershed.	No	No	1-3 years	Town Board with support from SWCD	\$	Farmers will be equipped to implement infrastructural changes that reduce stormwater runoff and the impacts of flooding.	CRF, USC, WQIP, US BRIC, NRCS WFPO	High
T Candor D1	Drought Mitigation & Emergency Plan for Local Agricultural Operations	G1, G3, G5, G6	Drought	The Town has many agriculture operations that rely on consistent water supplies to sustain crops and livestock. However, the Town also does not have a program for spreading awareness of strategies and resources that local agricultural operations can reference to increase resiliency to drought.	Develop and implement a Drought Mitigation & Emergency Plan that establishes an outreach campaign to raise awareness of strategies and resources for reducing agricultural operations' risk to drought (e.g. planting cover crops, reducing tillage, harvesting rainwater, etc.). The outreach campaign will also provide information on relevant resources for technical assistance and grant funding, such as the USDA Emergency Conservation Program. Include in the Plan a strategy for providing support to agricultural operations during drought.	No	No	6 months - 1 year	Town Board with support from SWCD	\$	The Drought Mitigation & Emergency Plan will provide local agriculture operations with the resources needed to reduce the impacts of drought on crops and livestock. The Plan will also establish a system for providing direct assistance to agricultural operations impacted by drought.	HMGP, BRIC, NYS HM RLF, CDBG-MIT, WaterSMART Drought Response Program	High

7.3 Mitigation Action Prioritization

Each of the Town's proposed mitigation actions was evaluated and prioritized according to the criteria listed in Section 7.2.4 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
T Candor S1	Solar as Backup Power	1	2	3	1	7	Medium
T Candor MH1	Communication Plan for Homeless Residents	2	3	3	2	10	High
T Candor MH2	Review and Update Municipal Regulations	2	3	3	1	9	Medium
T Candor MH3	Tree Maintenance Program for Severe Storms	1	3	3	2	9	Medium
T Candor MH4	Planning for Hazard Mitigation through University Partnerships	2	3	3	2	10	High
T Candor F1	Critical Facilities Assessment and Upgrades	2	3	1	2	8	Medium
T Candor F2	Infrastructure Assessment and Repairs/Replacements	3	2	2	2	9	Medium
T Candor F3	Tree Planting Program	1	3	3	3	10	High
T Candor F4	Farmer Outreach Campaign for Flood Mitigation Measures	2	3	3	3	11	High
T Candor D1	Drought Mitigation & Emergency Plan for Local Agricultural Operations	2	3	3	3	11	High

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 as described in Section 7 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

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 Candor 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.

Town of Newark Valley

This section presents the jurisdictional annex for the Town of Newark Valley for the 2024 Tioga 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 the Town of Newark Valley regarding this Jurisdictional Annex are identified as follows:

- Primary: Stuart Yetter, Supervisor
 - nvsupervisor@stny.rr.com
 - (607)642-8746
- Alternate: Joe Tennant, Highway Superintendent
 - nvhgwydept@stny.rr.com
 - (607)642-9927

Town of Newark Valley Website: <https://www.townofnewarkvalley.com/>

2 COMMUNITY SNAPSHOT

2.1 Demographics

The 2020 Census estimated that 3,642 people live in the Town of Newark Valley. The Town's population has decreased by 8% since the 2010 Census (3,946). The median age in the Town is 41.9 years, and 22% of the population is over the age of 65. The median household income in the Town is \$69,375.

2.2 Location & Land Characteristics

The Town of Newark Valley is located in the northeastern part of Tioga County and is northwest of Binghamton, NY. It is bordered by Broome County, with the Town of Berkshire to the north, Owego to the south, and Candor to the east. The Town covers approximately 50.4 square miles. The properties within the Town have a total assessed value of approximately \$140,409,992, which is distributed across a variety of property classes.

Major transportation corridors in the Town include New York State Route 38 and New York State Route 38B, which intersect south of Newark Valley Village, as described in Section 2.8 of the main body of the HMP. Key water features within the Town include an east branch of Owego Creek.

2.3 Governing Body

The Town of Newark Valley is governed by a Town Board consisting of a Town Supervisor and four Board Members.

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. The proposals that the Town received are summarized in Table 2-1 below; none of the proposals for the Town are specified as being located in the Special Flood Hazard Area (1% annual chance flood event area) or in the Moderate Flood Hazard Area (0.2% annual chance flood event area). These developments may affect the Town's vulnerability to the hazards identified in this HMP.

Table 2-1. Developments from 2018 to March 2023

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
4/9/2021	Approval of the Solar Energy Special Use Permit with the Conditions Noted	Howard Hill Road	Solar Energy Special Use Permit	N/A	The applicant is proposing to develop, construct, and operate a 250 KW /AC solar photovoltaic system, with all appurtenances, via a lease agreement with the property owner located on the corner of Howard Hill Road and Prentice Hill Road.	Unspecified
6/15/2022	Approval of the Site Plan Review and Solar Energy Special Use Permit <i>Note: This action was disapproved</i>	1779 West Creek Road	Solar Energy Special Use Permit	N/A	The applicant is proposing to develop, construct, and operate a 5 MW/AC solar photovoltaic system, with all appurtenances on said property on West Creek Road.	Unspecified

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The Town of Newark Valley 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 that 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	The Town's maintenance program varies from year to year and covers items such as water issues, drainage, improved piping, ditches, and bridge maintenance
Mitigation Planning Committee	No	
Mutual Aid or Shared Services Agreements	Yes	Fire Department; SWCD; other Town and Village governments within the County; Newark Valley Central School District
Planning Board	Yes	
Zoning Board	No	
Other	No	
Development Approvals		
Building Code	Yes	Local Law 1 of 2018 - Building Construction and Fire Prevention, Local Law 1 of 2004 - Mobile Home Requirements
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	No	
Fire Department ISO Rating	No	
Site Plan Review Requirements	Yes	Chapter 142
Other	No	
Funding Resources		
Authority to Levy Taxes	Yes	
Capital Improvement Project Funds	Yes	These funds are typically utilized for bridge maintenance
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	ARPA

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?)
General Obligation Bonds and/or Special Tax Bonds	Yes	
Impact Fees for New Development	No	
State Funding Programs (i.e., NYSEFC, NYSOCR, NYSDEC, others)	No	
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	No	
Other	No	
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	Yes	
NFIP Participant / Floodplain Ordinance	Yes	Chapter 106
Hillside Development Regulations	No	
Open Space Preservation	No	
Stormwater Management Regulations	No	
Streambank Setback Regulations	No	
Subdivision Regulations	Yes	
Zoning Ordinance	No	
Other	Yes	While the Town does not have a zoning code, it does have standalone land use ordinances. Solar Energy Requirements (Local Law 1 of 2017, Local Law 3 of 2021)
Natural Resources		
Forest/Vegetation Management	No	
Stream Corridor Management	No	
Stream Dumping Regulations	Yes	State laws apply
Urban Forestry and Landscape Management	No	
Watershed Management	No	
Wetland Regulations	No	
Other	No	Follows Uniform Procedures Act (UPA), Article 70 of the NYS Environmental Conservation Law (ECL)
Plans		
Capital Improvement Plan	Yes	The current plan started 4-5 years ago
Comprehensive Emergency Management Plan	Yes	
Comprehensive Plan	Yes	
Continuity of Operations Plan	No	
Economic Development Plan	No	
Other	Yes	Tioga County/Town of Owego 2015-2020 Stormwater Management Plan
Programs/Organizations		
Climate Smart Community	No	
Local Emergency Preparedness/Disaster Response Organizations	No	

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?)
Local Environmental Protection Organizations	No	
National Weather Service Storm Ready Certification	Yes	County-Level
Outreach Programs	No	
Partnerships with private entities addressing mitigation or disaster response	No	
School Programs or Adult Educational Programs	No	
Other	No	
Staff Positions		
Civil Engineer	No	
Code Enforcement Officer	Yes	
Emergency Manager	No	
Floodplain Administrator	Yes	Code Enforcement Officer
Planner/GIS Coordinator	No	
Other	No	
Technical Abilities		
Grant Writing	Yes	The Town Clerk collaborates with USDA representatives and REAP
Hazard Information Centers	No	
Hazard Warning Systems	No	
Other	No	

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 during future updates to the Comprehensive Plan, as well as in the event that the Town establishes a 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 the creation of a 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.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10.3 of the main body of the HMP.

3.2 Integration of Planning Efforts

The Town of Newark Valley understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The Town intends to reference the 2024 Tioga 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 Newark Valley may use the local laws assessment (included in Section 2 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.

Another way that Town will strive to incorporate hazard mitigation planning into existing community planning work is by exploring grant opportunities for more funding resources, as are documented in Table 7-2. In that table of new mitigation actions, the Town has also included an action to review and update municipal regulations to ensure harmony between future development and programming recommendations and to incorporate hazard mitigation.

All 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 four natural hazards: flooding, severe storms, extreme temperatures, and drought.

Descriptions of each of these hazards are included in Section 5 of the main body of the HMP. The Town of Newark Valley has chosen to profile the same hazards as the County. No hazards were omitted, and there were no additional hazards identified as unique and specific to the Town of Newark Valley.

The hazard analysis criteria used to evaluate the Town's vulnerability to each natural hazard are summarized in *Table 4-1*, and the results are presented in *Table 4-2*.

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

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 (Coastal Flooding, Riverine Flooding, Ice Jam)	3	3	3	2	11 – High	1	Anticipated increased frequency of flash flooding is a concern
Severe Storm (Hail, Ice Storm, Lightning, Strong Wind, Winter Weather, Tornado, Hurricane/ Tropical Storm)	3	3	3	1	10 – High	2	N/A
Drought	1	2	3	3	9 – High	3	N/A
Extreme Temperatures (Cold Wave, Heat Wave)	1	1	3	3	8 – Moderate	4	N/A

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 5 of the main body of the HMP. The following is a subset of events that occurred specifically within the Town. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Town.

Table 4-3. Hazard Event Records, 2018-2022

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Thunderstorm Wind	5/28/2018	50 Knots	\$10,000.00	-
Thunderstorm Wind	6/13/2018	50 Knots	\$10,000.00	-
Thunderstorm Wind	8/8/2019	50 Knots	\$5,000.00	-
Thunderstorm Wind	8/18/2019	50 Knots	\$10,000.00	-
Thunderstorm Wind	8/18/2019	50 Knots	\$10,000.00	-
Thunderstorm Wind	7/23/2020	50 Knots	\$5,000.00	-
Thunderstorm Wind	7/13/2021	50 Knots	\$2,000.00	-
Total	\$52,000	None Reported		

4.3 Floodplain Statistics

Key waterways in the Village are described in Section 2.2. 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 32,342 acres in the Town, approximately 4.46% are located within the 1% annual chance flood event area and approximately 0.63% are located within 0.2% annual chance flood event area. The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-5. 417 parcels in the Town are located within the 1% annual chance flood event area, with an estimated total structure value of \$23,144,960. 274 parcels in the Town are located within the 0.2% annual chance flood event area, with an estimated total structure value of \$17,261,955.

Table 4-4. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	1% Annual Chance Flood Event Area	0.2% Annual Chance Flood Event Area
32,342	4.46%	0.63%

Note: Data is based on political boundaries and, therefore, is inclusive of the Village of Newark Valley.

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

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Agricultural	28	\$816,000	18	\$450,900
Commercial	33	\$2,448,325	25	\$1,758,075
Community Services	9	\$7,313,500	6	\$6,454,900
Industrial	1	\$0	1	\$0
Parks and Open Space	0	N/A	1	\$0
Public Services	3	\$132,600	3	\$132,600
Residential	235	\$12,247,435	155	\$8,329,780
Vacant	104	\$187,100	61	\$135,700
Recreation	4	\$0	4	\$0
Total	417	\$23,144,960	274	\$17,261,955

**Structure Value estimated by subtracting parcel Land Assessed Value from Total Assessed Value*

Note: Data is based on political boundaries and, therefore, is inclusive of the Village of Newark Valley.

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 insured structure incurs damage costs that are over 50% of its market value, the owner must comply with the local floodplain regulations 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.

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 Newark Valley currently participates in the NFIP (Community ID 360835), and its current FIRM(s) became effective on 4/17/2012. FIRMs are available via FEMA's Flood Map Service Center (<https://msc.fema.gov/portal/home>). Digital FIRM data is also available for Tioga County via FEMA's National Flood Hazard Layer Viewer, which was referenced during the development of this annex. The Town joined the NFIP on 2/03/82. The Town's local law governing floodplain development and NFIP compliance are located in Local Law 1 of 2012. There were no compliance issues identified in this hazard mitigation planning process. 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 three repetitive loss properties in the Town of Newark Valley. Such properties 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:

- The frequency and severity of flash flooding events have increased and are anticipated to continue to increase. Activities such as upsizing culverts and improving drainage systems can combat this future hazard concern.

These concerns were taken into consideration when developing the mitigation strategy. The effects of climate change and other factors on future hazard events in Tioga County are covered in more detail in Section 5 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response, or that requires a special emergency response in the event of hazardous incidents, as identified by the Town of Newark Valley. These 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 and Village 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 Newark Valley and any particular vulnerabilities of note. More information about hazard

vulnerability, including a tool for understanding the vulnerability of community assets to events of varying magnitudes, is included in Section 6 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 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

The Town of Newark Valley has two high-hazard potential dams (HHPDs) located in the municipality: Alexander Lake Dam and Nanticoke Creek Site 7b Dam. HHPDs can be an asset as well as pose risks to the jurisdiction and neighboring jurisdictions. The HHPD worksheet is located at the end of this jurisdictional annex.

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 Newark Valley has identified the following additional assets for consideration in hazard mitigation planning:

Table 5-2. Additional Assets

Important Assets	Description
Town's Grocery Store and Gas Station	These assets should be protected from the impacts of natural hazard events to ensure that essential goods are consistently available to Town residents (both located on Route 38).
Nathan T. Hall Elementary School	Located at 86 Whig Street
Newark Valley Middle School	Located at 88 Whig Street

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

6.1 Flood

The Town of Newark Valley has ranked their overall vulnerability to a flood event as high, as indicated in Table 4-2. Flood events occur regularly in the jurisdiction and affect the entire jurisdiction, causing major damage. The jurisdiction is moderately prepared for flood events.

Information on flood event records (Section 1.1), high-hazard potential dams (Section 0), 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 Newark Valley has ranked their overall vulnerability to a severe storm event as high, as indicated in Table 4-2. Severe storms occur regularly in the jurisdiction and affect the entire jurisdiction, causing major damage. The jurisdiction is well prepared for severe storm events.

Records of severe storm events are described in Section 1.1. 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 damage 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 the operation of critical facilities.

Damage to the Town's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damage would primarily impact the more populated portions of the Town, such as the hamlets of East Newark, Jenksville, Ketchumville, West Newark, and New Connecticut. The Town completes tree maintenance within the Town road right of way to minimize potential damage to overhead utility lines. Private utility right-of-ways are generally maintained by individual utility companies.

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 Newark Valley has ranked their overall vulnerability to a drought event as high, as indicated in Table 4-2. Drought events occur infrequently in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is not prepared for drought events.

Agricultural areas and properties served by private wells would experience the most significant impacts from drought. Agricultural properties are located evenly within the Town. Agricultural operators who rely on natural rain events, rainwater collection, and healthy soils for crop maintenance and livestock care may be susceptible to the impacts of low water yields during a drought. Moreover, because the Town is not served by a municipal water or wastewater system, residents rely on private wells and may be susceptible to low water yields during a drought.

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 Newark Valley has ranked their overall vulnerability to an extreme temperature event as high, as indicated in Table 4-2. Extreme temperature events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is not 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 8% of the population in the Town is under 5 years old, and 22% of the population is over 65 years old. Approximately 12% 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 5% 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.

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 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:

- None identified

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

- Barbertown: This is a large area served only by one bridge. If it fails, a number of homes will be trapped.
- Dalton Hill: This is also a vulnerable area. There is access from the backside, but it is steep and difficult to traverse.

The plan was revised to reflect the following changes in community priorities since the 2018 HMP Update:

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

Additional concerns that the Town would like addressed in the plan include:

- None Identified

6.6 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 proposed 3 mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized in Table 7-1, beTable 7-1. Status of 2018 Mitigation Actions

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Barber Town Road Culvert Upgrade	The pipe installed after the 2011 flood, funded by SEMO and FEMA, to solve a similar hazard at Lamb Rd. is 142" x 91". Because the effects of the flooding of the same creek at Bailey Hollow Rd are similar, we propose to replace the pipe under Barber Town Rd with the same 142" x 91" pipe.	Flood	Town of Newark Valley Highway Department	No progress	Yes
Baily Hollow Road Culvert Upgrade	The pipe installed after the 2011 flood, funded by SEMO and FEMA, to solve a similar hazard at Lamb Rd. is 142" x 91". Because the effects of the flooding of the same creek at Bailey Hollow Rd are similar, we propose to replace the pipe under Bailey Hollow Rd with the same 142" x 91" pipe.	Flood	Town of Newark Valley Highway Department	Completed	No
Dalton Hill Road	Dalton Hill refurbished abutments and wingwalls	Flood, Severe Storms	Town of Newark Valley Highway Department	No progress	Yes

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the Town of Newark Valley identified new mitigation actions for inclusion in the 2024 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 of the ways that the Town of Newark Valley could expand and improve the identified capabilities to achieve mitigation, as described in Section 1 of this annex. Then, a more comprehensive range of actions was evaluated as described in Section 7.2 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.

The Town proposed 8 new mitigation actions to be included in the 2024 HMP update. These actions are included in Table 7-2 below.

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
T Newark Valley F1	Evaluation and upsizing of culverts	G1,G4	Flood	Existing culverts within the Town are not sized appropriately, resulting in increased flood risk.	Assess the condition, size, and effectiveness of culverts within the Town and replace with new right-sized piping, where deemed necessary. Culverts should be up to applicable design standards, and should take into account flood risk, ecological impacts, and other factors. This action will include making a list of culverts of concern, prioritizing culverts that are of highest concern, and working with the County SWCD to make repairs and replacements so that culverts are up to standards and mitigate flood risk.	No	Maybe	1-3 years	Highway Department	\$\$	Appropriately resizing culverts will allow for more efficient flow of water during flood events, reducing the extent of flooding and the risk of damage to and closure of bridges, roadways, and other infrastructure.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Newark Valley F2	Stream bank stabilization	G1, G4	Flood	Severe flooding within the Town causes streambank erosion, resulting in loss of natural habitats and damage to infrastructure.	Plan and implement streambank stabilization projects along West Branch Owego Creek, East Brank Owego Creek, Wilson Creek, and Ketchumville Brank, where deemed appropriate.	No	Yes	1-3 years	SWCD	\$\$\$	Stabilizing stream banks will reduce the risk of damage to natural habitats and infrastructure in proximity to waterways during flood events.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	High
T Newark Valley MH1	Hazardous tree removal	G1, G4	Severe storm, flood	Dying and dead trees that fall during severe storm events damage infrastructure, result in road closures and electricity outages, contribute to the severity of flooding by blocking the flow of water in creeks and streams, and pose a public safety risk.	Incorporate the regular inspection and management of hazardous trees into the Town's existing procedures for drainage system and infrastructure maintenance.	No	Maybe	6 months - 1 year	Highway Department	\$\$	By regularly inspecting and maintaining hazardous trees, the Town will reduce the impacts of severe storms on infrastructure and public safety.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	High
T Newark Valley MH2	Back-up power generators in Town Hall and the Highway Department.	G1, G6	Extreme temperatures, severe storm	Currently, the only Town facility that serves as an emergency heating and cooling center is the Fire Department. This limits opportunities for Town resident to seek shelter during power outages, heat waves, and cold waves.	Install back-up power generators in Town Hall and the Highway Department to support the use of these facilities as emergency heating and cooling centers. These facilities may also be used during power outages caused by storms.	Yes	Maybe	6 months - 1 year	Highway Department	\$\$	The use of Town hall and the Highway Department as emergency heating and cooling centers will protect public health and safety during power outages, heat waves, and cold waves.	US CDBG-MIT, US HMGP, NYS HM RLF	Medium
T Newark Valley D1	Establish a back-up drinking water supply	G1,G5	Drought	Town residents rely on wells for drinking water, leaving them at risk of losing access to potable water during drought events.	Partner with the Village of Newark Valley to establish a back-up drinking water supply that may be used during drought events. The Town of Newark Valley may take into account EPA guidance on establishing a backup water supply, found at https://www.epa.gov/sites/default/files/2015-03/documents/planning_for_an_emergency_drinking_water_supply.pdf .	No	Maybe	1-3 years	Highway Department	\$	Maintaining a back-up supply of drinking water will reduce residents' risk of losing access to potable well water during drought events. Establishing this supply will reduce the vulnerability of the Town to drought over multiple seasons.	US CDBG-MIT, US HMGP, NYS HM RLF	High
T Newark Valley MH3	Implement a natural hazard notification system	G1, G2, G6	All Hazards (Flood, Severe Storms, Drought, Extreme Temperatures)	The Town currently lacks a system through which it can notify residents of forthcoming and ongoing natural hazard events.	Develop and implement an automated text/call/email notification system to alert residents of forthcoming and ongoing natural hazard events (flood, drought, severe storm, and/or extreme temperatures) and steps to take to reduce risk to personal property and safety. This system will allow the Town to send out emergency notifications before and during a natural hazard event.	No	No	6 months - 1 year	Highway Department	\$	Implementing a natural hazard notification system will reduce risks to personal property and safety during flood, extreme temperature, drought, severe storm, and other events by providing residents with early notice of such events and recommendations for mitigating adverse impacts.	US CDBG-MIT, US HMGP, NYS HM RLF	High
T Newark Valley F3	Vulnerability Assessments of Critical Facilities	G1, G3, G6	Flood	It is currently undetermined whether or not several of the Town's critical facilities are protected against a 0.2% chance flood event or previous worst case flood event, leaving these facilities vulnerable to flood events.	Town staff will conduct vulnerability assessments to 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). This will serve as a first step toward protecting the facilities, if future funding becomes available. There are no local resources available at this time to conduct engineering design and retrofitting on these structures. Future efforts towards protecting these structures to an 0.2% chance flood event (or previous worst case flood event, if applicable) will be considered if funding becomes available. These may include engineering design, building retrofits, or other measures.	Yes	Maybe	3-5 Years	Highway Department	\$	Assessing the Town's critical facilities for their level of protection against a 0.2% chance flood event (or previous worst case flood event, if applicable), is a first step to ensuring that these facilities remain operable during and after flooding events, reducing the overall risk to people and infrastructure.	US HMGP, US BRIC, US Flood Mitigation Assistance, US HUD CDBG-MIT, NYS HM RLF	Medium
T Newark Valley MH4	Review and Update Municipal Regulations	G1, G3, G4	All Hazards (Flood, Severe Storms, Drought, Extreme Temperatures)	Flooding, severe storms, drought, and extreme temperatures all pose risks to the Town. Despite the risks, not all relevant municipal laws and ordinances incorporate hazard mitigation.	Review municipal laws and ordinances and update as necessary to incorporate hazard mitigation. This may include review of the zoning code, development regulations, subdivision regulations, building codes, and other regulations as applicable to ensure that new and existing developments are protected against a 500-year flood event and against other hazards. Examples that may be considered include, but are not limited to: - Requiring the submittal of a Stormwater Pollution Prevention Plan with subdivision applications, site plan applications, and applications for a special use permit, variance, or zoning change. (flooding) - Update the building code to ensure that new developments are protected against a 500-year flood event and against other hazards - Encouraging tree plantings and green roofs in building codes to mitigate extreme heat (extreme temperatures) - Updating or creating site design review standards to include natural environmental features such as wind buffers, requiring regular maintenance of trees in high-wind areas, and/or require wind-resistant building techniques such as structural bracing in the building codes for high-wind areas (severe storms) - Updating or creating laws about the water system so that they include a plan for obtaining for secondary water sources that may be used during drought conditions (drought)	No	No	1-3 years	Planning Board	\$	Updated municipal regulations will help ensure that new and existing developments are protected against flooding and other hazards, by incorporating hazard mitigation directly into planning processes. This will reduce the risk that is posed to people and property from the affected hazards.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, EPA EFC Grant Program, NYS CDBG Program	Medium

7.3 Mitigation Action Prioritization

Each of the Town's proposed mitigation actions were evaluated and prioritized according to the criteria listed in Section 7.2.4 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
T Newark Valley F1	Evaluation and upsizing of culverts	3	2	2	2	9	Medium
T Newark Valley F2	Stream bank stabilization	3	1	3	3	10	High
T Newark Valley MH1	Hazardous tree removal	3	2	3	3	11	High
T Newark Valley MH2	Back-up power generators in Town Hall and the Highway Department.	2	2	2	2	8	Medium
T Newark Valley D1	Establish a back-up drinking water supply	2	3	3	2	10	High
T Newark Valley MH3	Implement a natural hazard notification system	3	2	3	3	11	High
T Newark Valley F3	Vulnerability Assessments of Critical Facilities	2	3	1	2	8	Medium
T Newark Valley MH4	Review and Update Municipal Regulations	2	3	3	1	9	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 as described in Section 7 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

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 Newark Valley 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.

Town of Nichols

This section presents the jurisdictional annex for the Town of Nichols for the 2024 Tioga 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 the Town of Nichols regarding this Jurisdictional Annex are identified as follows:

- Primary: Esther Woods, Town Supervisor
 - Woodse@nicholsny.com
 - (607)699-9770 ext. 4
- Alternate: Doug Chrzanowski, Flood Plain Manager
 - ChrzanowskiD@nicholsny.com
 - (607)699-9770 ext. 2

Town of Nichols Website: <https://nicholsny.com/post.php?pid=5>

2 COMMUNITY SNAPSHOT

2.1 Demographics

The 2020 Census estimated that 2,347 people live in the Town of Nichols. The Town's population has decreased by 7% since the 2010 Census (2,525). The median age in the Town is 45.4 years, and 24% of the population is over the age of 65. The median household income in the Town is \$63,241.

2.2 Location & Land Characteristics

The Town of Nichols is located on the south border of Tioga County and New York State and is bordered by the Town of Barton on the west, the Town of Owego to the east, and Bradford County, Pennsylvania to the south. The Town covers approximately 33.7 square miles. The properties within the Town have a total assessed value of approximately \$88,196,573, which is distributed across a variety of property classes.

Major transportation corridors in the Town include the Southern Tier Expressway (New York State Route 17 and future Interstate 86), which passes across the town south of the Susquehanna River. New York State Route 282 connects NY-17 to the Pennsylvania state line, as described in Section 2.8 of the main body of the HMP. Key water features within the Town include the Susquehanna River to the north.

2.3 Governing Body

The Town of Nichols is governed by a Town Board consisting of a Supervisor and four Board Members.

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. The proposals that the Town received are summarized in Table 2-1 below; at least one of the proposals for the Town are located in the Special Flood Hazard Area (1% annual chance flood event area), and at least one of the proposals for the Town are located in the Moderate Flood Hazard Area (0.2% annual chance flood event area). These developments may affect the Town's vulnerability to the hazards identified in this HMP.

Table 2-1. Developments from 2018 to March 2023

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
12/14/2017	Approval of the Rezoning	825 West River Rd, 932 West River Road	Site Plan Review	A-R to B-A-R	The applicants are requesting to rezone their entire properties located at NYS Route 17 Exit 62 WB up to the Susquehanna River from the current Agricultural-Residential (A-R) to Business-Agricultural-Residential (B-A-R).	1% annual chance flood event area
4/6/2018	Approval of the Special Use Permit	22 Ketchum Road	Special Use Permit	A-R	The applicant is requesting a special use permit to hold monthly meetings, get-togethers, and events at the pictured garage clubhouse for their bicycle club called La Familia.	Unspecified
6/5/2018	Approval with Modification	Various Zoning District	Code Amendment adding Chapter 149 Solar Energy Systems, and small corresponding amendment to the Zoning Code Chapter 194	B-A-R, I-A-R, I-B-A-R, I2-B-A-R and A-R zoning districts	The Nichols Town Board and Planning Board have worked together to create the attached proposed Solar Energy Systems local law. It will be a stand-alone chapter in the Nichols Town Code, it will be tied to the Zoning Code via	Unspecified

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
6/5/2018	Approval of the Site Plan Review Local Law Zoning Amendment.	Various Zoning District	Zoning Code Amendment adding Section 194-8.1 Site Plan Review	B-A-R, I-A-R, I-B-A-R, and I2-B-A-R zoning districts	The Nichols Town Board and Planning Board have worked for a number of years to create this Site Plan Review Local Law to be inserted into the Town's zoning code.	Unspecified
10/17/2018	Approval of the Solar Energy System Site Plan Review	278 N Cole Hill Rd	Solar Energy Systems Permit	B-A-R	The applicant is proposing to construct and operate a 250kWac solar photovoltaic system consisting of 880 solar modules via leasing 1 acre of the 41.8-acre property.	1% annual chance flood event area
8/9/2018	Approval of the Solar Energy System permit and Site Plan Review	Smith Creek Rd	Solar Energy Systems Permit and Site Plan Review	I2-B-A-R	The applicant is proposing to construct and operate a 4.5 MW/AC major solar collection system via leasing nearly 20 acres (on the north side of Smith Creek Rd) of the 158-acre property.	Unspecified
8/7/2019	Approval of the Special Use Permit	110 State Line Road	Special Use Permit	A-R	The applicant is requesting a special use permit to establish and operate a dog grooming business within their home.	Unspecified

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
2/27/2020	Approval of the Rezoning Request.	Tax Map #s 149.00-1-44, 149.00-1-26, and 149.00-1-27.1	Rezone to Industrial 2-Business-Agricultural-Residential (I2-B-A-R)	Agricultural-Residential (A-R)	The applicant, on behalf of and in agreement with the three property owners, has petitioned the Nichols Town Board to rezone the properties from A-R to I2-B-A-R.	No
3/16/2022	Approval of the Zoning Amendment	Town-Wide in Specific Zoning Districts	Zoning Amendment	Various	The Nichols Town Board wishes to Amend Chapter 194 Zoning, Article X Solar Energy Systems, §194-4, Solar collectors and installations for major systems or solar farms, paragraph D, item (2) (c) to specify the type of landscape buffer to be provided by the applicant or solar developer.	Unspecified
7/6/2022	Approval of the Solar Energy System Permit and Site Plan Review	2348 West River Road	Solar Energy Systems Permit and Site Plan Review	B-A-R	The applicant is proposing to construct and operate a 0.25 MW/AC major solar collection system on 2.2 of 50.9 acres on their own property.	0.2% annual chance flood event area

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
12/22/2022	Disapproval of the Use Variance Request	3075 East River Road	Use Variance	Agricultural/Residential (AR)	The applicant is temporarily storing commercial trucks and telephone poles on his agricultural operations property for a commercial sub-contracting company.	Unspecified

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The Town of Nichols 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 that 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	No	
Mitigation Planning Committee	No	
Mutual Aid or Shared Services Agreements	Yes	Shared services with Tioga County and Tioga Center
Planning Board	Yes	
Zoning Board	Yes	
Other	No	
Development Approvals		
Building Code	Yes	Chapter 92 - Construction Codes (amended 2003), Local Law 2 of 2006 - Administration and Enforcement of NYS Fire Prevention and Building Code, Chapter 10 - Mobile Homes
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	No	
Fire Department ISO Rating	Yes	Class 5/5X, June 2017
Site Plan Review Requirements	Yes	Chapter 194 Section 8
Other	No	
Funding Resources		
Authority to Levy Taxes	Yes	Fire District
Capital Improvement Project Funds	Yes	
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	CDBG and FEMA funding has been utilized for properties to be demolished due to flooding and stream restoration
General Obligation Bonds and/or Special Tax Bonds	Yes	
Impact Fees for New Development	No	
State Funding Programs (i.e., NYSEFC, NYSOCR, NYSDEC, others)	Yes	

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?)
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	Yes	Water and sewer plant, which is utilized by larger development (four industrial clients) The Town is interested in expand Internet service, which is not provided by the municipality.
Other	No	
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	No	
NFIP Participant / Floodplain Ordinance	Yes	Chapter 114 Flood Damage Prevention
Hillside Development Regulations	No	
Open Space Preservation	Yes	
Stormwater Management Regulations	No	
Streambank Setback Regulations	No	
Subdivision Regulations	Yes	Taylor Rd
Zoning Ordinance	Yes	Chapter 194
Other	Yes	Agriculture & Farmland Protection Plan, Campgrounds and Recreational Parks (88-2; Local Law No. 3 of 2000), Solar Energy Systems (Local Law 2 of 2022), Interim High Density Development and Commercial Farming Moratorium (Local Law 1 of 2005), Junk Vehicle Local Law (1991, amended by Local Law 3 of 1998)
Natural Resources		
Forest/Vegetation Management	No	
Stream Corridor Management	No	
Stream Dumping Regulations	No	State laws apply
Urban Forestry and Landscape Management	No	
Watershed Management	Yes	
Wetland Regulations	No	
Other	Yes	Follows Uniform Procedures Act (UPA), Article 70 of the NYS Environmental Conservation Law (ECL) Local Law 1 of 2003 - Sewers and Sewage Disposal, Local Law 4 of 2002 - regulates discharge into sanitary sewage system, Local Law 2 of 2003 - Water System
Plans		
Capital Improvement Plan	No	Looking to start this year
Comprehensive Emergency Management Plan	Yes	
Comprehensive Plan	Yes	In the process of being updated
Continuity of Operations Plan	Yes	Emergency Operations Plan

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?)
Economic Development Plan	Yes	Tioga County 2020 Strategic Plan
Other	Yes	Open Space Plan, Ag Plan, Farmland Preservation, NYRCR Tioga – NY Rising Community Reconstruction Plan (2014)
Programs/Organizations		
Climate Smart Community	No	
Local Emergency Preparedness/Disaster Response Organizations	Yes	Tioga Opportunities, Inc., Fire Dept, County Emergency Management
Local Environmental Protection Organizations	No	
National Weather Service Storm Ready Certification	Yes	County Level
Outreach Programs		
Partnerships with private entities addressing mitigation or disaster response	Yes	County
School Programs or Adult Educational Programs	No	
Other	Yes	Utilizes NY Alert as a preparedness measure
Staff Positions		
Civil Engineer	No	Contracted with an engineer on retainer
Code Enforcement Officer	Yes	
Emergency Manager	Yes	County
Floodplain Administrator	Yes	CEO
Planner/GIS Coordinator	Yes	County
Other	No	
Technical Abilities		
Grant Writing	No	
Hazard Information Centers	No	Currently working on establishing this at the new municipal building (the old elementary school that the Town purchased)
Hazard Warning Systems	No	In partnership with the Village, gauges were installed in the Susquehanna River to alert the Town and Village of flooding events. The installation of repeaters along East River Rd and West River Rd is being considered.
Other	No	

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.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10.3 of the main body of the HMP.

3.2 Integration of Planning Efforts

The Town of Nichols understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The Town intends to reference the 2024 Tioga 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 Nichols may use the local laws assessment (included in Section 2 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.

4 HAZARD IDENTIFICATION AND RISK ASSESSMENT

4.1 Profiled Hazards

In this HMP Update, the County reviewed multiple natural hazards, and determined to profile four natural hazards: flooding, severe storm, extreme temperatures, and drought. Descriptions of each of these hazards are included in Section 5 of the main body of the HMP. The Town of Nichols has chosen to profile the same hazards as the County. No hazards were omitted and there were no additional hazards identified as unique and specific to the Town of Nichols.

The hazard analysis criteria used to evaluate the Town's vulnerability to each natural hazard are summarized in *Table 4-1*, and the results are presented in *Table 4-2*.

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

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 (Coastal Flooding, Riverine Flooding, Ice Jam)	2	2	2	2	8 – Moderate	1	Have seen an increase in flooding
Drought	2	1	1	3	7– Moderate	2	N/A
Severe Storm (Hail, Ice Storm, Lightening, Strong Wind, Winter Weather, Tornado, Hurricane/ Tropical Storm)	2	2	2	2	8 – Moderate	1	N/A
Extreme Temperatures (Cold Wave, Heat Wave)	2	2	2	2	8 – Moderate	1	N/A

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 5 of the main body of the HMP. The following is a subset of events that occurred specifically within the Town. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Town.

Table 4-3. Hazard Event Records, 2018-2022

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Flash Flood	8/14/2018		\$15,000.00	-
Flash Flood	10/31/2019		\$25,000.00	-
Thunderstorm Wind	3/20/2020	50 Knots	\$5,000.00	-
Total			\$45,000	None Reported

4.3 Floodplain Statistics

Key waterways in the Village are described in Section 2.2. 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 22,094 acres in the Town, approximately 12.13% are located within the 1% annual chance flood event area and approximately 1.73% are located within 0.2% annual chance flood event area. The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-5. 346 parcels in the Town are located within the 1% annual chance flood event area, with an estimated total structure value of \$21,585,121. 198 parcels in the Town are located within the 0.2% annual chance flood event area, with an estimated total structure value of \$11,759,760.

Table 4-4. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	1% Annual Chance Flood Event Area	0.2% Annual Chance Flood Event Area
22,094	12.13%	1.73%

Note: Data is based on political boundaries and, therefore, is inclusive of the Village of Nichols.

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

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Agricultural	42	\$600,110	27	\$479,040
Commercial	10	\$7,843,870	8	\$590,100
Community Services	9	\$163,000	6	\$116,000

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Industrial	6	\$64,800	4	\$17,800
Parks and Open Space	3	\$0	3	\$0
Public Services	5	\$774,500	3	\$733,000
Residential	184	\$3,883,241	106	\$2,546,020
Vacant	82	\$31,100	37	\$17,300
Recreation	5	\$8,224,500	4	\$7,260,500
Total	346	\$21,585,121	198	\$11,759,760

*Structure Value estimated by subtracting parcel Land Assessed Value from Total Assessed Value

Note: Data is based on political boundaries and, therefore, is inclusive of the Village of Nichols.

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 insured structure incurs damage costs that are over 50% of its market value, the owner must comply with the local floodplain regulations 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.

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 Nichols currently participates in the NFIP (Community ID 360837), and its current FIRM(s) became effective on 4/17/2012. FIRMs are available via FEMA's Flood Map Service Center (<https://msc.fema.gov/portal/home>). Digital FIRM data is also available for Tioga County via FEMA's National Flood Hazard Layer Viewer, which was referenced during the development

of this annex. The Town joined the NFIP on 2/17/82. The Town's local laws governing floodplain development and NFIP compliance are located in Chapter 114 of the Town code and Local Law 1 of 2012 (amended by Local Law 1 of 2018). There were no compliance issues identified in this hazard mitigation planning process. 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 27 repetitive loss properties in the Town of Nichols. Such properties 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

No concerns about future changes in hazard impacts specific to the Town were identified during the hazard mitigation planning process. The effects of climate change and other factors on future hazard events in Tioga County are covered in more detail in Section 5 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response, or that requires a special emergency response in the event of hazardous incidents, as identified by the Town of Nichols. These 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 and Village 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 Nichols and any particular vulnerabilities of note. More information about hazard vulnerability, including a tool for understanding the vulnerability of community assets to events of varying magnitudes, is included in Section 6 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 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

The Town of Nichols does not have any high-hazard potential dams located within the municipal boundaries.

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 Nichols has identified the following additional assets for consideration in hazard mitigation planning:

Table 5-2. Additional Assets

Important Assets	Description
Tioga Downs Casino Resort	Large employer and economic driver
Stanton Hill Rd Industrial	Large employers and economic driver
Additional Assets located within the Village (Identified by the Town)	
Cady Library	Historic building (owned by the Town)
Barstow House	Historic building (privately owned)
Nichols Kirby Park	Owned by the Village
Nichols Schoolhouse Apartments	Senior housing (Tioga Opportunities owned and located in the Village)
Nichols Town Hall	Owned by the Town
Nichols Joint Fire District	Located in Village

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

6.1 Flood

The Town of Nichols has ranked its overall vulnerability to a flood event as moderate, as indicated in Table 4-2. Flood events occur infrequently in the jurisdiction and affect a significant portion of the jurisdiction, causing moderate damage. The jurisdiction is moderately prepared for flood events.

Information on flood event records (Section 1.1), high hazard potential dams (Section 0), floodplain statistics (Section 4.3), and participation in the NFIP (Section 0) 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 Nichols has ranked its overall vulnerability to a severe storm event as moderate, as indicated in Table 4-2. Severe storms occur infrequently in the jurisdiction and affect a significant portion of the jurisdiction, causing moderate damage. The jurisdiction is moderately prepared for severe storm events.

Records of severe storm events are described in Section 1.1. 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 the operation of critical facilities. Damage to the Town's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damage would primarily impact the more populated portions of the Town, such as Hamlet of Briggs Hollow, Hoopers Valley, Litchfield, and Lounsberry. The Town completes tree maintenance within Town road right of ways to minimize potential damages to overhead utility lines. Private utility right-of-ways are generally maintained by individual utility companies.

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 Nichols has ranked its overall vulnerability to a drought event as moderate, as indicated in Table 4-2. Drought events occur rarely in the jurisdiction and affect one or two problem areas within the jurisdiction, causing moderate damage. The jurisdiction is not prepared for drought events.

The Town of Nichols has two wells and a wastewater treatment plant that are utilized by four key businesses. These facilities 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. Other residents and businesses are supplied by private wells. Agricultural areas and properties served by private wells would experience significant impacts from drought. Agricultural properties are located evenly within the Town. Agricultural operators who rely on natural rain events, rainwater collection, and healthy soils for crop maintenance and livestock care may be susceptible to the impacts of low water yields during a drought. Residents relying on private wells may also be susceptible to low water yields during a drought.

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 Nichols has ranked its overall vulnerability to an extreme temperature event as moderate, as indicated in Table 4-2. Extreme temperature events occur infrequently in the jurisdiction and affect a significant portion of the jurisdiction, causing moderate damage. The jurisdiction is 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 3% of the population in the Town is under 5 years old, and 24% of the population is over 65 years old. Approximately 16% 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 5% 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.

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 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:

- Excess gravel in streams and creeks resulting in flooding
- Grant funding, especially for sewer (need grant writing assistance)
- Existing drainage infrastructure may be undersized, restricting the efficient flow of water during flood events

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

- 90% of the Town now has high speed internet, but 10% may have unreliable internet service.
- Residents without generators

The plan was revised to reflect the following changes in community priorities since the 2018 HMP Update:

- Creeks and streams have limited space for high levels of water to go. This caused the shoulders of the roads to erode. The Town will need to stabilize them from further erosion.

Additional concerns that the Town would like addressed in the plan include:

- Grant funding for the demolition of the old Town Garage, and funds to resiliently develop the site for recreational uses in accordance with floodplain guidelines, and in conjunction with the existing onsite fishing access ramp.

6.6 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 proposed 10 mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized in Table 7-1, 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 2024 HMP Update? (Yes/No)
Wappasening Creek Study	Wappasening Creek needs to be studied using the Rosgen method in order to stabilize sections of the stream. Several smaller projects have occurred towards the mouth of Wappasening Creek, these have been undertaken to remove gravel and stabilize a portion of the stream. Further work needs to be done on upper portions of the stream. District recognizes there are concerns with this stream – funding is a limitation and interest of landowners to complete work.	Flood	Town Highway Department with support of TCSWCD and NCRS	Completed <i>This activity is largely carried out by the Village, which has continued to conduct a clean-out every year with DEC through an ongoing partnership with SWCD. A watershed assessment was completed on the NYS Portion of the creek to identify priorities in the watershed.</i>	No

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Sackett Creek Stream Bank Stabilization / Restoration	Sackett Creek-Perform stream bank stabilization/restoration in accordance with NRCS standards and specifications. Floodwaters caused Sackett Creek to create an entirely new channel into a field coming within 25 feet of the house on the property, depositing a large amount of sediment in the main channel threatening the bridge downstream. To prevent this from occurring in the future the bank will be protected with rip-rap and two in stream structures will be installed to take pressure off the bank while allowing sediment to pass through the reach. Approximately 630 feet of bank protection is needed in this location. There is currently rip rap on both banks down to the bridge below this section and rip rap on the opposite bank of this reach. This causes the stream more erosive force on the bank in question and if not addressed now will continue to be a problem in the future for both the homeowner, and the three business (on both sides) and bridge downstream. The rock work will ensure the stream does not continue to erode into a new channel.	Flood, Severe Storm	Town Highway Department with support of TCSWCD and NCRS	Completed	No

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Flood Early Warning System	Flood early warning system to mitigate future damage by monitoring two stream locations and river as well as three rain gauges and weather station. The computer stations will be located at Tioga Downs a local race track/casino in a secure room for monitoring of local flood events. The system will be tied into the Federal Flood Warning System and will be manned by community volunteers. A similar system in Corning NY has been working for over 30 years and is credited with proactive emergency service.	Flood	Town of Nichols with support from County Emergency Services and SWCD	In Progress <i>The flood early warning system was installed, but in Town Hall rather than Tioga Downs; the Town is working to install repeaters, which would require coordination with the Village.</i>	Yes
Town of Nichols Highway Garage Relocation	Construct a new facility to house the Town's highway equipment and DPW offices located out of the floodplain.	Flood	Town of Nichols Highway Department with support from the County	Completed	No
Well 1	Inform the facility operator that the well is in the floodplain. Provide them with information on how to mitigate the well and protect it to the 500-year event.	Flood	Facility Operator with support from the Town	Discontinued <i>Well 1 is operated by the Town and was established with funding from FEMA.</i>	No
Resiliency Tools Update	To improve resiliency and lessen the impact of storms on homes, businesses, and key assets during future floods, the Town of Nichols will update and adopt its Comprehensive Plan, update its zoning ordinance to reflect recent experience with the effect of storms on assets in the community, and customize its Flood Damage Prevention Local Law	All	Town Board, Code Enforcement	In Progress <i>The Comprehensive Plan is currently being updated. The Flood Damage Prevention Law Amendment was completed (§114-6 2018).</i>	Yes

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Bridge and Culvert Inspection and Upgrades	Conduct a comprehensive bridge/culvert inspection and appraisal and make necessary upgrades to reduce vulnerability in the Town of Nichols.	Severe Storm, Severe Winter Storm, Flood	Town Public Works	In Progress <i>The Depot Rd bridge is currently being worked on.</i>	Yes
Revitalization Plan Town of Nichols	Develop and implement a revitalization plan to enhance tourism and economic development in Nichols including: streetscape enhancements, wayfinding and gateway signage, beautification enhancements to the two existing DEC boat launches, and development of a 5-mile multi-purpose shoreline trail connecting Tioga Downs to the commercial district and recreation areas.	All	Town Board with support from the Village and Tioga County	No Progress <i>While a revitalization plan has not been initiated, a Long-Term Community Recovery Strategy was developed (2013).</i>	Yes
Joint Fire Station with the Village of Nichols	Current designing project to remediate the current fire house and expand capacity with a new addition. The goal is to make the structure more flood resilient by elevating the utilities and installing flood-resistant doors. The retrofit of the building will protect to the 500-year flood level and alleviate groundwater flooding. DASNY is currently reviewing the building specifications.	All	Nichols Joint Fire District	Completed	No

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Healthy Main Street Economy / Sewer Expansion, Town and Village of Nichols	Extend the municipal sewer system along River Road to the commercial district in the Village of Nichols to provide sanitary sewer for the Village and surrounding area within the Town of Nichols	All	Town Public Works with support from Village	No Progress	Yes

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the Town of Nichols identified new mitigation actions for inclusion in the 2024 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 of Nichols could expand and improve the identified capabilities to achieve mitigation, as described in Section 0 of this annex. Then, a more comprehensive range of actions were evaluated as described in Section 7.2 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.

The Town proposed 14 new mitigation actions to be included in the 2024 HMP update. These actions are included in Table 7-2 below.

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
T Nichols F1	FEMA HMGP Buyout Program Outreach Campaign	G1, G5, G6	Flood	Several privately owned properties are within the floodplain and at risk of substantial damage in the event of a flood.	Implement an outreach campaign to property owners within the floodplain to raise awareness of FEMA's HMGP buyout program. (2 homes are currently in this program.) This campaign would include information on program eligibility, processes, benefits, and technical resources.	No	No	6 months - 1 year	Floodplain Manager	\$	Raising awareness of the FEMA HMGP buyout program will promote the use of such program and reduce risk of property damage by flood by encouraging relocation to outside of the floodplain.	HMGP, NRCS WFPO, FMA	High
T Nichols F2	Culvert and Bridge Replacements	G1, G4	Flood	Several culverts and bridges within the Town, including the State Line Rd Culvert, become blocked by debris, exacerbating the severity of flood events. Additionally, existing drainage infrastructure may be undersized, restricting the efficient flow of water during flood events.	Complete an assessment of the culverts and bridges within the Town and, as deemed appropriate and necessary, upsize such infrastructure to allow for the efficient flow of water during flood events.	No	Yes	1-3 years	Highway Department with support from SWCD	\$\$\$	Assessing and upsizing culverts and bridges will reduce the blockage of such waterways and, therefore, the severity of flood impacts.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Nichols MHI	Hazardous tree inventory and removal	G1, G2, G4	Severe storm, flood	Dying and dead trees that fall during severe storm events damage infrastructure, result in road closures and electricity outages, contribute to the severity of flooding by blocking the flow of water in creeks and streams, and pose a public safety risk.	Incorporate the regular inspection and management of hazardous trees into the Town's existing maintenance procedures. Remove or complete other appropriate maintenance on trees at high risk of falling into waterways or damaging infrastructure.	No	No	6 months - 1 year	Highway Department	\$\$	By regularly inspecting and maintaining hazardous trees, the Town will reduce the impacts of severe storms on infrastructure and public safety.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	High
T Nichols D1	Drought mitigation and emergency plan	G1,G3,G5,G6	Drought	The Town has two wells and residents rely on private wells, both of which are at risk of drying out in during a drought event. Moreover, there are several agricultural operations within the Town that, in the case of a drought, may be unable to provide sufficient water to crops and livestock. The Town currently lacks a plan to supply Town facilities with back-up water or provide assistance or resources to residents during a drought event.	Develop and implement a Drought Mitigation & Emergency Plan that establishes an outreach campaign to raise awareness of strategies and resources for reducing residents' and agricultural operations' risk to drought (e.g. installing green infrastructure, maintaining a back-up water supply, planting cover crops, reducing tillage, harvesting rainwater, etc.). The outreach campaign will also provide information on relevant resources for technical assistance and grant funding, such as the USDA Emergency Conservation Program. Include in the Plan a strategy for supplying Town facilities with back-up water and providing support to residents and agricultural operations during drought.	No	No	6 months - 1 year	Highway Dept with support from SWCD and the Tioga County Agricultural Resource Group	\$	The Drought Mitigation & Emergency Plan will provide residents and local agriculture operations with the resources needed to reduce the impacts of drought on personal health, crops, and livestock. Many of these actions, such as planting cover crops and reducing tillage, will reduce the impacts of drought over many seasons.	HMGP, BRIC, NYS HM RLF, CDBG-MIT, WaterSMART Drought Response Program	High
T Nichols ET1	Heating and cooling center plan	G1, G5, G6	Extreme Temperatures	The Town currently lacks a formalized strategy for providing assistance to residents during heat and cold waves.	Develop a Heating & Cooling Center Plan that formally establishes the Town Highway Dept, Fire Dept, and Town Office buildings as heating and cooling centers and identifies the appropriate use of such facilities during heat waves and cold waves. Coordinate with the Army Depot to request its inclusion as a heating and cooling center as well. Outline communications methods to be utilized to raise community awareness of such heating and cooling centers and the services they provide.	Yes	No	6 months - 1 year	Highway Dept	\$	Formally establishing several buildings as heating and cooling centers, developing a strategy for the use of such facilities, and raising awareness of the availability of such facilities will increase overall public safety during heat waves and cold waves.	HMGP, CDBG-MIT	High
T Nichols MH2	Include natural hazards information in the Town's quarterly newsletter	G2, G3, G6	All Hazards (Flood, Severe Storm, Drought, and Extreme Temperatures)	Residents do not receive regular communications from the Town regarding natural hazards, their potential impacts, and mitigation resources.	Expand the Town's existing quarterly newsletter to include information on natural hazards that impact or may impact the community. This may include data on the occurrence and impact of natural hazards, suggestions for mitigation measures that residents can implement for their own property or business, events on the topic of natural hazards, and resources for technical assistance and funding. Ensure that these communications include each of the following hazards on at least an annual basis: Flood, Severe Storm, Drought, and Extreme Temperatures.	No	No	6 months - 1 year	Clerk	\$	Regularly providing residents with data, suggested actions, and resources related to natural hazards mitigation will raise public awareness of the risks of natural hazards and methods for mitigating risk. Such knowledge-sharing will encourage the implementation of natural hazard mitigation activities on private property to reduce infrastructural damage and promote public health and safety.	FEMA Emergency Management Performance Grant, Local budget	High
T Nichols MH3	NY-Alert Contract	G2, G3, G6	All Hazards (Flood, Severe Storm, Drought, and Extreme Temperatures)	The Town currently lacks a system for alerting residents of impending and ongoing natural hazard events.	Establish a contract with NY-Alert to implement a text- and email-based alert system for notifying residents of impending and ongoing natural hazard events. Ensure that these communications include each of the following hazards: Flood, Severe Storm, Drought, and Extreme Temperatures.	No	No	1-3 years	Town Board	\$	Implementing a text- and email-based alert system will protect property and public health and safety by providing critical information and resources to residents prior to and during natural hazard 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
T Nichols MH4	Review and Update Municipal Regulations	G1, G3, G4	All Hazards	Flooding, severe storms, drought, and extreme temperatures all pose risks to the Town. Several recent amendments have been made to the Zoning code, construction codes, flood damage prevention regulations (including mobile home regulations), as noted in the Planning Mechanisms and Capabilities section of this annex. However, there are additional reviews that could be conducted.	Review the following municipal laws and ordinances and update as necessary to incorporate hazard mitigation: - Regulations regarding water systems and sewage disposal (e.g., Local Law 1 of 2003, Local Law 4 of 2002, Local Law 2 of 2003) - Other codes and regulations as necessary Add or revise codes to ensure that new and existing developments are protected against a 500-year flood event and against other hazards. - Encouraging tree plantings and green roofs in building codes to mitigate extreme heat (extreme temperatures) - Updating or creating site design review standards to include natural environmental features such as wind buffers, requiring regular maintenance of trees in high-wind areas, and/or require wind-resistant building techniques such as structural bracing in the building codes for high-wind areas (severe storms) - Updating or creating laws about the water system so that they include a plan for obtaining for secondary water sources that may be used during drought conditions (drought)	No	No	1-3 years	Planning Board	\$	Updated municipal regulations will help ensure that new and existing developments are protected against flooding and other hazards, by incorporating hazard mitigation directly into planning processes. This will reduce the risk that is posed to people and property from the affected hazards.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, EPA EFC Grant Program, NYS CDBG Program	Medium
T Nichols F3	Stabilize Road Shoulders	G1, G4	Flood	Creeks and streams have limited space for high levels of water to go, which is a problem during flooding. This caused the shoulders of the roads to erode.	Stabilize road shoulders from further erosion. Make a list of locations in the Town where this is needed, prioritize locations, pursue funding, and implement projects	No	Yes	3-5 years	Highway Department	\$\$\$	Stabilizing road shoulders will reduce the impact of floods on travelers and create safer roads.	US CDBG-MIT, US HMGP, US BRIC, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Nichols F4	Funding for Old Town Garage Site	G1, G3, G4	Flood	The old Town Garage site is vulnerable to flooding. The building is no longer in use, but is still standing; having the building and pavement still on site exacerbates flooding relative to if the site was recreational green space.	Pursue grant funding and/or other funding sources for demolition of the old Town Garage, and funds to resiliently develop the site for recreational uses in accordance with floodplain guidelines, and in conjunction with the existing onsite fishing access ramp.	No	Maybe	1-3 years	Town Board	\$\$\$	Demolishing the old Town Garage and turning it into recreational green space would reduce the risk of flooding on site and in surrounding areas, because the plants and soil in the green space would be able to absorb floodwaters	US HMGP, US BRIC, US Flood Mitigation Assistance, NYS HM RLF, EPA's Greening America's Communities, EFC Green Innovation Grant Program, EPA Smart Growth Support, Urban Waters Small Grants	Medium
T Nichols F5	Watershed Assessments for Flood Mitigation	G1, G4, G5	Flood	Flooding infrequently causes moderate damages to a significant portion of the Town. However, watershed assessments remain incomplete, resulting in limited research and knowledge that can be referenced to assist with flood mitigation activities.	Complete a watershed study/creek assessment for watersheds and water bodies in the Town to better understand hydrologic conditions and flood risk zones. Utilize the findings to develop strategies for improving drainage patterns and reducing the risk of flooding, such as stormwater retention activities. Pursue funding sources for these activities.	No	Maybe - location-based action	3-5 years	SWCD	\$\$	Flood mitigation activities in the Town by the SWCD and other organizations will be better informed through the research provided through watershed assessments of the Town's watersheds and water bodies.	US HUD CDBG-MIT, FEMA HMGP, FEMA BRIC, NRCS WFPO	Medium
T Nichols F6	Nature-Based Flood Mitigation Solutions	G1, G3, G4	Flood	Flooding infrequently causes moderate damages to a significant portion of the Town. While infrastructure solutions are necessary, nature-based solutions are often particularly cost-effective and have other environmental and social benefits.	Assess the feasibility, costs, and benefits of nature-based solutions for flood mitigation, such as stormwater parks, vegetated swales, rain gardens, tree trenches, green streets and more. Additional actions to consider can be found on the FEMA Nature-Based Solutions Guide (https://www.fema.gov/sites/default/files/documents/fema_riskmap-nature-based-solutions-guide_2021.pdf). Create a plan to implement these solutions where feasible.	No	Maybe	3-5 years	Highway Department, with assistance from SWCD	\$\$	Nature-based solutions for flood mitigation can reduce the extent and severity of flooding, be cost-effective, and have environmental and social benefits such as reducing water pollution and enhancing recreational and scenic qualities of a place.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, NYS DOS Smart Growth program, NRCS WFPO, Environmental Impact Bonds, HUD Community Development Block Grant, EPA Section 319 Nonpoint Source Management Program	Medium
T Nichols ET2	Tree Planting Program	G1, G4, G5	Extreme temperatures	Areas that have less tree canopy experience hotter temperatures in the summer, contributing to the impact of heat waves.	Work with the SWCD to implement and promote a tree planting program through the SWCD's Tree and Shrub Sale.	No	Maybe - location-based action	6 months - 1 year	SWCD	\$	Planting additional trees in the Town will reduce the impacts of extreme temperatures, particularly heat waves.	US BRIC, SWCD, NRCS WFPO	High
T Nichols F7	Vulnerability Assessments of Critical Facilities	G1, G3, G6	Flood	It is currently undetermined whether or not several of the Town's critical facilities are protected against a 0.2% chance flood event or previous worst case flood event, leaving these facilities vulnerable to flood events.	Town staff will conduct vulnerability assessments to 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). This will serve as a first step toward protecting the facilities, if future funding becomes available. There are no local resources available at this time to conduct engineering design and retrofitting on these structures. Future efforts towards protecting these structures to an 0.2% chance flood event (or previous worst case flood event, if applicable) will be considered if funding becomes available. These may include engineering design, building retrofits, or other measures.	Yes	Maybe	3-5 Years	Highway Department	\$	Assessing the Town's critical facilities for their level of protection against a 0.2% chance flood event (or previous worst case flood event, if applicable), is a first step to ensuring that these facilities remain operable during and after flooding events, reducing the overall risk to people and infrastructure.	US HMGP, US BRIC, US Flood Mitigation Assistance, US HUD CDBG-MIT, NYS HM RLF	Medium

7.3 Mitigation Action Prioritization

Each of the Town's proposed mitigation actions was evaluated and prioritized according to the criteria listed in Section 7.2.4 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
T Nichols F1	FEMA HMGP Buyout Program Outreach Campaign	2	3	3	3	11	High
T Nichols F2	Culvert and Bridge Replacements	3	1	2	2	8	Medium
T Nichols MH1	Hazardous tree inventory and removal	3	2	3	3	11	High
T Nichols D1	Drought mitigation and emergency plan	2	3	3	3	11	High
T Nichols ET1	Heating and cooling center plan	2	3	3	2	10	High
T Nichols MH2	Include natural hazards information in the Town's quarterly newsletter	2	3	3	3	11	High
T Nichols MH3	NY-Alert Contract	2	2	3	3	10	High
T Nichols MH4	Review and Update Municipal Regulations	2	3	3	1	9	Medium
T Nichols F3	Stabilize Road Shoulders	2	1	2	2	7	Medium
T Nichols F4	Funding for Old Town Garage Site	2	1	3	3	9	Medium
T Nichols F5	Watershed Assessments for Flood Mitigation	3	2	3	1	9	Medium

Mitigation Action ID	Mitigation Action Name	Ability to Increase Resilience	Economic Feasibility	Low Environmental Impact	Ability to Implement	Total Score	Priority
T Nichols F6	Nature-Based Flood Mitigation Solutions	2	2	2	3	9	Medium
T Nichols ET2	Tree Planting Program	1	3	3	3	10	High
T Nichols F7	Vulnerability Assessments of Critical Facilities	2	3	1	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 as described in Section 7 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

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 Nichols 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.

Town of Owego

This section presents the jurisdictional annex for the Town of Owego for the 2024 Tioga 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 the Town of Owego regarding this Jurisdictional Annex are identified as follows:

- Primary: Donald Castellucci, Jr., Town Supervisor
 - (607)687-0123 x2401
 - castelluccid@townofowego.com
- Alternate: Dean Morgan, Deputy Supervisor
 - (607)687-0123 Ext. 2433
 - morgand@townofowego.com

Town of Owego Website: <https://www.townofowego.com/>

2 COMMUNITY SNAPSHOT

2.1 Demographics

The 2020 Census estimated that 18,777 people live in the Town of Owego. The Town's population has decreased by 6% since the 2010 Census (19,883). The median age in the Town is 45.8 years and 21% of the population is over the age of 65. The median household income in the Town is \$71,313.

2.2 Location & Land Characteristics

The Town of Owego is located in the southeast corner of the county, and the Village of Owego is in the western part of the town. Both town and village are west of Binghamton, New York Tioga County. The Town covers approximately 105.8 square miles. The properties within the Town have a total assessed value of approximately \$1,171,246,182 which is distributed across a variety of property classes.

Major transportation corridors in the Town include New York State Route 17 (future I-86), which crosses the Town on the river's south bank. New York State Route 17C follows the river along the north bank. New York State Route 38 and New York State Route 96 converge north of the Village of Owego, as described in Section 2.8 of the main body of the HMP. Key water features within the Town include the Susquehanna River which flows across the town, dividing it into two parts. Owego Creek flows into the Susquehanna at Owego village and marks the west Town line.

2.3 Governing Body

The Town of Owego is governed by a Town Board consisting of a Supervisor and four board members.

2.4 Recent and Anticipated Future Development

According to a review of 239 Referrals since the last County HMP (2018) and Town records, several new developments have been approved or proposed within the Town. The proposals that the Town received are summarized in Table 2-1 below. At least one of the proposals for the Town is located in the Special Flood Hazard Area (1% annual chance flood event area), and none of the proposals for the Town were specified as being located in the Moderate Flood Hazard Area (0.2% annual chance flood event area).

Table 2-1. Developments from 2018 to March 2023

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
9/6/2018	Approval of the Special Use Permit with the Conditions Noted	4890 Gaskill Road	Special Use Permit	Agricultural (A)	The applicant is proposing to develop, construct, and operate a 4.98MW solar photovoltaic system via a lease agreement with the property owner on a property on the west side of Gaskill Road, just south the Wagner Lumber facility.	Unspecified
10/5/2016	Approval of Site Plan Review with the Conditions Noted	North side of the end of Corporate Drive	Site Plan Review	Industrial (IN)	The applicant plans to establish and operate a steel galvanizing manufacturing facility in the Tioga Industrial Park at the northwest end of Corporate Drive off State Route 38.	No
4/5/2019	Approval of the Site Plan Review with the Conditions Noted	4500 State Route 434	Site Plan Review	General Business (GB)	The applicant plans to construct a new 4,000-square-foot commercial building and a separate 1,500-square-foot storage building on this 3-acre property that is currently vacant land located on the eastern corner of the intersection of State Route 434 with Forest Hill Road.	Unspecified
2/7/2020	Approval of the Rezoning Request	Barnes Creek Road	Rezone to Residential C (RC)	Residential B (RB)	The applicant and property owner is requesting to rezone 11 acres of said property from Residential B (RB) to Residential C (RC).	Unspecified
8/7/2019	Approval of the Special Use Permit with the Conditions Noted	8740 State Route 434	Special Use Permit	General Business (GB)	The applicant plans to repurpose the 1,000-square-foot commercial building (house) that was previously an optometrist office into a coffee café with a drive-through window.	Unspecified

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
8/7/2020	Approval of the Special Use Permit with the Conditions Noted	267 Cafferty Hill Road	Special Use Permit	Agricultural (A)	The applicant is proposing to develop, construct, and operate a 4.98MW solar photovoltaic system via a lease agreement with the property owner located on Cafferty Hill Road, near the intersection with Campville Road.	Unspecified
2/5/2021	Approval of the Floodplain Development Special Use Permit with the Conditions Noted	Between State Route 434 and Main St	Special Use Permit	Highway Interchange (HIC)	The applicant is requesting a floodplain development special use permit to improve the grade to this currently vacant, approximately 9-acre site to meet the requirements of the Town of Owego's Flood Damage Prevention law, thereby making the site more marketable for future commercial development.	Unspecified
2/5/2021	Approval of the Special Use Permit with the Conditions Noted	4500 State Route 434	Special Use Permit	General Business (GB)	The applicant is requesting a special use permit to add five 30'x50' storage units for public rental to the rear of his pending engineering business office located near the corner of State Route 434 and Forest Hill Road in Apalachin.	Unspecified
5/7/2021	Approval of the Special Use Permit with the Conditions Noted	936 Taylor Road	Special Use Permit	Industrial (IN)	The applicant is requesting a special use permit to construct an 18,000-square-foot, two-story Article 28-compliant medical building for Lourdes.	1% annual chance flood event area
5/7/2021	Approval of the Special Permit	988 S Apalachin Rd (Lourdes Walk In)	Outdoor Recreation Special Permit	Agricultural (AG)	The applicant is requesting a special permit to establish and operate a private outdoor recreation facility at their existing residence and 5.34-acre property on South Apalachin Road.	1% annual chance flood event area

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
6/4/2021	Approval of the Special Use Permit with the Conditions Noted	567 Main Street	Special Use Permit	General Business (GB)	The applicant is requesting a special use permit to expand their existing automobile sales and detail garage business, started in July 2015, located at the corner of Main Street and Pennsylvania Avenue in Apalachin.	Unspecified
7/9/2021	Approval of the Special Use Permit	2635 Day Hollow Road	Special Use Permit	Agricultural (A)	The applicant is proposing to develop, construct, and operate a 4.98MW CDG solar photovoltaic system via a lease agreement with the property owner on about 28 of 150 acres of farmland located on Day Hollow Road.	Unspecified
7/9/2021	Approval of the Special Use Permit	1385 Frank Hyde Rd	Outdoor Recreation Special Permit	Agricultural (AG)	The applicant is requesting a special permit to establish and operate an outdoor canine (K9) sports facility on the field portion (along the road) of their existing residential and 67-acre property on Frank Hyde Road.	Unspecified
9/1/2021	Approval of the Site Plan Review	567 Main Street	Site Plan Review	General Business (GB)	The applicant has obtained a Special Use Permit from the Town of Owego ZBA, and is requesting site plan review approval to expand their existing automobile sales and detail garage business, started in July of 2015, located at the corner of Main Street and Pennsylvania Avenue in Apalachin.	Unspecified
2/3/2022	Approval of the Special Use Permit with the Conditions Noted.	NYS State Route 434	Special Use Permit	Zoning Board of Appeals	The applicant is proposing to develop, construct, and operate a 4.95MW /AC solar energy photovoltaic system via a lease agreement with the property owner on this 40.4-acre property, which is currently mostly vacant land.	Unspecified

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
2/4/2022	Approval of the Site Plan Review, Special Use Permit, and Area Variance	Tax Map No. 129.12-1-1.7	Site Plan Review and Special Use Permit and Area Variances	Residential B (GB)	The applicant is proposing to develop, construct, and operate a 104-foot-high telecommunications tower and associated improvements via a lease agreement with the property owner (Lockheed Martin) on this 27-acre property, which is currently vacant land.	Unspecified
3/18/2022	Approval of the Rezoning Request	Tax Map No. 106.00-3-19.11	Rezoning	Agricultural (AG) to Industrial (IN)	The applicant wishes to rezone their said 10.99-acre property, located between the IDA railroad and State Route 38, from the current Agricultural zoning to Industrial zoning.	Unspecified
4/6/2022	Approval of the Rezoning Request	Tax Map No. 158.00-1-2	Rezoning	Residential B (RB) to Highway Interchange (HIC)	The applicant wishes to rezone their said property, located between Main Street, and his next property fronting on NYS Route 434, from the current Residential B to Highway Interchange.	Unspecified
4/8/2022	Approval of the Rezoning Request	Along State Route 434	Rezoning	Agricultural (AG) to Highway Interchange (HIC)	The applicant wishes to rezone about 1/3 of their said 69-acre property from its current Agricultural to Highway Interchange (HIC) as the eastern portion is, so that the entire property will be zoned Highway Interchange (HIC).	Unspecified
5/5/2022	Approval of the Special Use Permit with Conditions Noted	9792 State Route 434	Special Use Permit	Industrial (IN)	The applicant is proposing to operate a landscaping business in an existing structure in the floodplain.	1% annual chance flood event area
6/23/2022	Approval of the Zoning Amendments	Townwide	Zoning Amendments for Solar Energy	All Zoning Districts	The Town of Owego has developed regulations for solar energy projects that will be allowed in all zoning districts. Solar energy projects will not be allowed within wellhead areas.	Unspecified

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
7/6/2022	Approval of the Site Plan Review with the Conditions Noted	West side of State Route 17C south of Kinney Road	Site Plan Review	General Business (GB)	The applicant is requesting site plan review to construct, establish, and operate a 10,640+/- square foot general retail store.	Unspecified
7/6/2022	Approval of the Site Plan Review with the Conditions Noted	Corner of State Route 434 and Forest Hill Road	Site Plan Review	General Business (GB)	The applicant is requesting site plan review to relocate their existing storage shed sales facility to this new location.	Unspecified
7/8/2022	Approval of the Site Plan Review with the Conditions Noted	822 Holmes Road	Site Plan Review and Special Use Permit	Agricultural (AG)	The applicant is requesting site plan review to relocate their existing children's summer camp facility from Montrose Turnpike to this location on Holmes Road.	Unspecified
8/5/2022	Approval of the Special Use Permit	Jacobs Road	Special Use Permit	Residential B (RB) and General Business (GB)	The applicant is proposing to develop, construct, and operate a 13.5 MW/AC solar photovoltaic system via a lease agreement with the property owner on about 56 of these 90 acres of vacant farmland located on Jacobs Road, which is off Pennsylvania Avenue in Apalachin.	Unspecified
8/5/2022	Approval of the Floodplain Development Special Use Permit with the Conditions Noted	State Route 434 (Catskill Shed)	Floodplain Special Use Permit	Highway Interchange (HIC)	The applicant is requesting a floodplain development special use permit to establish and operate a retail sales facility for sheds, cabins, and other backyard items.	1% annual chance flood event area

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
10/4/2022	Approval of the Rezoning Request	447-492 DeGroat Road	Rezoning	Agricultural (AG), Neighborhood Transition (NT) and Residential A (RA) to all Agricultural (AG)	The applicant wishes to rezone about 1/3 of their said 61.58-acre property from its current Agricultural, Neighborhood Transition, and Residential A to all Agricultural.	Unspecified
11/4/2022	Approval of the Site Plan Review and Special Use Permit with the Conditions Noted	NYS State Route 96	Site Plan Review and Special Use Permit	General Business (GB)	The applicant is proposing to construct and operate an eight-pump gas station on their property that was the former Lawler's grocery store.	Unspecified
12/8/2022	Approval of the Floodplain Development Special Use Permit and Site Plan Review with the Condition Noted	7858 State Route 434 (Dunkin Donuts)	Floodplain Special Use Permit and Site Plan Review	Highway Interchange (HIC)	The applicant is requesting a floodplain development special use permit and site plan review to erect a new 1,695 square foot Dunkin Donuts establishment on site that will comply with current floodplain regulations.	1% annual chance flood event area
2/2/2023	Approval of the Site Plan Review with the Conditions Noted	9578 State Route 434	Site Plan Review	Neighborhood Transition (NT)	The applicant is requesting site plan review to establish a retail produce stand that will be open from May to November.	Unspecified
3/1/2022	Approval of the Site Plan Review	1 Recycle Dr	Site Plan Review	Industrial (IN)	The applicant is requesting site plan review to construct and operate a 20,800-square-foot chopper building, a new addition to the current recycling facility.	Unspecified

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
3/3/2023	Approval of the Special Use Permit and Area Variance with the Condition Noted	1321 West Creek Road	Special Use Permit	Agricultural (AG)	The applicant is proposing to establish and operate a junkyard permit for his property on the corner of West Creek Road and Park Settlement Road in Owego.	Unspecified
3/3/2023	Approval of the Special Use Permit with the Conditions Noted	6485 State Route 434	Special Use Permit	Highway Interchange (HIC)	The applicant is proposing to relocate (from Richford) and operate a full-service dog training and care business at this location on State Route 434, across from Sweeney's Plaza.	Unspecified

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The Town of Owego 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 that 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	Highway maintenance Relocation of three municipal departments outside of the floodplain after the 2006 flood Added standby power to all municipal water supplies after 2006 and recently received a FEMA grant for WWT station Acquired new generators and plans to service both sides of the river
Mitigation Planning Committee	No	The Town participates in Hazard Mitigation Planning and meets outside of the 5-year schedule to review progress on action items in the plan.
Mutual Aid or Shared Services Agreements	Yes	Shared service agreements with Tioga County (coordinates municipal efforts) and NYS DOT. Code Enforcement Response Team (CEDAR) helps evaluate properties and damage, coordinating with other municipalities in NYS. The Town leases space to NYS police, who provide services during flood events.
Planning Board	Yes	
Zoning Board	Yes	
Other	No	
Development Approvals		
Building Code	Yes	NYS Uniform Fire Prevention & Building Code
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	Yes	4 (December 2017)

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?)
Fire Department ISO Rating	Yes	Owego includes four fire depts: <ul style="list-style-type: none"> • Campville Fire Department: ISO Rating 03/3Y • Southside Fire Department: [ISO Rating not provided] • Apalachin Fire Department: ISO Rating 3/3Y • Newark Valley Fire Department: [ISO Rating not provided]
Site Plan Review Requirements	Yes	
Other	No	
Funding Resources		
Authority to Levy Taxes	Yes	
Capital Improvement Project Funds	Yes	Town
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	FEMA, EFC, USDA The Town has a few FEMA projects underway since the 2011 flood that have not yet closed out.
General Obligation Bonds and/or Special Tax Bonds	Yes	
Impact Fees for New Development	Yes	
State Funding Programs (i.e., NYSEFC, NYSOCR, NYSDEC, others)	Yes	WQIP Used to receive code enforcement funding from NYS (30 years ago) All parks are funded by Town/Village, not NYS or County
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	Yes	The Town has fees for water and wastewater, plus additional non-utility fees (e.g. camping fees, pavilion fees, building permit fees).
Other	No	
Land Use Regulations		
Density Controls	Yes	Lot coverage regulations in zoning code
Flood Insurance Rate Maps	Yes	
NFIP Participant / Floodplain Ordinance	Yes	Zoning Chapter 125
Hillside Development Regulations	No	
Open Space Preservation	Yes	
Stormwater Management Regulations	Yes	Chapter 99 Town of Owego code MS4 area
Streambank Setback Regulations	No	
Subdivision Regulations	Yes	Chapter 103 Town of Owego code
Zoning Ordinance	Yes	Zoning Chapter 125
Other	Yes	Solar law focused on commercial solar (5 MW or larger)
Natural Resources		
Forest/Vegetation Management	No	
Stream Corridor Management	No	
Stream Dumping Regulations	No	State laws apply

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?)
Urban Forestry and Landscape Management	No	
Watershed Management	Yes	Work with SWCD
Wetland Regulations	Yes	DEC and EPA
Other	Yes	Follows Uniform Procedures Act (UPA), Article 70 of the NYS Environmental Conservation Law (ECL)
Plans		
Capital Improvement Plan	Yes	
Comprehensive Emergency Management Plan	Yes	Updated in 2023
Comprehensive Plan	Yes	Town of Owego Comp Plan (1997)
Continuity of Operations Plan	Yes	Emergency Operations Plan
Economic Development Plan	Yes	Tioga County 2020 Strategic Plan
Other	No	
Programs/Organizations		
Climate Smart Community	No	
Local Emergency Preparedness/Disaster Response Organizations	Yes	CEDAR
Local Environmental Protection Organizations	No	
National Weather Service StormReady Certification	Yes	The County is a StormReady county. Town in the process of becoming StormReady through NOAA.
Outreach Programs		In progress (see below)
Partnerships with private entities addressing mitigation or disaster response	Yes	County
School Programs or Adult Educational Programs	No	
Other	No	
Staff Positions		
Civil Engineer	No	
Code Enforcement Officer	Yes	
Emergency Manager	Yes	
Floodplain Administrator	Yes	
Planner/GIS Coordinator	Yes	
Other	No	
Technical Abilities		
Grant Writing	Yes	
Hazard Information Centers	No	In progress
Hazard Warning Systems	Yes	Reverse 911 system, NY Alerts
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.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10.3 of the main body of the HMP.

3.2 Integration of Planning Efforts

The Town of Owego understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The Town intends to reference the 2024 Tioga 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 Owego may use the local laws assessment (included in Section 2 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.

The Town has listed other ways to expand/improve these existing capabilities (Table 2) or further integrate hazard mitigation planning into other planning mechanisms Below:

- Town departments are now on one campus, which opened in 2021/2022, instead of at four campuses. This makes coordination between departments more efficient.
- The Town will make small updates to the zoning code and development regulations as needed, which have the potential to reflect hazard mitigation.
- The Town of Owego is in the process of becoming a Storm Ready community through NOAA.
- The Town of Owego organized an emergency preparedness course through FEMA and the army (the NY Citizen Preparedness Training Program) in conjunction with fire districts and school districts.
- The Emergency Plan is on the Town's website, but the Town is also in the process of developing another page for floodplain maps, weather stations, etc. This likely will include data from a camera documenting current weather conditions and river height.
- The Town funded an Emergency Operations Center, which will have the capability to be a control center, including multiple television screens to assist with decision-making.

This is done in coordination with the fire departments, as part of the Storm Ready program.

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 four natural hazards: flooding, severe storm, extreme temperatures, and drought. Descriptions of each of these hazards are included in Section 5 of the main body of the HMP.

The hazard analysis criteria used to evaluate the Town's vulnerability to each natural hazard are summarized in *Table 4-1*, and the results are presented in *Table 4-2*.

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

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)
Severe Storm (Hail, Ice Storm, Lightning, Strong Wind, Winter Weather, Tornado, Hurricane/ Tropical Storm)	1	2	3	2	8 – Moderate	2	N/A
Flooding (Coastal Flooding, Riverine Flooding, Ice Jam)	2	1	3	1	7 – Moderate	3	N/A
Drought	3	1	3	2	9 – High	1	N/A
Extreme Temperatures (Cold Wave, Heat Wave)	1	1	3	2	7 – Moderate	3	N/A

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 5 of the main body of the HMP. This includes the October 31, 2019 thunderstorm wind event (DR-4472) after which the Town received FEMA funding to repair a bridge. The following is a subset of events that occurred specifically within the Town. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Town.

Table 4-3. Hazard Event Records, 2018-2022

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Thunderstorm Wind	5/3/2018	50	\$25,000.00	-
Flash Flood	8/14/2018		\$10,000.00	-
Thunderstorm Wind	6/29/2019	50	\$5,000.00	-
Flood	4/30/2020		\$5,000.00	-
Thunderstorm Wind	7/23/2020	50	\$5,000.00	-
Thunderstorm Wind	8/27/2020	50	\$5,000.00	-
Flash Flood	12/24/2020		\$5,000.00	-
Thunderstorm Wind	7/7/2021	50	\$4,500.00	-
Thunderstorm Wind	7/13/2021	50	\$3,400.00	-
Thunderstorm Wind	8/4/2022	50	\$5,000.00	-
Total			\$72,900.00	None Reported

4.3 Floodplain Statistics

Key waterways in the Town are described in Section 2.2. 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 67,608 acres in the Town, approximately 7.22% are located within the 1% annual chance flood event area and approximately 1.10% are located within the 0.2% annual chance flood event area. The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-5. 1,946 parcels in the Town are located within the 1% annual chance flood event area, with an estimated total structure value of \$334,473,610. 1,185 parcels in the Town are located within the 0.2% annual chance flood event area, with an estimated total structure value of \$250,067,921.

Table 4-4. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	1% Annual Chance Flood Event Area	0.2% Annual Chance Flood Event Area
67,608	7.22%	1.10%

Note: Data is based on political boundaries and, therefore, is inclusive of the Village of Owego.

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

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Agricultural	73	\$4,366,100	19	\$656,600
Commercial	207	\$36,428,350	223	\$36,034,056
Community Services	36	\$62,811,900	36	\$58,167,300
Industrial	15	\$75,661,870	13	\$77,174,170
Parks and Open Space	8	\$150,100	3	\$39,500
Public Services	39	\$88,477,189	25	\$36,025,320
Residential	1,061	\$63,658,501	652	\$39,914,675
Vacant	489	\$533,500	200	\$345,100
Recreation	18	\$2,386,100	14	\$1,711,200
Total	1,946	\$334,473,610	1,185	\$250,067,921

*Structure Value estimated by subtracting parcel Land Assessed Value from Total Assessed Value

Note: Data is based on political boundaries and, therefore, is inclusive of the Village of Owego.

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 insured structure incurs damage costs that are over 50% of its market value, the owner must comply with the local floodplain regulations 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.

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 Owego currently participates in the NFIP (Community ID 360839), and its current FIRM(s) became effective on 4/17/2012. FIRMs are available via FEMA's Flood Map Service Center (<https://msc.fema.gov/portal/home>). Digital FIRM data is also available for Tioga County via FEMA's National Flood Hazard Layer Viewer, which was referenced during the development of this annex. The Town joined the NFIP on 6/15/77. The Town's local laws governing floodplain development and NFIP compliance are located in Chapter 125 Article XVI of the Town code. There were no compliance issues identified in this hazard mitigation planning process. 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 87 repetitive loss properties in the Town of Owego. Such properties 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

No concerns about future changes in hazard impact specific to the Town were identified during the hazard mitigation planning process. The effects of climate change and other factors on future hazard events in Tioga County are covered in more detail in Section 5 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response or that requires a special emergency response in the event of hazardous incidents, as identified by the Town of Owego. These 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 and Village 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 Owego, and any particular vulnerabilities of note. More information about hazard vulnerability, including a tool for understanding the vulnerability of community assets to events of varying

magnitudes, is included in Section 6 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, the Town's critical facilities are protected to a 0.2% annual chance (500 year) flood event or will be protected within this plan's timespan. 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

The Town of Owego does not have any high-hazard potential dams located within the municipal boundaries.

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 Owego has identified the following additional assets for consideration in hazard mitigation planning:

Table 5-2. Additional Assets

Important Assets	Description
Senior Care Facilities	The facilities are privately owned (not controlled by the Town), but house populations who may be more vulnerable to natural hazard events.

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

6.1 Flood

The Town of Owego has ranked its overall vulnerability to a flood event as moderate, as indicated in Table 4-2. Flood events occur rarely in the jurisdiction and affect the entire jurisdiction, causing moderate damage. The jurisdiction is well-prepared for flood events.

Information on flood event records (Section 4.2), 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 Owego has ranked its overall vulnerability to a severe storm event as moderate, as indicated in Table 4-2. Severe storms occur infrequently in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is moderately prepared for severe storm events.

Records of severe storm events are described in Section 4.2. 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 the operation of critical facilities. Damage to the Town's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damages would primarily impact the more populated portions of the Town, such as the hamlets of Apalachin, Flemingville, Gaskill Corners, Gibsons Corners, South Owego, and Campville, along with the neighborhoods of Crestview Heights and Tioga Terrace. The Town completes tree maintenance within the Town road right of ways to minimize

potential damages to overhead utility lines. Private utility right-of-ways are generally maintained by individual utility companies.

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 Owego has ranked its overall vulnerability to a drought event as high, as indicated in Table 4-2. Drought events occur rarely in the jurisdiction and affect the entire jurisdiction, causing major damage. The jurisdiction is moderately prepared for drought events.

The Town of Owego is served by a public water supply. This water supply, and certain critical facilities (e.g. Wells 1 & 2 at Consolidated Water District Service Area #2, Wells 1 & 2 at Consolidated Water District Service Area #3, Wells 1 & 2 at Consolidated Water District Service Area #4, and Consolidated Wastewater Treatment Plant #1 and Plant #2) 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. Additionally, any residents who rely on private wells would also be susceptible to the impacts from a drought due to low water yields.

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 Owego has ranked its overall vulnerability to an extreme temperature event as moderate, as indicated in Table 4-2. Extreme temperature events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is 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 6% of the population in the Town is under 5 years old, and 21% of the population is over 65 years old. Approximately 13% 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

8% 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.

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 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:

- None identified

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

- None identified

The plan was revised to reflect the following changes in community priorities since the 2018 HMP Update:

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

Additional concerns that the Town would like addressed in the plan include:

- None identified

6.6 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 proposed 16 mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized in Table 7-1 below

Table 7-1

Table 7-1. Status of 2018 Mitigation Actions

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Develop long-term solution to flooding of Pennsylvania Avenue properties	Recruit the Tioga County Soil and Water Conservation District (SWCD) to conduct hydrological studies of the Creek, the tributary, flooded properties, and the adjacent built environment. Determine whether the banks of the tributary – once dry but now intermittently overflowing – should be upgraded to contain current levels of water flow. Develop funding estimates if this appears to be a feasible option, or explore acquisition, elevation, or relocation of homes if containment does not appear to be an effective solution	Flood	County Public Works, Town Highway Department	Completed	No (but see Notes column)

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Remove 3 SRL properties from the floodplain	Remove 3 SRL properties on Marshland and Wicks Roads. The collective assessed value of the properties is \$184,000, although the cumulative and collective repetitive losses total a greater amount. The project would include acquiring and demolishing the structure from the flood plain, removing families from harm's way, and reducing future losses.	Flood	Planning & Zoning Department	In Progress	Yes
Town of Owego Fueling Station and Materials Storage Facility	Relocation of facilities to Town Hall Campus site, which is located out of the floodplain. The Town is planning to build near Town Hall a new Highway Department Barn, which will house salt, dirt, and tools for road maintenance. There are also plans to construct a Shared Services Building on this site, which would include Highway Department offices. Moving refueling operations will afford an element of safety to fuel supplies and consolidate all facets of Highway Department operations so that manpower and materials are close at hand in the event of an emergency.	Flood, Severe Storm, Severe Winter Storm	Town Consulting Engineers with support from Town of Owego Highway Department, Parks Department, Utilities Department, Planning Department, NYSOEM	Completed	No

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Continue outreach and education regarding hazards	<ul style="list-style-type: none"> ○ Provide and maintain links to the HMP website, and regularly post notices on the County/municipal homepage(s) referencing the HMP webpages. ○ Prepare and distribute informational letters to flood vulnerable property owners and neighborhood associations, explaining the availability of mitigation grant funding to mitigate their properties, and instructing them on how they can learn more and implement mitigation. ○ Use email notification systems and newsletters to better educate the public on flood insurance, the availability of mitigation grant funding, and personal natural hazard risk reduction measures. ○ Work with neighborhood associations, civic and business groups to disseminate information on flood insurance and the availability of mitigation grant funding. 	All Hazards	Municipality with support from Planning Partners, FEMA	In Progress	Yes
Elevation of motor control center at Sewage Treatment Plant #2	Elevate motor control center above the 500-year flood level	Flood	Town Utilities	Completed	No
Standby power to sewage pump stations	Two sewage pump stations do not have backup power. They are difficult to reach during flood events and need to be monitored to ensure no surface waste discharge	Flood	Town Utilities	In Progress	Yes
Critical Facilities – hazmat facilities	There are two hazmat located in the Town; however, the Town does not have jurisdiction over them.	Flood	Town Floodplain Administrator working with the facility owner/operator	Discontinued	No

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Critical Facilities – Apalachin Central Schools	The Town will notify the facility owner / operator that their facility is located in the floodplain and should be mitigated to the 500-year event. The Town will provide different projects to address this problem.	Flood	Town Floodplain Administrator working with the facility owner/operator	Discontinued	No
Critical Facilities – Wastewater Lift Stations	The Town will notify the facility owner / operator that their facility is located in the floodplain and should be mitigated to the 500-year event. The Town will provide different projects to address this problem.	Flood	Town Utilities	In Progress <i>The Town is in the process of mitigating future impacts at its lift stations.</i>	Yes
Develop a Shared Services Facility for the Highway, Utilities and Parks Departments	The Town will notify the facility owner / operator that their facility is located in the floodplain and should be mitigated to the 500-year event. The Town will provide different projects to address this problem.	Flood	Town Board	Completed	No
Highway, Parks, and Utilities Office Relocation	This project will create a new shared services campus located outside of the 100-year floodplain. The project goal is to house the Town (and some selected Village) offices to ensure continuous municipal service delivery during future storm events. This project includes construction of a new facility at the existing Town Hall Campus that will house the Town's highway equipment, Sewer and Water Departments, and Parks Offices in one new building. It is anticipated that the new building will measure approximately 42,620 SF, most of which will house the Town's highway equipment.	Flood, Severe Storm, Severe Winter Storm	Town Board, Town Highway, Town Parks	Completed	No

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Main Street Water Pump House and Well Head Replacement	Meet an urgent need to replace Main Street Water Pump House & Well Head redevelopment, which was destroyed during Tropical Storm Lee. Main Street Water Pump House & Well Head located at 1313 Main Street in Apalachin, was destroyed. The facility has been out of service since the 2011 flood event. This project meets an urgent need to replace this critical facility.	Flood, Severe Storm	Town Board, Town Utilities	Completed	No
Gaylord Road Culvert Replacement	Replace the existing Gaylord Road culvert with 35 feet of 20x12 precast concrete box culvert with reinforced concrete headwalls and wing walls. Construction will also include excavation, 1,200 cubic yards of select granular fill, 45 tons of asphalt pavement, 45 feet of bridge rails and assemblies, and topsoil and seed.	Flood, Severe Storm	Town Highway	Completed	No
Water and Sewer Extensions along Route 434.	Extend public water and sewer along Route 434 to encourage economic development located outside of the floodplain to promote economic growth and provide greater resiliency in the wake of future flood events	Flood	Town Board, Town Utilities	No Progress	Yes
Critical Facilities – Wells	The Town will notify the facility owner/operator that their facility is located in the floodplain and should be mitigated to the 500-year event. The Town will provide different projects to address this problem.	Flood	Town Floodplain Administrator working with the facility owner/operator	In Progress <i>The Town is in the process of mitigating future impacts at its lift stations.</i>	Yes

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the Town of Owego identified new mitigation actions for inclusion in the 2024 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 of Owego could expand and improve the identified capabilities to achieve mitigation, as described in Section 1 of this annex. Then, a more comprehensive range of actions were evaluated as described in Section 7.2 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.

The Town proposed 13 new mitigation actions to be included in the 2024 HMP update. These actions are included in Table 7-2 below.

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
T Owego D1	Inter-district Water Coordination	G1, G4, G5	Drought	Drought occurs rarely in the Town of Owego, causing minor damages on a Town-wide basis. Some, but not all, districts are capable of supplying other districts in the Town with water.	Redo pump controls in area without backup water supply, so that such area has a backup water supply.	No	Maybe – location-based action	3-5 years	Utilities	\$\$	Increasing coordination of water supplies between different districts within the Town will decrease the risk that drought poses, because more districts will have a backup water supply.	FEMA HMGP, FEMA BRIC, NYS HM RLF, WaterSMART Drought Response Program, USDA's Rural Development Water and Environmental Programs (WEP), Economic Development Administration Disaster Recovery, EPA's Clean Water State Revolving Fund (CWSRF), EPA EFC Grant Program	Medium
T Owego F1	Fox Rd Culvert Replacement	G1, G4	Flooding	Fox Road is a problem area during flooding. Drivers need to go through Pennsylvania if they are detoured, which poses a major disruption.	Replace structures related to the culvert on Fox Road, as needed to mitigate flooding, including the structure on the Pennsylvania end of the culvert.	No	Maybe – location-based action	1-3 years	Highway Dept	\$\$	Replacements on the Fox Rd culvert will reduce the flooding, risk faced by vehicles on Fox Rd, and disruptions to the economy and citizens.	NYS CDBG-MIT, US HMGP, US Flood Mitigation Assistance, US BRIC, NYS HM RLF	Medium
T Owego F2	Assessment and Improvements to Culverts, Bridges, and Other Infrastructure	G1, G3, G6	Flooding	Flooding occurs regularly and causes moderate damages across the Town.	Evaluate culverts, bridges, and other infrastructure across the town to assess and prioritize improvements. Carry out repairs and improvements as necessary.	No	Maybe – location-based action	3-5 years	Highway Dept with support from SWCD	\$\$\$	The extent and severity of flooding could be reduced through improvements to culverts, bridges, and other infrastructure, thereby reducing property damage and risk caused by flooding.	NYS CDBG-MIT, US HMGP, US Flood Mitigation Assistance, US BRIC, NYS HM RLF	High
T Owego F3	Outreach Regarding Buyouts	G1, G2	Flooding	Flooding occurs regularly and causes moderate damages across the Town. Many properties are located within the floodplain.	Conduct outreach to property owners regarding buyouts.	No	No	6 months – 1 year	Dept of Planning & Zoning	\$	Educating property owners regarding buyouts may be a first step in relocating of some properties out of the floodplain. In the long run, this will reduce the damages that flooding has on properties in the Town.	FEMA HMGP, FEMA BRIC, FEMA FMA, NYS HM RLF, NYS CDBG-MIT, EPA's Greening America's Communities, EPA Smart Growth Support, USDA/NRCS Emergency Watershed Protection Program	Medium
T Owego F4	Create an Inventory of Properties within Floodplain	G1, G2, G6	Flooding	The Town does not have an inventory of floodplain properties.	Update the inventory properties within the floodplain not to be developed. This may exclude certain properties such as DOT properties.	No	No	1-3 years	Dept of Planning & Zoning	\$	Having an updated inventory of properties within the floodplain will increase the Town's ability to effectively plan for flooding. It will also increase residents' knowledge of flood risk to their property so that they can take appropriate steps to mitigate this risk.	FEMA HMGP, FEMA BRIC, FEMA FMA, NYS HM RLF, NYS CDBG-MIT, EPA's Greening America's Communities, EPA Smart Growth Support, USDA/NRCS Emergency Watershed Protection Program	Medium
T Owego F5	Watershed Assessments for Flood Mitigation	G1, G4, G5	Flooding	Flooding occurs regularly and causes moderate damages across the Town. However, watershed assessments remain incomplete, resulting in limited research and knowledge that can be referenced to assist with flood mitigation activities.	Complete a watershed study/creek assessment for watersheds and water bodies in the Town to better understand hydrologic conditions and flood risk zones. Utilize the findings to develop strategies for improving drainage patterns and reducing the risk of flooding, such as stormwater retention activities. Pursue funding sources for these activities.	No	Maybe – location-based action	3-5 years	SWCD	\$\$	Flood mitigation activities in the Town by the SWCD and other organizations will be better informed through the research provided through watershed assessments of the Town's watersheds and water bodies.	US HUD CDBG-MIT, FEMA HMGP, FEMA BRIC	Medium
T Owego F6	Stormwater Infrastructure Study	G1, G3, G4	Flood	The Town has stormwater conveyance infrastructure that assist in mitigating flooding, however, insufficient evaluation of the condition and effectiveness of these facilities hinders the Town's ability to further reduce the impacts of such flood events.	Conduct a study of the town's stormwater conveyance infrastructure to determine areas in need of repair or capacity upgrades.	No	Maybe	1-3 years	Highway Department	\$\$	Identifying stormwater conveyance infrastructure in need of repair or capacity upgrades would be the first step towards identifying and implementing infrastructural upgrades that reduce the extent and intensity of flooding events.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, Environmental Impact Bonds, HUD Community Development Block Grant, EPA Section 319 Nonpoint Source Management Program, NRCS WFPO	High
T Owego MH1	Emergency Plan Webpage	G2, G3, G6	All Hazards	There is currently no one central place to view hazard information for the Town of Owego, which reduces citizens' preparedness for all hazards.	The Town will complete the development of a webpage for floodplain maps, weather stations, etc. This may include data from a camera documenting current weather conditions and river height.	No	No	1-3 years	Town Board	\$	An emergency plan webpage will allow the public to stay up-to-date on the current weather, flood conditions, and other hazard information. Having up-to-date information in one place will allow the public to take timely actions and therefore reduce the risk the public faces due to these hazards.	HMGP, BRIC, FEMA Emergency Management Performance Grant (EMPG), NYS HM RLF	High
T Owego MH2	Emergency Shelter	G1, G5, G6	All Hazards	There is currently no space in the town that serves as an emergency shelter.	Evaluate the feasibility of using the Town's shared services building as an emergency shelter, and/or as a heating and cooling center. If feasible, take necessary steps to designate and prepare the building as a shelter and/or heating and cooling center.	Yes	Maybe – location-based action	1-3 years	Utilities	\$	Having an emergency shelter in the Town would create a safe place for residents to go during natural hazard events if needed. This would reduce the risk that residents face from natural hazards.	FEMA HMGP, FEMA BRIC, NYS HM RLF, FEMA Emergency Management Performance Grant (EMPG), FEMA Safe Room Grant Funding Program, NYS Climate Smart Communities	High
T Owego MH3	Review and Update Town Regulations to Reflect Hazard Mitigation	G1, G3, G4	All Hazards	Flooding, severe storms, drought, and extreme temperatures all pose risks to the municipality.	Review municipal laws and ordinances and update as necessary to incorporate hazard mitigation.	No	No	1-3 years	Dept of Planning & Zoning	\$\$	Updated municipal regulations will help ensure that new and existing developments are protected against flooding and other hazards, reducing the risk that is posed to people and property.	FEMA HMGP, FEMA BRIC, FEMA FMA, NYS HM RLF, NYS CDBG-MIT, EPA's Greening America's Communities, EPA Smart Growth Support, USDA/NRCS Emergency Watershed Protection Program, NYS DOS Smart Growth	Medium
T Owego MH4	Plan for Vacant Properties	G1, G4, G5, G6	Flood, Severe Storm	There are a limited number of abandoned homes in the Town, which are often not adequately protected against flooding and severe storms.	Create a plan for vacant properties in the Town, including flood and severe storm mitigation measures in this plan. Pursue funding as needed. Evaluate options for making these decisions, such as working with the Tioga County Property Development Corporation, creating a land bank through the New York State Land Bank Program, and/or other methods.	No	Yes	3-5 years	Dept of Planning & Zoning, Tioga County Land Bank, Tioga County Economic Development & Planning	\$\$	Creating a plan for vacant properties, and including flood mitigation measures in this plan, presents an opportunity to rehabilitate homes to make them less vulnerable to flooding and severe storms, and/or to increase land conservation in the Town in strategic locations so that the rest of the Town is less vulnerable to flooding.	FEMA BRIC, FEMA FMA, FEMA HMGP, Housing Assistance Council, USDA Housing Preservation Grant Program, EPA's Greening America's Communities program, DEC WQIP, 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 Owego MH5	Evacuation Strategy	G1, G5, G6	All Hazards (Flood, Severe Storm, Drought, Extreme Temperatures)	Floods, Severe Storms, Drought, and Extreme Temperatures all pose risks to the Town. However, there are many residents without cars who would have difficulty evacuating should the need arise.	Create an evacuation strategy detailing how to provide assistance to residents without cars. If feasible, this may include working with partners such as schools, churches, nonprofits, the County, neighboring jurisdictions, or the Army Reserves to coordinate resources and/or provide estimates as to the number of residents without cars and their needs. The Town may also consider buddy-to-buddy or Neighbor 2 Neighbor programs, or creating a sign-up process where people can register if they would like transportation assistance or if they would like to volunteer to check on (and perhaps transport) neighbors during an emergency. Ensure that all parties involved are aware of this strategy and publicize as needed, for example through media outlets or mailings to residents.	No	No	1 year	Dept of Planning & Zoning	\$	Having an evacuation strategy for residents without cars will ensure that all residents have a way to evacuate during a flood, severe storm, heat/cold wave, or drought if needed. This will reduce the vulnerability of these residents to such hazard events.	FEMA HMGP, FEMA BRIC, NYS HM RLF, EPA EJSG	High
T Owego S1	Backup Generators	G1, G6	Severe Storms	The Town of Owego regularly experiences storms, which cause moderate damages throughout the Town.	Ensure that critical facilities that require emergency power sources are equipped with backup generators.	Yes	Maybe - location-based action	1-3 years	Utilities, Parks	\$\$	The Town can reduce personal injury and property damage by ensuring that critical facilities have backup generators and do not lose power during a severe storm.	US CDBG-MIT, US HMGP, NYS HM RLF	Medium

7.3 Mitigation Action Prioritization

Each of the Town's proposed mitigation actions was evaluated and prioritized according to the criteria listed in Section 7.2.4 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
T Owego D1	Inter-district Water Coordination	2	2	3	2	9	Medium
T Owego F1	Fox Rd Culvert Replacement	3	1	2	2	8	Medium
T Owego F2	Assessment and Improvements to Culverts, Bridges, and Other Infrastructure	2	3	3	2	10	High
T Owego F3	Outreach Regarding Buyouts	2	3	3	1	9	Medium
T Owego F4	Create an Inventory of Properties within Floodplain	3	2	2	2	9	Medium
T Owego F5	Watershed Assessments for Flood Mitigation	3	2	3	1	9	Medium
T Owego F6	Stormwater Infrastructure Study	2	2	3	3	10	High
T Owego MH1	Emergency Plan Webpage	2	2	3	3	10	High
T Owego MH2	Emergency Shelter	2	3	3	2	10	High
T Owego MH3	Review and Update Town Regulations to Reflect Hazard Mitigation	2	3	3	1	9	Medium
T Owego MH4	Plan for Vacant Properties	2	2	2	2	8	Medium
T Owego MH5	Evacuation Strategy	3	3	3	2	11	High

Mitigation Action ID	Mitigation Action Name	Ability to Increase Resilience	Economic Feasibility	Low Environmental Impact	Ability to Implement	Total Score	Priority
T Owego S1	Backup Generators	2	2	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 as described in Section 7 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

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 Owego 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.

Town of Richford

This section presents the jurisdictional annex for the Town of Richford for the 2024 Tioga 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 the Town of Richford regarding this Jurisdictional Annex are identified as follows:

- Primary: Charles Davis, Supervisor
 - cdavis@richfordny.com
 - (607)657-8248
- Alternate: William Stell, Chair
 - Dad.stell@gmail.com
 - (856)689-3573

Town of Richford Website: <https://richfordny.com/>

2 COMMUNITY SNAPSHOT

2.1 Demographics

The 2020 Census estimated that 1,043 people live in the Town of Richford. The Town's population has decreased by 11% since the 2010 Census (1,172). The median age in the Town is 50.9 years, and 21% of the population is over the age of 65. The median household income in the Town is \$58,686.

2.2 Location & Land Characteristics

The Town of Richford is located in the northernmost part of Tioga County and is southeast of Ithaca. It is bordered by Tompkins County in the west, Cortland County in the north, Broome County in the east, and Berkshire in the South. The Town covers approximately 38.2 square miles. The properties within the Town have a total assessed value of approximately \$75,689,823, which is distributed across a variety of property classes.

Major transportation corridors in the Town include New York State Route 38 (north-south), which intersects New York State Route 79 (east-west) at the center of Town Richford, as described in Section 2.8 of the main body of the HMP. Key water features within the Town include the West Branch of the Owego Creek, which forms the western border of the town, while the East Branch runs along the eastern edge of the town itself at the base of Geer Hill. Several spring-fed ponds exist on the hilltops.

2.3 Governing Body

The Town of Richford is governed by a Town Board consisting of a Supervisor and four Board Members.

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. The proposals that the Town received are summarized in Table 2-1 below; none of the proposals for the Town are specified as being located in the Special Flood Hazard Area (1% annual chance flood event area) or in the Moderate Flood Hazard Area (0.2% annual chance flood event area). These developments may affect the Town's vulnerability to the hazards identified in this HMP.

Table 2-1. Developments from 2018 to March 2023

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
8/29/2019	Approval of the Town of Richford Subdivision Local Law Update	N/A	Subdivision Local Law Update	N/A	The Town of Richford Planning Board and Town Board have been working collaboratively over the past couple of years to update their 2003 subdivision local law.	Unspecified
3/30/2020	Approval of the Site Plan Review with the Conditions Noted	Southeast Corner of State Routes 38 and 79	Site Plan Review	N/A	The applicant is requesting site plan approval to construct and operate a 9,582-square-foot commercial plaza that will house a pizza and ice cream restaurant, as well as six additional small low-intensity general commercial stores.	Unspecified
2/3/2023	Approval of the Solar Energy Generating Systems Law	Townwide	Solar Energy Generating Systems Local Law	N/A	The Richford Town Board and Town Planning Board have worked together over the past several months to develop this local law.	Unspecified

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The Town of Richford 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 that 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	Highway Department
Mitigation Planning Committee	No	
Mutual Aid or Shared Services Agreements	Yes	Informal agreements with surrounding municipalities, Tioga County SWCD for equipment
Planning Board	Yes	
Zoning Board	No	
Other	Yes	Assessment Review
Development Approvals		
Building Code	Yes	Building Code of New York State
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	Yes	4/4 (2017)
Fire Department ISO Rating	No	
Site Plan Review Requirements	Yes	Local Law Number 1 of 2004
Other	No	
Funding Resources		
Authority to Levy Taxes	Yes	Town Board
Capital Improvement Project Funds	Yes	Town Board
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	FEMA
General Obligation Bonds and/or Special Tax Bonds	No	
Impact Fees for New Development	No	
State Funding Programs (i.e., NYSEFC, NYSOCR, NYSDEC, others)	Yes	
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	No	Private wells
Other	No	

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?)
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	Yes	
NFIP Participant / Floodplain Ordinance	Yes	Local Law Number 1 (2012)
Hillside Development Regulations	No	
Open Space Preservation	No	
Stormwater Management Regulations	No	
Streambank Setback Regulations	No	
Subdivision Regulations	Yes	Subdivision Law, 2019
Zoning Ordinance	No	
Other	No	
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	No	
Other	Yes	Follows Uniform Procedures Act (UPA), Article 70 of the NYS Environmental Conservation Law (ECL)
Plans		
Capital Improvement Plan	No	
Comprehensive Emergency Management Plan	Yes	Tioga County Comprehensive Emergency Management Plan (2013)
Comprehensive Plan	Yes	Comprehensive Plan (2015)
Continuity of Operations Plan	No	
Economic Development Plan	Yes	Tioga County 2020 Strategic Plan
Other	No	
Programs/Organizations		
Climate Smart Community	No	
Local Emergency Preparedness/Disaster Response Organizations	No	
Local Environmental Protection Organizations	No	
National Weather Service StormReady Certification	Yes	Tioga County Storm Ready
Outreach Programs	No	
Partnerships with private entities addressing mitigation or disaster response	No	Tioga County Soil & Water
School Programs or Adult Educational Programs	No	
Other	Yes	Service contract with Maine EMS (Broome County) for Ambulance Service
Staff Positions		
Civil Engineer	No	

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?)
Code Enforcement Officer	Yes	
Emergency Manager	No	
Floodplain Administrator	Yes	Code Enforcement Officer
Planner/GIS Coordinator	No	
Other	No	
Technical Abilities		
Grant Writing	No	
Hazard Information Centers	No	
Hazard Warning Systems	No	
Other	No	

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 during future updates to the Comprehensive Plan, as well as in the event that the Town establishes a 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 the creation of a 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.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10.3 of the main body of the HMP.

3.2 Integration of Planning Efforts

The Town of Richford understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The Town intends to reference the 2024 Tioga 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 Richford may use the local laws assessment (included in Section 2 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.

4 HAZARD IDENTIFICATION AND RISK ASSESSMENT

4.1 Profiled Hazards

In this HMP Update, the County reviewed multiple natural hazards and determined to profile four natural hazards: flooding, severe storm, extreme temperatures, and drought. Descriptions of each of these hazards are included in Section 5 of the main body of the HMP. The Town of Richford has chosen to profile the same hazards as the County. No hazards were omitted, and there were no additional hazards identified as unique and specific to the Town of Richford.

The hazard analysis criteria used to evaluate the Town's vulnerability to each natural hazard are summarized in *Table 4-1*, and the results are presented in *Table 4-2*.

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

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 (Coastal Flooding, Riverine Flooding, Ice Jam)	3	2	3	2	10 – High	1	N/A
Drought	1	1	3	3	8 – Moderate	2	N/A
Severe Storm (Hail, Ice Storm, Lightening, Strong Wind, Winter Weather, Tornado, Hurricane/ Tropical Storm)	2	3	3	2	10 – High	1	N/A
Extreme Temperatures (Cold Wave, Heat Wave)	1	1	3	3	8 – Moderate	2	N/A

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 5 of the main body of the HMP. The following is a subset of events that occurred specifically within the Town. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Town.

Table 4-3. Hazard Event Records, 2018-2022

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Thunderstorm Wind	6/30/2021	50	\$3,000.00	-
Total			\$3000.00	None Reported

4.3 Floodplain Statistics

Key waterways in the Village are described in Section 2.2. 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 24,196 acres in the Town, approximately 3.27% are located within the 1% annual chance flood event area, and approximately 0.00% are located within the 0.2% annual chance flood event area. The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-5. 139 parcels in the Town are located within the 1% annual chance flood event area, with an estimated total structure value of \$5,348,123. 0 parcels in the Town are located within the 0.2% annual chance flood event area, with an estimated total structure value of \$0.

Table 4-4. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	1% Annual Chance Flood Event Area	0.2% Annual Chance Flood Event Area
24,196	3.27%	0.00%

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

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Agricultural	5	\$310,000	0	0
Commercial	1	\$71,800	0	0
Community Services	2	\$167,800	0	N/A
Industrial	0	N/A	0	N/A

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Parks and Open Space	5	N/A	0	N/A
Public Services	2	\$251,800	0	N/A
Residential	79	\$4,411,623	0	N/A
Vacant	43	\$31,700	0	N/A
Recreation	2	\$103,400	0	N/A
Total	139	\$5,348,123	0	N/A

**Structure Value estimated by subtracting parcel Land Assessed Value from Total Assessed Value*

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 insured structure incurs damage costs that are over 50% of its market value, the owner must comply with the local floodplain regulations 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.

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 Richford currently participates in the NFIP (Community ID 361216), and its current FIRM(s) became effective on 4/17/2012. FIRMs are available via FEMA's Flood Map Service Center (<https://msc.fema.gov/portal/home>). Digital FIRM data is also available for Tioga County via FEMA's National Flood Hazard Layer Viewer, which was referenced during the development of this annex. The Town joined the NFIP on 5/15/85. The Town's/Village's local law governing

floodplain development and NFIP compliance is located in Local Law 1 of 2012. There were no compliance issues identified in this hazard mitigation planning process. 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 no repetitive loss properties in the Town of Richford. Such properties 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

No concerns about future changes in hazard impacts specific to the Town were identified during the hazard mitigation planning process. The effects of climate change and other factors on future hazard events in Tioga County are covered in more detail in Section 5 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response or that requires a special emergency response in the event of hazardous incidents as identified by the Town of Richford, these 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 and Village 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 Richford, and any particular vulnerabilities of note. More information about hazard vulnerability, including a tool for understanding the vulnerability of community assets to events of varying magnitudes, is included in Section 6 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 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

The Town of Richford does not have any high hazard potential dams located within the municipal boundaries.

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 Richford has identified the following additional assets for consideration in hazard mitigation planning:

Table 5-2. Additional Assets

Important Assets	Description
Tioga Food Pantry	Provides food to vulnerable populations
Richford Congregational Church	Community and cultural asset
Waste Transfer Station	The Town of Richford is the only Town in the County that has a transfer station.

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

6.1 Flood

The Town of Richford has ranked its overall vulnerability to a flood event as high, as indicated in Table 4-2. Flood events occur infrequently in the jurisdiction and affect the entire jurisdiction, causing major damage. The jurisdiction is moderately prepared for flood events.

Information on flood event records (Section 1.1), 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 Richford has ranked its overall vulnerability to a severe storm event as high, as indicated in Table 4-2. Severe storms occur regularly in the jurisdiction and affect the entire jurisdiction, causing moderate damage. The jurisdiction is moderately prepared for severe storm events.

Records of severe storm events are described in Section 1.1. 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 the operation of critical facilities. Damage to the Town's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damage would primarily impact the more populated portions of the Town, such as the hamlet of Richford at the junction of NY-38 and NY-79 in the southwestern part of the Town. The Town completes tree maintenance within the Town road right of way to minimize potential damage to overhead utility lines. Private utility right-of-ways are generally maintained by individual utility companies.

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 Richford has ranked its overall vulnerability to a drought event as moderate, as indicated in Table 4-2. Drought events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is not prepared for drought events.

Agricultural areas and properties served by private wells would experience the most significant impacts from drought. Agricultural properties are located on the south east and south west part of the Town. Agricultural operators who rely on natural rain events, rainwater collection, and healthy soils for crop maintenance and livestock care may be susceptible to the impacts of low water yields during a drought. Moreover, because the Town is not served by a municipal water or wastewater system, residents rely on private wells and may be susceptible to low water yields during a drought.

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 Richford has ranked its overall vulnerability to an extreme temperature event as moderate, as indicated in Table 4-2. Extreme temperature events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is not 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 3% of the population in the Town is under 5 years old, and 21% of the population is over 65 years old. Approximately 14% 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 11% 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.

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 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:

- Flash flooding, steep hills, and small creeks
- More frequent intense rainfall events

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

- Railroad Avenue
- Mill Street
- Andersen Hill Road

The plan was revised to reflect the following changes in community priorities since the 2018 HMP Update:

- Sluices/culverts are plugging

Additional concerns that the Town would like addressed in the plan include:

- None identified

6.6 Additional Impacts

Additional impacts of the hazards are summarized in the problem descriptions in the Village'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 proposed 3 mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized in Table 7-1 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 2024 HMP Update? (Yes/No)
Railroad Ave Flood Mitigation	Increase the size of the opening under the railroad. Some alteration(s) to the stream may also be an option to divert floodwaters from this location and/or to provide upstream detention during high flows. Any new/retrofitted opening under the railroad should also include a method for trapping debris before it has a chance to block this opening. This could also be achieved where this stream crosses under NY-38.	Flood, Severe Storm	Highway Department	No Progress	Yes

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Andersen Hill Rd Flood Mitigation	Elevate the roadway and/or increase the size of the culvert to prevent this type of flooding. Some alteration(s) to the stream may also be an option to divert floodwaters from this location. The new/retrofitted opening under Andersen Hill Rd should also include a way to trap debris before it has a chance to block the opening under this road	Flood, Severe Storm	Highway Department	No Progress	Yes
Town Highway Garage in Floodplain	Determine if the Highway Garage is mitigated to the 500-year event. If not, identify the best mitigation project to protect the garage.	Flood	Highway Department	No Progress	Yes

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the Town of Richford identified new mitigation actions for inclusion in the 2024 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 of Richford could expand and improve the identified capabilities to achieve mitigation, as described in Section 1 of this annex. Then, a more comprehensive range of actions were evaluated as described in Section 7.2 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.

The Town proposed 15 new mitigation actions to be included in the 2024 HMP update. These actions are included in Table 7-2 below.

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
T Richford F1	Tubbs Hill Road Culvert Retrofit or Replacement	G1, G4, G5	Flood	The culvert along Tubbs Hill Road often plugs up, which increases the frequency and intensity of flooding in that area.	Retrofit or replace the Tubbs Hill Road culvert so that it adequately conveys floodwaters, working with the County SWCD to replace with new right-sized piping if necessary. Culverts should be up to applicable design standards, and should take into account flood risk, ecological impacts, and other factors.	No	Maybe	1-3 years	Highway Department	\$\$	The benefits of this action include reduced flooding on Tubbs Hill Road and surrounding areas, which will reduce the vulnerability of travelers, reduce road closures, and reduce damage to surrounding properties due to flooding.	FEMA BRIC, US CDBG-MIT, FEMA HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Richford F2	Michigan Hill Road Culvert Retrofit or Replacement	G1, G4, G5	Flood	The culvert along Michigan Hill Road often plugs up, which increases the frequency and intensity of flooding in that area.	Retrofit or replace the Michigan Hill Road culvert so that it adequately conveys floodwaters, working with the County SWCD to replace with new right-sized piping if necessary. Culverts should be up to applicable design standards, and should take into account flood risk, ecological impacts, and other factors.	No	Maybe	1-3 years	Highway Department	\$\$	The benefits of this action include reduced flooding on Michigan Hill Road and surrounding areas, which will reduce the vulnerability of travelers, reduce road closures, and reduce damage to surrounding properties due to flooding.	FEMA BRIC, US CDBG-MIT, FEMA HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Richford MH1	Hog Hollow Road Culvert Retrofit or Replacement	G1, G4, G5	Flood, Severe Storm	Storms and floods have caused erosion on the outlet side of the culvert along Hog Hollow Road. Additionally, in the past, water has been on the verge of going over the top of the culvert.	Retrofit or replace the Hog Hollow Road culvert so that it adequately conveys floodwaters and is not weakened due to erosion. Work with the County SWCD to replace with new right-sized piping if necessary. Culverts should be up to applicable design standards, and should take into account flood risk, ecological impacts, and other factors.	No	Maybe	1-3 years	Highway Department	\$\$	The benefits of this action include reduced risk of flooding on Hog Hollow Road and surrounding areas, which will reduce the vulnerability of travelers, reduce road closures, and reduce damage to surrounding properties due to flooding.	FEMA BRIC, US CDBG-MIT, FEMA HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Richford MH2	Payne Marsh Road Culvert Pipe Replacement	G1, G4	Flood, Severe Storm	The culvert pipe on Payne Marsh Road is a steel pipe and it is being washed out in the middle. It is not the proper size to convey floodwaters. Storms and floods have caused erosion on the outlet side of the culvert along Hog Hollow Road. Additionally, in the past, water has been on the verge of going over the top of the culvert.	Replace the Payne Marsh Road culvert pipe so that it adequately conveys floodwaters. The current pipe is a 42" pipe that would have to be replaced with a 48" pipe. Work with the County SWCD if necessary. Culverts should be up to applicable design standards, and should take into account flood risk, ecological impacts, and other factors.	No	Maybe	1-3 years	Highway Department	\$\$	The benefits of this action include reduced risk of flooding on Payne Marsh Road and surrounding areas, which will reduce the vulnerability of travelers, reduce road closures, and reduce damage to surrounding properties due to flooding.	FEMA BRIC, US CDBG-MIT, FEMA HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Richford F3	Rockefeller Road Bridge Retrofit	G1, G4	Flood	Flooding infrequently causes major damages on a Town-wide basis in the Town of Richford. The Rockefeller Road Bridge often experiences flooding.	Retrofit the Rockefeller Road Bridge so that it no longer floods. This may include engineering assessments or other methods to determine the best approaches to take for flood mitigation, as well as the pursuit of funding and implementation of the project.	No	Maybe	1-3 years	Highway Department	\$\$	The benefits of this action include reduced flooding on the Rockefeller Road Bridge and surrounding areas, which will reduce the vulnerability of travelers, reduce road closures, and reduce damage to surrounding properties due to flooding.	FEMA BRIC, US CDBG-MIT, FEMA HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Richford F4	Additional Infrastructure Assessment and Repairs/Replacements	G1, G3, G6	Flood	Flooding infrequently causes major damages on a Town-wide basis in the Town of Richford. The Town is concerned about flash flooding, more frequent intense rainfall events, and plugging of sluices and culverts. Additionally, Railroad Avenue, Mill Street, and Andersen Hill Road have been identified as particularly vulnerable to flooding. While the Town has identified some infrastructure that it knows needs retrofits, there may be additional infrastructure that is also in need of repairs and replacements due to concerns about flooding.	Assess additional infrastructure, such as additional roads, bridges, and culverts, for flood risk and necessity of replacements or repairs. If it is found that repairs and replacements are needed to infrastructure, pursue additional funding and implement these repairs/replacements. Special attention should be given to priority areas (e.g. Mill Road) that do not already have infrastructure projects underway or may need additional actions.	No	Maybe	1-3 years	Highway Department	\$\$	By assessing the need for additional repairs and/or replacements to infrastructure and pursuing them as necessary, the Town will keep on top of these repairs. This will reduce the vulnerability of travelers to flooding, reduce road closures, and reduce damage to surrounding properties due to flooding.	FEMA BRIC, US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Richford F5	Nature-Based Flood Mitigation Solutions	G1, G3, G4	Flood	Flooding infrequently causes major damages on a Town-wide basis in the Town of Richford. While infrastructure solutions are necessary, nature-based solutions are often particularly cost-effective and have other environmental and social benefits.	Assess the feasibility, costs, and benefits of nature-based solutions for flood mitigation, such as stormwater parks, vegetated swales, rain gardens, tree trenches, green streets and more. Additional actions to consider can be found on the FEMA Nature-Based Solutions Guide (https://www.fema.gov/sites/default/files/documents/fema_riskmap-nature-based-solutions-guide_2021.pdf). Create a plan to implement these solutions where feasible.	No	Maybe	3-5 years	Highway Department, with assistance from SWCD	\$\$	Nature-based solutions for flood mitigation can reduce the extent and severity of flooding, be cost-effective, and have environmental and social benefits such as reducing water pollution and enhancing recreational and scenic qualities of a place.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, NYS DOS Smart Growth program, Environmental Impact Bonds, HUD Community Development Block Grant, EPA Section 319 Nonpoint Source Management Program, NRCS WFPO	Medium
T Richford D1	Drought Emergency Plan	G1, G3, G5, G6	Drought	Drought occurs rarely in the municipality, causing minor damages on a Town-wide basis. Many property owners in Richford have private wells.	Create a Drought Emergency Plan to identify actions that can be taken in the case of drought to help property owners with private wells. This may include agreements for secondary water sources that may be used during drought conditions, a distribution plan for emergency water supplies, a drought communication plan, water-saving actions that may be triggered when a drought is deemed likely to occur, a strategy for providing support to agricultural operations during drought, and/or a system to issue warnings to Town residents when drought conditions are deemed likely to occur or when water supply or quality is low. The municipality may take into account EPA guidance on establishing a backup water supply, found at: https://www.epa.gov/sites/default/files/2015-03/documents/planning_for_an_emergency_drinking_water_supply.pdf	Yes	Maybe	1-3 years	Highway Department	\$	Having a drought emergency plan will reduce the risk that the area faces from drought, because it will ensure that residents still have access to safe drinking water, agricultural operations, and other uses.	US CDBG-MIT, US HMGP, NYS HM RLF, FEMA EMPG, NRCS EWP Program	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
T Richford D2	Drought Education and Outreach	G1, G4, G5	Drought	Drought occurs rarely in the Town of Richford, causing minor damages on a Town-wide basis. Many property owners in Richford have private wells.	<p>Work with the County SWCD to educate property owners on drought-related topics, such as:</p> <ul style="list-style-type: none"> - How to monitor the quantity and quality of water in their wells - Drinking water safety tips to use during drought - Strategies and resources for reducing agricultural operations' risk to drought (e.g. planting cover crops, reducing tillage, harvesting rainwater, etc.). - Relevant resources for technical assistance and grant funding for agricultural operators, such as the USDA Emergency Conservation Program. - Home water-saving techniques such as installing low-flow showerheads and water-efficient toilets and reusing water - And/or other strategies as determined by the Town and SWCD. <p>Education may occur on a seasonal basis, with the use of informational brochures sent to residents annually, targeted outreach to agricultural operators by phone/mail/email, and/or other strategies as determined by the Town and SWCD.</p>	No	No	1-3 years	Highway Department, with assistance from SWCD	\$	Giving timely drought-related information to residents will allow them to take action to reduce the severity of the drought and reduce their own vulnerability to the effects of drought.	US CDBG-MIT, US HMGP, NYS HM RLF, FEMA EMPG, NRCS EWP Program	High
T Richford F6	Update Subdivision Regulations	G1, G3, G4	Flood	Flooding infrequently causes major damages on a Town-wide basis in the Town of Richford. The subdivision regulations currently do not incorporate flood mitigation in a robust manner.	<p>Review and update the subdivision regulations (Local Law No. 1 of 2019) to incorporate flood mitigation. This may include (but is not limited to):</p> <ul style="list-style-type: none"> - Requiring the submittal of a Stormwater Pollution Prevention Plan with subdivision applications - Restricting development within the floodplain through the subdivision regulations - Encouraging or requiring the conservation of natural areas within subdivision design - Additional measures as laid out in the : Subdivision Design and Flood Hazard Areas Manual (https://www.fema.gov/sites/default/files/2020-06/apa_subdivision-design-and-flood-hazard-areas_10-31-2016.pdf) 	No	No	1-3 years	Planning Board	\$	Updating the subdivision regulations to incorporate flood mitigation measures will limit the adverse affects that new subdivision developments may have on flood risk in the municipality.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, EPA EFC Grant Program, NYS CDBG Program, NYS DOS Smart Growth program	Medium
T Richford MH3	Review and Update Additional Municipal Regulations	G1, G3, G4	All Hazards (Flood, Severe Storm, Drought, Extreme Temperatures)	Flooding, severe storms, drought, and extreme temperatures all pose risks to the municipality. Despite the risks, not all relevant municipal laws and ordinances incorporate hazard mitigation.	<p>Review additional municipal laws and ordinances and update as necessary to incorporate hazard mitigation. This may include review of the zoning code, development regulations, building codes, and other regulations to ensure that new and existing developments are protected against a 500-year flood event and against other hazards. Examples that may be considered include, but are not limited to:</p> <ul style="list-style-type: none"> - Requiring the submittal of a Stormwater Pollution Prevention Plan with subdivision applications, site plan applications, and applications for a special use permit, variance, or zoning change (flooding) - Updating the building code to ensure that new developments are protected against a 500-year flood event and against other hazards (flooding and other hazards) - Encouraging tree plantings and green roofs in building codes to mitigate extreme heat (extreme temperatures) - Updating or creating site design review standards to include natural environmental features such as wind buffers, requiring regular maintenance of trees in high-wind areas, and/or require wind-resistant building techniques such as structural bracing in the building codes for high-wind areas (severe storms) - Updating or creating laws about the water system so that they include a plan for obtaining for secondary water sources that may be used during drought conditions (drought) 	No	No	1-3 years	Planning Board	\$	Updated municipal regulations will help ensure that new and existing developments are protected against flooding and other hazards, by incorporating hazard mitigation directly into planning processes. This will reduce the risk that is posed to people and property from the affected hazards.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, EPA EFC Grant Program, NYS CDBG Program, NYS DOS Smart Growth 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		Potential Funding Sources	Priority
										Costs	Estimated Benefits		
T Richford MH4	Plan for Vacant Properties	G1, G4, G5, G6	Flood, Severe Storm	There are many abandoned homes in the Town, which are often not adequately protected against flooding and severe storms.	Create a plan for vacant properties in the Town, including flood and severe storm mitigation measures in this plan. For example: - For vacant homes in need of repair that are deemed worth rehabilitating, pursue funding for home repairs that protect against flood, such as installing sump pumps, elevating homes, repairing the foundation to fix leaks, and/or other measures. Additionally, as necessary, pursue funding for measures to protect these homes against severe storms, such as installing hurricane shutters, retrofitting roofs to adequate standards to provide wind resistance, and/or installing safe rooms. - For vacant homes that will not go back on the market and/or vacant homes in key conservation areas in the floodplain, consider whether to implement land conservation measures on the property that mitigate against flood, such as protecting and enhancing natural mitigation features (for example, riverbanks, wetlands, and forests), using riparian buffers, installing stormwater retention ponds, and other measures. Use conservation easements, property acquisitions for conservation, and/or other tools if desirable. Pursue funding as needed. Evaluate options for making these decisions, such as working with the Tioga County Property Development Corporation, creating a land bank through the New York State Land Bank Program, and/or other methods.	No	Yes	3-5 years	Planning Board	\$\$	Creating a plan for vacant properties, and including flood mitigation measures in this plan, presents an opportunity to rehabilitate homes to make them less vulnerable to flooding and severe storms, and/or to increase land conservation in the Town in strategic locations so that the rest of the Town is less vulnerable to flooding.	FEMA BRIC, FEMA FMA, FEMA HMGP, Housing Assistance Council, USDA Housing Preservation Grant Program, EPA's Greening America's Communities program, DEC WQIP, NYS HM RLF	Medium
T Richford MH5	Assess Relocation of Highway Garage	G1, G3, G4, G6	Severe Storm, Flood, Extreme Temperatures	The highway garage is located in the floodplain but provides critical services to the Town. The facility and all equipment within it is vulnerable to flooding.	Look for property outside the floodplain for acquisition for siting/construction of a new Highway Garage. Pursue funding and begin construction once an appropriate site is found. Assess the feasibility of the new structure providing shelter during severe storms and/or being used as a heating/cooling center during extreme temperatures.	Yes	Maybe	3-5 years	Highway Department	\$\$	By relocating the highway garage out of the floodplain, the Town can assure that it is still operable in the event of a flood and can provide critical services, thereby reducing the impact of flooding on the Town. Additionally, having a Highway Garage outside of the floodplain could provide for accommodations during extreme temperatures (such as heating/cooling centers) and severe storms (such as a shelter), without a worry of flooding.	FEMA BRIC, FMA, HMGP, US CDBG-MIT, NYS DOS Smart Growth, NYS Climate Smart Communities, NYS HM RLF	Medium
T Richford F7	Vulnerability Assessments of Critical Facilities	G1, G3, G6	Flood	It is currently undetermined whether or not several of the Town's critical facilities are protected against a 0.2% chance flood event or previous worst case flood event, leaving these facilities vulnerable to flood events.	Town staff will conduct vulnerability assessments to 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). This will serve as a first step toward protecting the facilities, if future funding becomes available. There are no local resources available at this time to conduct engineering design and retrofitting on these structures. Future efforts towards protecting these structures to an 0.2% chance flood event (or previous worst case flood event, if applicable) will be considered if funding becomes available. These may include engineering design, building retrofits, or other measures.	Yes	Maybe	3-5 Years	Highway Department	\$	Assessing the Town's critical facilities for their level of protection against a 0.2% chance flood event (or previous worst case flood event, if applicable), is a first step to ensuring that these facilities remain operable during and after flooding events, reducing the overall risk to people and infrastructure.	US HMGP, US BRIC, US Flood Mitigation Assistance, US HUD CDBG-MIT, NYS HM RLF	Medium
T Richford MH6	Hazardous Tree Inspection and Management	G1, G2, G4	Severe storm, flood	Dying and dead trees that fall during severe storm events damage infrastructure, result in road closures and electricity outages, contribute to the severity of flooding by blocking the flow of water in creeks and streams, and pose a public safety risk.	Incorporate the regular inspection and management of hazardous trees into the Town's existing procedures for drainage system and infrastructure maintenance.	No	Maybe	6 months - 1 year	Highway Department	\$\$	By regularly inspecting and maintaining hazardous trees, the Town will reduce the impacts of severe storms and floods on infrastructure and public safety.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	High

7.3 Mitigation Action Prioritization

Each of the Town's proposed mitigation actions was evaluated and prioritized according to the criteria listed in Section 7.2.4 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
T Richford F1	Tubbs Hill Road Culvert Retrofit or Replacement	2	3	2	2	9	Medium
T Richford F2	Michigan Hill Road Culvert Retrofit or Replacement	2	3	2	2	9	Medium
T Richford MH1	Hog Hollow Road Culvert Retrofit or Replacement	2	3	2	2	9	Medium
T Richford MH2	Payne Marsh Road Culvert Pipe Replacement	2	3	2	2	9	Medium
T Richford F3	Rockefeller Road Bridge Retrofit	2	3	2	2	9	Medium
T Richford F4	Additional Infrastructure Assessment and Repairs/Replacements	3	2	2	2	9	Medium
T Richford F5	Nature-Based Flood Mitigation Solutions	2	2	2	3	9	Medium
T Richford D1	Drought Emergency Plan	2	3	3	3	11	High
T Richford D2	Drought Education and Outreach	2	3	3	3	11	High
T Richford F6	Update Subdivision Regulations	2	3	3	1	9	Medium
T Richford MH3	Review and Update Additional Municipal Regulations	2	3	3	1	9	Medium
T Richford MH4	Plan for Vacant Properties	2	2	2	2	8	Medium

Mitigation Action ID	Mitigation Action Name	Ability to Increase Resilience	Economic Feasibility	Low Environmental Impact	Ability to Implement	Total Score	Priority
T Richford MH5	Assess Relocation of Highway Garage	2	2	1	3	8	Medium
T Richford F7	Vulnerability Assessments of Critical Facilities	2	3	1	2	8	Medium
T Richford MH6	Hazardous Tree Inspection and Management	2	2	3	3	10	High

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 as described in Section 7 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

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 Richford 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.

Town of Spencer

This section presents the jurisdictional annex for the Town of Spencer for the 2024 Tioga 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 the Town of Spencer regarding this Jurisdictional Annex are identified as follows:

- Primary: Allen T. Fulkerson, Town Supervisor
 - (607)589-4887
- Alternate: Raymond Bunce Jr, Deputy Supervisor
 - (607)589-4887

Town of Spencer Website: <https://www.townofspencerny.com/home>

2 COMMUNITY SNAPSHOT

2.1 Demographics

The 2020 Census estimated that 2,968 people live in the Town of Spencer. The Town's population has decreased by 6% since the 2010 Census (3,153). The median age in the Town is 36.2 years, and 16% of the population is over the age of 65. The median household income in the Town is \$57,684.

2.2 Location & Land Characteristics

The Town of Spencer is located on the western border of Tioga County, south of Ithaca, and is bordered by Chemung County on the west and Tompkins County to the north. The Town covers

approximately 49.9 square miles. The properties within the Town have a total assessed value of approximately \$212,640,642, which is distributed across a variety of property classes.

Major transportation corridors in the Town include New York State Route 34 and New York State Route 96, as described in Section 2.8 of the main body of the HMP. Key water features within the Town include Catatonk Creek, which flows south through Spencer.

2.3 Governing Body

The Town of Spencer is governed by a Town Board consisting of a Supervisor and four Board Members.

2.4 Recent and Anticipated Future Development

According to a review of 239 Referrals since the last County HMP (2018), one new development has been approved or proposed within the Town. The proposal that the Town received is summarized in Table 2-1 below; it was not specified as being located in the Special Flood Hazard Area (1% annual chance flood event area) or in the Moderate Flood Hazard Area (0.2% annual chance flood event area). This development may affect the Town's vulnerability to the hazards identified in this HMP.

Table 2-1. Developments from 2018 to March 2023

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
4/22/2022	Approval of the Telecommunications Site Plan Review and Special Use Permit	144 Hulbert Hollow Road	Telecommunications Site Plan Review and Special Use Permit	N/A	The applicant is proposing to construct and operate a 195-foot-high self-supporting telecommunications tower and associated improvements via a lease agreement with the property owner (Golden) on this 15.8-acre property, which is currently vacant land with some tree cover.	Unspecified

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The Town of Spencer 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 that 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	Highway Department
Mitigation Planning Committee	No	
Mutual Aid or Shared Services Agreements	Yes	Informal agreements with surrounding municipalities, Tioga County SWCD for equipment
Planning Board	No	
Zoning Board	No	
Other	No	Note: There are some county line issues with Chemung County.
Development Approvals		
Building Code	Yes	
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	Not Available	
Fire Department ISO Rating	No	
Site Plan Review Requirements	Yes	Chapter 117: Site Plan Review
Other	No	
Funding Resources		
Authority to Levy Taxes	Yes	Town Board
Capital Improvement Project Funds	Yes	Town Board
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	FEMA
General Obligation Bonds and/or Special Tax Bonds	Yes	
Impact Fees for New Development	No	
State Funding Programs (i.e., NYSEFC, NYSOCR, NYSDEC, others)	Yes	BridgeNY
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	No	

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?)
Other	No	
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	Yes	
NFIP Participant / Floodplain Ordinance	Yes	Chapter 77: Flood Damage Prevention
Hillside Development Regulations	No	
Open Space Preservation	No	
Stormwater Management Regulations	No	
Streambank Setback Regulations	No	
Subdivision Regulations	Yes	Chapter 128: Subdivision of Land
Zoning Ordinance	No	
Other	Yes	Chapter 98: Mobile Homes and Mobile Home Parks, Chapter 87: Junk and Junkyards
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	No	
Other	Yes	Follows Uniform Procedures Act (UPA), Article 70 of the NYS Environmental Conservation Law (ECL)
Plans		
Capital Improvement Plan	No	
Comprehensive Emergency Management Plan	Yes	Local Emergency Management Plan (2022), Tioga County Comprehensive Emergency Management Plan (2013)
Comprehensive Plan	Yes	Comprehensive Plan (2015)
Continuity of Operations Plan	No	
Economic Development Plan	Yes	Tioga County 2020 Strategic Plan
Other	No	
Programs/Organizations		
Climate Smart Community	No	
Local Emergency Preparedness/Disaster Response Organizations	No	
Local Environmental Protection Organizations	No	
National Weather Service StormReady Certification	Yes	Tioga County StormReady
Outreach Programs	No	
Partnerships with private entities addressing mitigation or disaster response	No	

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?)
School Programs or Adult Educational Programs	No	
Other	No	
Staff Positions		
Civil Engineer	No	Hunt Engineers Architects on retainer
Code Enforcement Officer	Yes	
Emergency Manager	Yes	Town Supervisor
Floodplain Administrator	Yes	Code Enforcement Officer
Planner/GIS Coordinator	No	
Other	No	
Technical Abilities		
Grant Writing	No	
Hazard Information Centers	No	
Hazard Warning Systems	No	
Other	No	

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 during future updates to the Comprehensive Plan, as well as in the event that the Town establishes a 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 the creation of a 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.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10.3 of the main body of the HMP.

3.2 Integration of Planning Efforts

The Town of Spencer understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The Town intends to reference the 2024 Tioga 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 Spencer may use the local laws assessment (included in Section 2 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.

4 HAZARD IDENTIFICATION AND RISK ASSESSMENT

4.1 Profiled Hazards

In this HMP Update, the County reviewed multiple natural hazards, and determined to profile four natural hazards: flooding, severe storm, extreme temperatures, and drought. Descriptions of each of these hazards are included in Section 5 of the main body of the HMP. The Town of Spencer has chosen to profile the same hazards as the County. No hazards were omitted and there were no additional hazards identified as unique and specific to the Town of Spencer.

The hazard analysis criteria used to evaluate the Town's vulnerability to each natural hazard are summarized in *Table 4-1*, and the results are presented in *Table 4-2*.

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

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 (Coastal Flooding, Riverine Flooding, Ice Jam)	3	3	1	2	9 – High	2	N/A
Drought	1	1	3	3	8 – Moderate	3	N/A
Severe Storm (Hail, Ice Storm, Lightening, Strong Wind, Winter Weather, Tornado, Hurricane/ Tropical Storm)	2	3	3	2	10 – High	1	N/A
Extreme Temperatures (Cold Wave, Heat Wave)	1	1	3	3	8 – Moderate	3	N/A

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 5 of the main body of the HMP. The following is a subset of events that occurred specifically within the Town. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Town.

Table 4-3. Hazard Event Records, 2018-2022

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Thunderstorm Wind	5/28/2018	50	\$5,000.00	-
Thunderstorm Wind	8/8/2019	50	\$5,000.00	-
Hail	8/18/2019	1		-
Thunderstorm Wind	8/18/2019	50	\$10,000.00	-
Thunderstorm Wind	8/18/2019	50	\$5,000.00	
Total			\$25,000.00	None Reported

4.3 Floodplain Statistics

Key waterways in the Village are described in Section 2.2. 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 31,512 acres in the Town, approximately 8.94% are located within the 1% annual chance flood event area and approximately 0.00% are located within 0.2% annual chance flood event area. The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-5. 620 parcels in the Town are located within the 1% annual chance flood event area, with an estimated total structure value of \$64,580,224. None of the parcels in the Town are located within the 0.2% annual chance flood event area.

Table 4-4. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	1% Annual Chance Flood Event Area	0.2% Annual Chance Flood Event Area
31,512	8.94%	0.00%

Note: Data is based on political boundaries and, therefore, is inclusive of the Village of Spencer.

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

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Agricultural	27	\$280,800	0	N/A
Commercial	29	\$5,487,400	0	N/A
Community Services	13	\$20,794,000	0	N/A
Industrial	2	\$1,656,200	0	N/A
Parks and Open Space	6	\$10,000	0	N/A
Public Services	5	\$0	0	N/A
Residential	377	\$35,469,624	0	N/A
Vacant	156	\$374,800	0	N/A
Recreation	5	\$507,400	0	N/A
Total	620	\$64,580,224	0	N/A

*Structure Value estimated by subtracting parcel Land Assessed Value from Total Assessed Value

Note: Data is based on political boundaries and, therefore, is inclusive of the Village of Spencer.

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 insured structure incurs damage costs that are over 50% of its market value, the owner must comply with the local floodplain regulations 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.

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 Spencer currently participates in the NFIP (Community ID 360841), and its current FIRM(s) became effective on 4/17/2012. FIRMs are available via FEMA's Flood Map Service Center (<https://msc.fema.gov/portal/home>). Digital FIRM data is also available for Tioga County via FEMA's National Flood Hazard Layer Viewer, which was referenced during the development of this annex. The Town joined the NFIP on 5/15/85. The Town's local law governing floodplain development and NFIP compliance is located in Chapter 77 of the Town code. There were no compliance issues identified in this hazard mitigation planning process. 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 6 repetitive loss properties in the Town of Spencer. Such properties 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

No concerns about future changes in hazard impacts specific to the Town were identified during the hazard mitigation planning process. The effects of climate change and other factors on future hazard events in Tioga County are covered in more detail in Section 5 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response or that requires a special emergency response in the event of hazardous incidents as identified by the Town of Spencer. These 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 and Village 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 Spencer, and any particular vulnerabilities of note. More information about hazard vulnerability, including a tool for understanding the vulnerability of community assets to events of varying magnitudes, is included in Section 6 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 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

The Town of Spencer has two high-hazard potential dams (HHPDs) located in the municipality: Ed Pylkas Dam and Pelto Dam. HHPDs can be an asset as well as pose risks to the jurisdiction and neighboring jurisdictions. The HHPD worksheets are located at the end of this jurisdictional annex.

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)

The Town of Spencer did not identify any additional assets aside from critical facilities for consideration in hazard mitigation planning.

Table 5-2. Additional Assets

Important Assets	Description
None identified	

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

6.1 Flood

The Town of Spencer has ranked its overall vulnerability to a flood event as high, as indicated in Table 4-2. Flood events occur regularly in the jurisdiction and affect one or two problem areas within the jurisdiction, causing major damage. The jurisdiction is moderately prepared for flood events.

Information on flood event records (Section 1.1), 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 Spencer has ranked its overall vulnerability to a severe storm event as high, as indicated in Table 4-2. Severe storms occur regularly in the jurisdiction and affect the entire jurisdiction, causing moderate damage. The jurisdiction is moderately prepared for severe storm events.

Records of severe storm events are described in Section 1.1. 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. Damage to the Town's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damage would primarily impact the more populated portions of the Town, such as the hamlets of Crum Town and West Candor. The Town completes tree maintenance within the Town road right of ways to minimize potential damage to overhead utility lines. Private utility right-of-ways are generally maintained by individual utility companies.

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 Spencer has ranked its overall vulnerability to a drought event as moderate, as indicated in Table 4-2. Drought events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor] damage. The jurisdiction is not prepared for drought events.

Agricultural areas and properties served by private wells would experience the most significant impacts from drought. Agricultural properties are located evenly within the Town. Agricultural operators who rely on natural rain events, rainwater collection, and healthy soils for crop maintenance and livestock care may be susceptible to the impacts of low water yields during a drought. Moreover, because the Town is not served by a municipal water or wastewater system, residents rely on private wells and may be susceptible to low water yields during a drought.

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 Spencer has ranked its overall vulnerability to an extreme temperature event as moderate, as indicated in Table 4-2. Extreme temperature events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is not 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 3% of the population in the Town is under 5 years old, and 16% of the population is over 65 years old. Approximately 12% 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 8% 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.

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 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:

- Infrastructure and stormwater damage

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

- Catatonk Creek
- East Spencer Road

The plan was revised to reflect the following changes in community priorities since the 2018 HMP Update:

- Intense rainfall combined with unmaintained privately-owned stream corridors results in plugged culverts and overland flooding

Additional concerns that the Town would like addressed in the plan include:

- None identified

6.6 Additional Impacts

Additional impacts of the hazards are summarized in the problem descriptions in the Village'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 proposed five mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized in Table 7-1, 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 2024 HMP Update? (Yes/No)
Hulbert Hollow Road Elevation	Several solutions were discussed, and the best option appears to be upsize the existing culverts and elevate portions of Hulbert Hollow Road Spencer Road. The project would involve elevating the road and upsizing the culverts with wing walls and debris catching devices. This would allow water to pass through the culverts without over topping the road.	Flood	Town Highway	In Progress <i>FEMA is reviewing the engineering drawings</i>	Yes
Flooding at various locations in the Town	Using the plan developed with USC, address the flood issues in accordance to recommendations in the plan. The areas the town will concentrate on will include: Michigan and Hulbert Hollow Road – houses are of concern; Spencer Road; and Crumtown Road	Flood	Town Highway, Tioga SWCD	No Progress	Yes

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Hulbert Hollow control dam	Hulbert Hollow control dam in headwaters, Rosgen Method (natural stream restoration) used for stream bank protection along with wetlands restoration above Spencer Lake.	Flood	Town Floodplain Administrator, USC, Finger Lakes Land Trust	No Progress	No
Acquire property along Sulphur Springs Creek	Acquire property along Sulphur Springs Creek and install 4 drop structures approximately 200 yards apart in order to capture sediment and gravel moving through the system before it reaches Catatank Creek main stem.	Severe Storm, Flood	Town Board, homeowner, support from Tioga County and NYSDEC	No Progress	No
Critical Facility Outreach	The town will contact the facilities manager and discuss options for protecting the facility to the 500 year level.	Flood	Town Floodplain Administrator	No Progress	Yes

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the Town of Spencer identified new mitigation actions for inclusion in the 2024 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 of Spencer could expand and improve the identified capabilities to achieve mitigation, as described in Section 1 of this annex. Then, a more comprehensive range of actions was evaluated as described in Section 7.2 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.

The Town proposed 17 new mitigation actions to be included in the 2024 HMP update. These actions are included in Table 7-2 below.

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
T Spencer F1	Emery Road Bridge/Culvert Replacement/Repairs	G1, G4	Flood	Flooding often occurs along the Emery Road bridge. Additionally, the culvert often causes problems with flooding, and would need replacement in order to adequately convey floodwaters.	Replace or repair the Emery road bridge and culvert (N42-14-24, W076-26-46) so that the bridge no longer floods and so that the culvert accurately conveys floodwaters.	No	Maybe	1-3 years	Highway Department	\$\$	The benefits of this action include reduced flooding on Emery Road bridge and surrounding areas, which will reduce the vulnerability of travelers, reduce road closures, and reduce damage to surrounding properties due to flooding.	FEMA BRIC, US CDBG-MIT, FEMA HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Spencer F2	Fisher Settlement Road Bridge Repairs/Replacement	G1, G4	Flood	Flooding often occurs along the Fisher Settlement Road Bridge.	Replace or repair the Fisher Settlement Road Bridge (N42-14-12, W076-29-07) so that the bridge no longer floods.	No	Maybe	1-3 years	Highway Department	\$\$	The benefits of this action include reduced flooding on Fisher Settlement Road bridge and surrounding areas, which will reduce the vulnerability of travelers, reduce road closures, and reduce damage to surrounding properties due to flooding.	FEMA BRIC, US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Spencer F3	Railroad Ave Bridge/Culvert Replacement/Repairs	G1, G4	Flood	Flooding often occurs along the Railroad Ave Bridge.	Replace or repair the Railroad Ave bridge/culvert (N42-12-00, W076-30-14) so that the bridge no longer floods.	No	Maybe	1-3 years	Highway Department	\$\$	The benefits of this action include reduced flooding on Railroad Ave bridge and surrounding areas, which will reduce the vulnerability of travelers, reduce road closures, and reduce damage to surrounding properties due to flooding.	FEMA BRIC, US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Spencer F4	East Hill Bridge Repairs/Replacement	G1, G4	Flood	Flooding often occurs along the East Hill Bridge.	Replace or repair the East Hill Bridge (N42-12-49, W076-29-30) so that the bridge no longer floods.	No	Maybe	1-3 years	Highway Department	\$\$	The benefits of this action include reduced flooding on East Hill bridge and surrounding areas, which will reduce the vulnerability of travelers, reduce road closures, and reduce damage to surrounding properties due to flooding.	FEMA BRIC, US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Spencer F5	Hulbert Hollow Culverts, Bridges, and Town Roads	G1, G4	Flood	Many culverts in the Hulbert Hollow watershed are aging and undersized, leading to increased flooding because they cannot adequately convey floodwaters.	Continue to to re-size and replace undersized culverts in the Hulbert Hollow watershed that were damaged after recent disaster events. In addition, continue to resize and replace culverts within the watershed until all culverts are replaced with appropriately sized and designed culverts to prevent damages to the roadway, and to prevent damage to private residences during extreme flow events. Additionally, assess bridges and roads within the Hulbert Hollow watershed for the necessity of replacements or repairs, and replace or repair as necessary for flood mitigation benefits.	No	Maybe	1-3 years	Highway Department	\$\$	Resizing and replacing these culverts will prevent damages to the roadway, and prevent damage to private residences during extreme flow events. Additionally, making replacements and repairs to roads and bridges as needed will reduce the vulnerability of travelers, reduce road closures, and reduce damage to surrounding properties due to flooding.	FEMA BRIC, US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Spencer F6	Additional Infrastructure Assessment and Repairs/Replacements	G1, G3, G6	Flood	Flooding regularly occurs in the Town, causing major damages. While the Town has identified several roads, bridges, and culverts that it knows need to be replaced, there may be additional infrastructure that is also in need of repairs and replacements due to concerns about flooding.	Assess additional infrastructure, such as additional roads, bridges, and culverts, for adequacy of floodwater conveyance, extent to which flooding occurs, and necessity of replacements or repairs. If it is found that repairs and replacements are needed, pursue additional funding and implement these repairs/replacements.	No	Maybe	1-3 years	Highway Department	\$\$	By assessing the need for additional repairs and/or replacements to infrastructure and pursuing them as necessary, the Town will keep on top of these repairs. This will reduce the vulnerability of travelers to flooding, reduce road closures, and reduce damage to surrounding properties due to flooding.	FEMA BRIC, US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
T Spencer MH 1	Backup Generators	G1, G6	All Hazards (Severe Storm, Flood, Extreme Temperatures, and Drought)	The Town of Spencer regularly experiences severe storms which cause moderate damages throughout the Town. These storms can cause power outages. Currently, the Town Hall and Highway Barn do not have generators, even though these facilities provide critical services.	Purchase backup generators for the Town Hall and the Highway Barn. Consider generators that would be mobile and compatible with both the current Highway Barn and Town Hall and any new buildings that may replace them. Explore the utility and feasibility of purchasing generators for other facilities that provide important services, and provide guidance on how to do this if these facilities are not within the Town's jurisdiction. If feasible and useful for hazard mitigation purposes, purchase additional generators as needed.	Yes	Maybe	1-3 years	Highway Department	\$\$	The Town can reduce personal injury and property damage by ensuring that critical facilities have backup generators and do not lose power during a severe storm. If these facilities have backup generators, they may also have the potential to serve as a cooling/heating center during extreme temperature events that coincide with power outages. Additionally, having generators for these facilities provides mitigation benefits against flooding (since these facilities will still be operational even when a flood blocks access to damaged power lines), and drought (since both facilities provide essential services during a drought).	FEMA BRIC, 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
T Spencer MH 2	Assess Relocation and Replacement of Town Hall and Highway Barn	G1, G3, G4	Severe Storm, Flood, Extreme Temperatures	Both the town hall (offices) and the highway barn are located in the floodplain. These facilities both provide critical services to the Town, and at the same time, the Town experiences regular flooding that causes major damages. Both structures have been identified in the emergency plan as needing to be replaced.	Look for property outside the floodplain for acquisition for siting/construction of a new Town Hall and Highway Barn. Once appropriate sites are found, pursue funding if needed and begin construction.	Yes	Maybe	5+ years	Highway Department	\$\$	By relocating the highway barn and town hall out of the floodplain, the Town can assure that these facilities are still operable in the event of a flood, thereby reducing the impact of flooding on the Town. Additionally, having better/safer facilities could provide for accommodations during extreme temperatures (such as heating/cooling centers) and severe storms (such as a shelter).	FEMA BRIC, FMA, HMGP, US CDBG-MIT, NYS DOS Smart Growth, NYS Climate Smart Communities, NYS HM RLF	Medium
T Spencer MH 3	Tree Maintenance Program	G1, G4, G5	Severe Storm, Flood	The Town has many dead and dying ash trees. These and other trees and tree limbs can fall on roads, power lines, and creek beds during severe storm events. They can also block culverts, leading to increased flooding. All of these phenomena result in road closures and electricity outages, increases the severity of flooding, and pose a public safety risk.	Implement a tree maintenance program to incorporate the regular inspection and management of hazardous trees into the Town's procedures for drainage system and infrastructure maintenance. Prioritize trees that may fall on roads, power lines, creeks, or culverts or have already fallen in these locations. Establish a schedule for clearing tree debris out of culverts before and during floods. Pursue funding for additional resources (e.g. staff time, machinery, etc.) as necessary to accomplish these tasks.	No	Maybe	1-3 years	Highway Department	\$\$	By regularly inspecting and maintaining hazardous trees, the Town will reduce the impacts of severe storms and floods on infrastructure and public safety.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF, FEMA BRIC	High
T Spencer D1	Drought Emergency Plan	G1, G3, G5, G6	Drought	Drought occurs rarely in the municipality, causing minor damages on a Town-wide basis.	Create a Drought Emergency Plan to identify actions that can be taken in the case of drought. This may include agreements for secondary water sources that may be used during drought conditions, a distribution plan for emergency water supplies, a drought communication plan, and water-saving actions that may be triggered when a drought is deemed likely to occur. The municipality may take into account EPA guidance on establishing a backup water supply, found at: https://www.epa.gov/sites/default/files/2015-03/documents/planning_for_an_emergency_drinking_water_supply.pdf	Yes	Maybe	1-3 years	Highway Department	\$	Having a drought emergency plan will reduce the risk that the area faces from drought, because it will ensure that residents still have access to safe drinking water and water for other uses.	US CDBG-MIT, US HMGP, NYS HM RLF, FEMA EMPG, NRCS EWP Program	High
T Spencer D2	Drought Monitoring Plan	G1, G3, G5, G6	Drought	Drought occurs rarely in the municipality, causing minor damages on a Town-wide basis.	Establish a regular schedule to monitor and report indicators of drought on a monthly basis, and perhaps on a more frequent basis during the summer. Examples of indicators include precipitation, temperature, surface water levels, groundwater levels, soil moisture, etc. Additionally, if feasible, partner with the SWCD, Village of Spencer, and/or local property owners to monitor water quality at a sampling of locations in the Town. Establish a system to issue warnings to Town residents when drought conditions are deemed likely to occur or when water supply or quality is low, and tell them about actions that they can take to reduce their vulnerability to drought (such as water-saving techniques, drinking water safety tips, etc.).	No	No	1-3 years	Highway Department, with assistance from SWCD	\$	Monitoring drought conditions, including water quantity and quality, on a regular basis will enable the Town to warn residents when drought may occur. Based on this, the Town can also give timely information as to what actions residents can take to reduce the severity of the drought and reduce their own vulnerability (e.g. with drinking water concerns).	US CDBG-MIT, US HMGP, NYS HM RLF, FEMA EMPG, NRCS EWP Program	High
T Spencer F7	Vulnerability Assessments of Critical Facilities	G1, G3, G6	Flood	It is currently undetermined whether or not several of the Town's critical facilities are protected against a 0.2% chance flood event or previous worst case flood event, leaving these facilities vulnerable to flood events.	Town staff will conduct vulnerability assessments to 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). This will serve as a first step toward protecting the facilities, if future funding becomes available. There are no local resources available at this time to conduct engineering design and retrofitting on these structures. Future efforts towards protecting these structures to an 0.2% chance flood event (or previous worst case flood event, if applicable) will be considered if funding becomes available. These may include engineering design, building retrofits, or other measures.	Yes	Maybe	3-5 Years	Highway Department	\$	Assessing the Town's critical facilities for their level of protection against a 0.2% chance flood event (or previous worst case flood event, if applicable), is a first step to ensuring that these facilities remain operable during and after flooding events, reducing the overall risk to people and infrastructure.	US HMGP, US BRIC, US Flood Mitigation Assistance, US HUD CDBG-MIT, NYS HM RLF	Medium
T Spencer F8	Agricultural and Rural Land Owner Outreach Campaign for Flood Mitigation Measures (SWCD partnership)	G1, G4, G5	Flood	Stream corridors in the Town are often not maintained well by private landowners, leading to increased flooding. Additionally, flooding from agricultural lands in the Town can impact properties and infrastructure.	Work with the SWCD to educate private property owners on how they can properly maintain stream corridors and agricultural land to reduce flooding (for example, by protecting and enhancing natural mitigation features such as riverbanks, wetlands, and forests; using riparian buffers; installing stormwater retention ponds; and other measures). This may include promotion of the SWCD's Tree and Shrub Sale for use by property owners.	No	No	1-3 years	Planning Board, with assistance from SWCD	\$	Private property owners will be equipped to implement practices that reduce stormwater runoff and the impacts of flooding.	US BRIC, US HMGP, CRF, USC, WQIP, Resilient NY Program, NRCS WFPO	High
T Spencer F9	Town-Wide Nature-Based Flood Mitigation Plan	G1, G3, G4, G6	Flood	Flooding regularly occurs in the Town, causing major damages. While infrastructure solutions are necessary, nature-based solutions are often particularly cost-effective and have other environmental and social benefits.	Assess the feasibility, costs, and benefits of nature-based solutions for flood mitigation on Town properties, such as stormwater parks, vegetated swales, rain gardens, tree trenches, green streets and more. Additional actions to consider can be found on the FEMA Nature-Based Solutions Guide (https://www.fema.gov/sites/default/files/documents/fema_riskmap-nature-based-solutions-guide_2021.pdf). Create a plan to implement these solutions where feasible.	No	Maybe	3-5 years	Highway Department, with assistance from SWCD	\$\$	Nature-based solutions for flood mitigation can reduce the extent and severity of flooding, be cost-effective, and have environmental and social benefits such as reducing water pollution and enhancing recreational and scenic qualities of a place.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, NYS DOS Smart Growth program, Environmental Impact Bonds, HUD Community Development Block Grant, EPA Section 319 Nonpoint Source Management Program, NRCS WFPO	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 Spencer MH 4	Review and Update Municipal Regulations	G1, G3, G4	All Hazards	Flooding, severe storms, drought, and extreme temperatures all pose risks to the municipality. For example, many homeowners and renters experience heavy impacts when their basements flood. However, not all relevant municipal laws and ordinances incorporate hazard mitigation.	Review municipal laws and ordinances and update as necessary to incorporate hazard mitigation. This may include review of the zoning code, development regulations, subdivision regulations, building codes, and other regulations. Examples that may be considered include, but are not limited to: - Requiring the submittal of a Stormwater Pollution Prevention Plan with subdivision applications, site plan applications, and applications for a special use permit, variance, or zoning change. (flooding) - Update the building code to ensure that new developments are protected against a 500-year flood event and against other hazards - Encouraging tree plantings and green roofs in building codes to mitigate extreme heat (extreme temperatures) - Updating or creating site design review standards to include natural environmental features such as wind buffers, requiring regular maintenance of trees in high-wind areas, and/or require wind-resistant building techniques such as structural bracing in the building codes for high-wind areas (severe storms) - Updating or creating laws about the water system so that they include a plan for obtaining for secondary water sources that may be used during drought conditions (drought)	No	No	1-3 years	Planning Board	\$	Updated municipal regulations will help ensure that new and existing developments are protected against flooding and other hazards, by incorporating hazard mitigation directly into planning processes. This will reduce the risk that is posed to people and property from the affected hazards.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, EPA EFC Grant Program, NYS CDBG Program, NYS DOS Smart Growth program	Medium
T Spencer HHPD1	High Hazard Potential Dam Mitigation Plan for Pelto Dam	G1, G4, G6	Flood	Pelto 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.	Design and implement the projects listed in the USDA NRCS funded dam rehabilitation plan, completed in 2023, related to Pelto Dam. Additionally, implement the recommendations of the Engineering Assessment Report, dated September 2016 (see Appendix H, page 62), to the extent that these recommendations are still relevant. These include recommendations for meeting the current NRCS/DEC dam safety criteria, as the existing spillway capacity does not meet the criteria. These actions should be done in collaboration with the dam owner and any additional stakeholders, such as the dam safety agency. Pursue grant funding to fund the dam improvements as necessary.	No	Maybe	3-5 Years	Highway Department, with assistance from SWCD	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	Medium
T Spencer HHPD2	High Hazard Potential Dam Mitigation Plan for Pylkas Dam	G1, G4, G6	Flood	Ed Pylkas 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.	Design and implement the projects listed in the USDA NRCS funded dam rehabilitation plan, completed in 2023, related to Pylkas Dam. Additionally, implement the recommendations of the Engineering Assessment Report, dated September 2016 (see Appendix H, page 158), to the extent that these recommendations are still relevant. These include recommendations for meeting the current NRCS/DEC dam safety criteria, as the existing spillway capacity does not meet the criteria. These actions should be done in collaboration with the dam owner and any additional stakeholders, such as the dam safety agency. Pursue grant funding to fund the dam improvements as necessary.	No	Maybe	3-5 Years	Highway Department, with assistance from SWCD	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	Medium

7.3 Mitigation Action Prioritization

Each of the Town's proposed mitigation actions was evaluated and prioritized according to the criteria listed in Section 7.2.4 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
T Spencer F1	Emery Road Bridge/Culvert Replacement/Repairs	3	1	2	2	8	Medium
T Spencer F2	Fisher Settlement Road Bridge Repairs/Replacement	3	1	2	2	8	Medium
T Spencer F3	Railroad Ave Bridge/Culvert Replacement/Repairs	3	1	2	2	8	Medium
T Spencer F4	East Hill Bridge Repairs/Replacement	3	1	2	2	8	Medium
T Spencer F5	Hulbert Hollow Culverts, Bridges, and Town Roads	3	1	2	2	8	Medium
T Spencer F6	Additional Infrastructure Assessment and Repairs/Replacements	3	2	2	2	9	Medium
T Spencer MH 1	Backup Generators	2	2	2	2	8	Medium
T Spencer MH 2	Assess Relocation and Replacement of Town Hall and Highway Barn	3	2	2	2	9	Medium
T Spencer MH 3	Tree Maintenance Program	1	3	3	3	10	High
T Spencer D1	Drought Emergency Plan	2	2	3	3	10	High
T Spencer D2	Drought Monitoring Plan	2	3	3	2	10	High

Mitigation Action ID	Mitigation Action Name	Ability to Increase Resilience	Economic Feasibility	Low Environmental Impact	Ability to Implement	Total Score	Priority
T Spencer F7	Vulnerability Assessments of Critical Facilities	2	3	1	2	8	Medium
T Spencer F8	Agricultural and Rural Land Owner Outreach Campaign for Flood Mitigation Measures (SWCD partnership)	2	3	3	3	11	High
T Spencer F9	Town-Wide Nature-Based Flood Mitigation Plan	2	2	3	2	9	Medium
T Spencer MH 4	Review and Update Municipal Regulations	2	3	3	1	9	Medium
T Spencer HHPD1	High Hazard Potential Dam Mitigation Plan for Pelto Dam	3	1	2	2	8	Medium
T Spencer HHPD2	High Hazard Potential Dam Mitigation Plan for Pylkas 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 as described in Section 7 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

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 Spencer 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 Plans¹
Complete a Separate Worksheet for each² state regulated HHPD in your community.

Name of the Mitigation Plan:	Point of Contact for this Worksheet Name: Email:
Municipality where dam is located:	Name of Dam:
Name of the Dam Owner:	NYS Dam ID #:

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.

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 summaries 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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans¹
Complete a Separate Worksheet for each² state regulated HHPD in your community.

Name of the Mitigation Plan:	Point of Contact for this Worksheet Name: Email:
Municipality where dam is located:	Name of Dam:
Name of the Dam Owner:	NYS Dam ID #:

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.

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 summaries 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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

Town of Tioga

This section presents the jurisdictional annex for the Town of Tioga for the 2024 Tioga 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 the Town of Tioga regarding this Jurisdictional Annex are identified as follows:

- Primary: Douglas Chrzanowski, Supervisor
 - tiogasupervisor@htva.net
 - (607)687-0241
- Alternate: Russell Story, Highway Superintendent
 - tiogahighway@htva.net
 - (607)744-0797

Town of Tioga Website: <https://townoftioga.org/>

2 COMMUNITY SNAPSHOT

2.1 Demographics

The 2020 Census estimated that 4,440 people live in the Town of Tioga. The Town's population has decreased by 9% since the 2010 Census (4,871). The median age in the Town is 47.9 years, and 20% of the population is over the age of 65. The median household income in the Town is \$60,032.

2.2 Location & Land Characteristics

The Town of Tioga is located in the southwest part of Tioga County and lies between Elmira and Binghamton. The Town is bordered by the Town and Village of Owego on the east, the Town of Candor to the north, and the Town of Barton to the west. The Town covers approximately 58.7 square miles. The properties within the Town have a total assessed value of approximately \$40,397,716, which is distributed across a variety of property classes.

Major transportation corridors in the Town include New York State Route 17C, as described in Section 2.8 of the main body of the HMP. Key water features within the Town include the Susquehanna River, which forms the southern Town boundary.

2.3 Governing Body

The Town of Tioga is governed by a Town Board consisting of a Supervisor and four Board Members.

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. The proposals that the Town received are summarized in Table 2-1 below. At least one of the proposals for the Town is located in the Special Flood Hazard Area (1% annual chance flood event area), and none of the proposals for the Town were specified as being located in the Moderate Flood Hazard Area (0.2% annual chance flood event area). These developments may affect the Town's vulnerability to the hazards identified in this HMP.

Table 2-1. Developments from 2018 to March 2023

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
8/8/2016	Approval of the Site Plan Review with Condition Noted	237 State Route 96	Site Plan Review	N/A	The applicant is proposing to construct and operate the Norbut Solar Farm project on this 93-acre open land property that was previously pastured farmland.	Unspecified
8/14/2016	Approval of the Site Plan Review with Condition Noted	Ayres Road	Site Plan Review	N/A	The applicant is proposing to establish the Ayres-Brink sand and gravel mining operation. This project location is about 1,500 feet south of the applicant's current Schoonover mine.	1% Annual Chance Flood Event
2/8/2019	Approval of the Site Plan Review with Condition Noted	151 Church St	Site Plan Review	N/A	The applicant is proposing to construct and operate a 250kWac solar photovoltaic system consisting of 990 solar modules via leasing 2 acres of the 40-acre property.	Unspecified
7/5/2019	Approval of the Site Plan Review	1467 Halsey Valley Road	Site Plan Review	N/A	The applicant is proposing to construct and operate this proposed 4.9MW/AC solar project on approximately 26 acres of the 127.54-acre property via a lease agreement.	Unspecified

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
9/4/2020	Approval of the Site Plan Review with the Conditions Noted	442 Glenmary Drive	Site Plan Review	N/A	The applicant is proposing to develop, construct, and operate a 7MW /AC solar photovoltaic system via a lease agreement with the property owner located on Glenmary Drive, near the intersection with Goodrich Road.	Unspecified
3/4/2021	Approval of the Site Plan Review with the Condition Noted	497 Glenmary Drive	Site Plan Review	N/A	The applicant is requesting site plan approval to expand their current bulk liquid heating fuel storage facility on this 3.6-acre parcel.	Unspecified
5/6/2020	Approval of the Site Plan Review with the Conditions Noted	3167 State Route 17C	Site Plan Review	N/A	The applicant is proposing to develop, construct, and operate a 4.98MW /AC solar photovoltaic system via a lease agreement with the property owner located on State Route 17C, the former site of an automobile salvage yard.	Unspecified
10/7/2021	Approval of the Site Plan Review with the Condition Noted	537 Glenmary Drive	Site Plan Review	N/A	The applicant is requesting site plan approval to establish and operate an outpatient eating disorder clinic at the site of the former Glenmary Inn.	Unspecified

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The Town of Tioga 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 that 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	Routine Highway Dept. Task
Mitigation Planning Committee	No	
Mutual Aid or Shared Services Agreements	Yes	Fire Districts, Highway Superintendents
Planning Board	Yes	
Zoning Board	No	
Other	No	
Development Approvals		
Building Code	Yes	Local Law 4 of 2007 - Fire Prevention and Building Code, Local Law 4 of 2022 (Mobile Home Parks)
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	No	
Fire Department ISO Rating	Unavailable	
Site Plan Review Requirements	Yes	March 10, 2012
Other	No	
Funding Resources		
Authority to Levy Taxes	Yes	
Capital Improvement Project Funds	Yes	
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	
General Obligation Bonds and/or Special Tax Bonds	Yes	
Impact Fees for New Development	No	
State Funding Programs (i.e., NYSEFC, NYSOOCR, NYSDEC, others)	Yes	
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	No	

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?)
Other	Yes	The Town utilizes local, private grant funding sources – such as the Floyd Hooker Foundation – to fund park programming
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	Yes	
NFIP Participant / Floodplain Ordinance	Yes	Local Law 1 of 2012 - Flood Damage Prevention
Hillside Development Regulations	No	
Open Space Preservation	No	
Stormwater Management Regulations	Yes	Industrial projects must follow federal/state stormwater pollution prevention plan (SWPPP) regulations
Streambank Setback Regulations	No	
Subdivision Regulations	Yes	May 11, 1999
Zoning Ordinance	No	
Other	Yes	Junkyard Ordinance (amended 2004), Regulation of Windmills (Local Law 1 of 2010, Local Law 2 of 2017), Right to Farm (Local Law 1 of 2023)
Natural Resources		
Forest/Vegetation Management	No	
Stream Corridor Management	No	
Stream Dumping Regulations	Yes	State laws apply
Urban Forestry and Landscape Management	No	
Watershed Management	No	
Wetland Regulations	No	
Other	Yes	Work with SWCD on natural resource programming and projects Follows Uniform Procedures Act (UPA), Article 70 of the NYS Environmental Conservation Law (ECL)
Plans		
Capital Improvement Plan	No	Currently working on one
Comprehensive Emergency Management Plan	Yes	Annex to Tioga County's Comprehensive Emergency Management Plan (2013)
Comprehensive Plan	Yes	2017
Continuity of Operations Plan	Yes	Emergency Operations Plan (2012)
Economic Development Plan	Yes	Tioga County 2020 Strategic Plan
Other	No	
Programs/Organizations		
Climate Smart Community	No	

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?)
Local Emergency Preparedness/Disaster Response Organizations	Yes	The Town Hall serves as an emergency response center with an emergency generator and houses a flood control warning mechanism. The Fire District also has an emergency generator and the Highway Department is in the process of installing an emergency generator.
Local Environmental Protection Organizations	No	
National Weather Service StormReady Certification	Yes	County Level
Outreach Programs	No	
Partnerships with private entities addressing mitigation or disaster response	No	
School Programs or Adult Educational Programs	No	The school serves as a facility eemergency shelter
Other	No	
Staff Positions		
Civil Engineer	No	
Code Enforcement Officer	Yes	
Emergency Manager	Yes	Town Supervisor
Floodplain Administrator	Yes	Code Enforcement
Planner/GIS Coordinator	No	239 review
Other	No	
Technical Abilities		
Grant Writing	Yes	The Town has written grants internally and also utilizes County resources for grant writing
Hazard Information Centers	No	
Hazard Warning Systems	Yes	Town Hall hosts a flood control warning mechanism (creek meters set off an alarm if high water levels are detected)
Other	No	

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 during future updates to the Comprehensive Plan, as well as in the event that the Town establishes a 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 the creation of a 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.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10.3 of the main body of the HMP.

3.2 Integration of Planning Efforts

The Town of Tioga understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The Town intends to reference the 2024 Tioga 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 Tioga may use the local laws assessment (included in Section 2 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.

The Town's planning documents are reviewed about every ten years. When being updated, the plans are reviewed by the Town Planning Board, then the County Planning Board, then the Planning Board again, and then by the public (who can provide feedback via public meetings). Following completion, the updated plans are sent to the Town Board for approval. The goal is to solicit as much community input as possible. The County Review process provides the Town with another set of eyes on its planning documents while they are being developed. There may be opportunities to integrate a review and consideration of the HMP into this existing process.

Outside of formal public meetings, the Town also has informal avenues for providing updates to the community. For example, the local church organization requests and receives a Town update about every month from the Town. This information channel could also serve to involve the public in hazard mitigation planning initiatives.

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 four natural hazards: flooding, severe storm, extreme temperatures, and drought. Descriptions of each of these hazards are included in Section 5 of the main body of the HMP. The Town of

Tioga has chosen to profile the same hazards as the County. No hazards were omitted and there were no additional hazards identified as unique and specific to the Town of Tioga.

The hazard analysis criteria used to evaluate the Town's vulnerability to each natural hazard are summarized in *Table 4-1*, and the results are presented in *Table 4-2*.

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

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 (Coastal Flooding, Riverine Flooding, Ice Jam)	3	3	3	2	11 – High	1	The flooding impacts of a new mining operation one mile downstream are not well understood.
Drought	1	1	3	3	8 – Moderate	3	N/A
Severe Storm (Hail, Ice Storm, Lightning, Strong Wind, Winter Weather, Tornado, Hurricane/ Tropical Storm)	2	3	2	2	9 – High	2	N/A
Extreme Temperatures (Cold Wave, Heat Wave)	1	1	2	2	6 – Moderate	4	N/A

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 5 of the main body of the HMP. The following is a subset of events that occurred specifically within the Town. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Town.

Table 4-3. Hazard Event Records, 2018-2022

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Flash Flood	9/18/2018	-	\$250,000.00	-
Thunderstorm Wind	8/4/2022	50	\$5,000.00	-
Thunderstorm Wind	8/4/2022	50	\$3,000.00	-
Total			\$258,000.00	None Reported

4.3 Floodplain Statistics

Key waterways in the Town are described in Section 2.2. 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 37,968 acres in the Town, approximately 7.70% are located within the 1% annual chance flood event area, and approximately 0.73% are located within the 0.2% annual chance flood event area. The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-5. 465 parcels in the Town are located within the 1% annual chance flood event area, with an estimated total structure value of \$24,638,968. 297 parcels in the Town are located within the 0.2% annual chance flood event area, with an estimated total structure value of \$5,577,495.

Table 4-4. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	1% Annual Chance Flood Hazard Area	0.2% Annual Chance Flood Hazard Area
37,968	7.70%	0.73%

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

Property Class	Number of Parcels in 1% Annual Chance Flood Hazard Area	Approx. Structure Value* in 1% Annual Chance Flood Hazard Area	Number of Parcels in 0.2% Annual Chance Flood Hazard Area	Approx. Structure Value* in 0.2% Annual Chance Flood Hazard Area
Agricultural	22	\$101,050	13	\$84,670
Commercial	25	\$765,050	24	\$286,950

Property Class	Number of Parcels in 1% Annual Chance Flood Hazard Area	Approx. Structure Value* in 1% Annual Chance Flood Hazard Area	Number of Parcels in 0.2% Annual Chance Flood Hazard Area	Approx. Structure Value* in 0.2% Annual Chance Flood Hazard Area
Community Services	6	\$15,526,300	3	\$3,233,500
Industrial	8	\$3,391,040	8	\$30,340
Parks and Open Space	1	\$12,900	0	N/A
Public Services	11	\$2,866,211	6	\$625,769
Residential	247	\$1,907,597	165	\$1,260,466
Vacant	141	\$19,620	74	\$10,000
Recreation	4	\$49,200	4	\$45,800
Total	465	\$24,638,968	297	\$5,577,495

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 insured structure incurs damage costs that are over 50% of its market value, the owner must comply with the local floodplain regulations 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.

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 Tioga currently participates in the NFIP (community ID 360842), and its current FIRM(s) became effective on 4/17/2012. FIRMs are available via FEMA's Flood Map Service Center (<https://msc.fema.gov/portal/home>). Digital FIRM data is also available for Tioga County

via FEMA's National Flood Hazard Layer Viewer, which was referenced during the development of this annex. The Town joined the NFIP on 05/17/82. The Town's local law governing floodplain development and NFIP compliance is located in Local Law 1 of 2012. There were no compliance issues identified in this hazard mitigation planning process. 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 21 repetitive loss properties in the Town of Tioga. Such properties 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:

- The Town's primary concerns are how to move water/snow (e.g., keeping ditches, roads, and underpasses clean) and how to get the funds so that roads and culverts are built and maintained appropriately.
- Grant funding is a concern for the future due to escalating costs for project construction. Increasing the Town's ability to predict future needs is a challenge but critical.

These concerns were taken into consideration when developing the mitigation strategy. The effects of climate change and other factors on future hazard events in Tioga County are covered in more detail in Section 5 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response or that requires a special emergency response in the event of hazardous incidents, as identified by the Town of Tioga. These 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 and Village 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 Tioga and any particular vulnerabilities of note. More information about hazard vulnerability, including a tool for understanding the vulnerability of community assets to events of varying magnitudes, is included in Section 6 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 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

The Town of Tioga does not have any high-hazard potential dams located within the municipal boundaries.

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 Tioga has identified the following additional assets for consideration in hazard mitigation planning:

Table 5-2. Additional Assets

Important Assets	Description
Ransom Park (3050 NY-17C)	The park is within the flood zone, but has been designed to adapt to flooding.

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

6.1 Flood

The Town of Tioga has ranked its overall vulnerability to a flood event as high, as indicated in Table 4-2. Flood events occur regularly in the jurisdiction and affect the entire jurisdiction, causing major damage. The jurisdiction is moderately prepared/not prepared for flood events.

Information on flood event records (Section 1.1), 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 Tioga has ranked its overall vulnerability to a severe storm event as high, as indicated in Table 4-2. Severe storms occur regularly in the jurisdiction and affect a significant portion of the jurisdiction, causing moderate damage. The jurisdiction is moderately prepared for severe storm events.

Records of severe storm events are described in Section 1.1. 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 damage 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. Damage to the Town's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damages would primarily impact the more populated portions of the Town, such as the hamlets of Catlin Hill, Germany Hill, Goodrich, Tioga Center, and Halsey Valley. The Town completes tree maintenance within the Town road right of ways to minimize potential damage to overhead utility lines. Private utility right-of-ways are generally maintained by individual utility companies.

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 Tioga has ranked its overall vulnerability to a drought event as moderate, as indicated in Table 4-2. Drought events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is not prepared for drought events.

Agricultural areas and properties served by private wells would experience the most significant impacts from drought. Agricultural properties are located evenly within the Town. Agricultural operators who rely on natural rain events, rainwater collection, and healthy soils for crop maintenance and livestock care may be susceptible to the impacts of low water yields during a drought. Moreover, because the Town is not served by a municipal water or wastewater system, residents rely on private wells and may be susceptible to low water yields during a drought.

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 Tioga has ranked its overall vulnerability to an extreme temperature event as moderate, as indicated in Table 4-2. Extreme temperature events occur rarely in the jurisdiction and affect a significant portion of the jurisdiction, causing minor damage. The jurisdiction is 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 3% of the population in the Town is under 5 years old, and 20% of the population is over 65 years old. Approximately 23% 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 19% 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.

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 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:

- Flooding and flash flooding
- Severe storm (downed trees)
- Pursuit and award of grant funding

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

- The older adults population (65+ years)

The plan was revised to reflect the following changes in community priorities since the 2018 HMP Update:

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

Additional concerns that the Town would like addressed in the plan include:

- None Identified

6.6 Additional Impacts

Additional impacts of the hazards are summarized in the problem descriptions in the Village'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 proposed 14 mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized in Table 7-1, 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 2024 HMP Update? (Yes/No)
Flood Protection Study for Hamlet of Tioga <i>Note: This action consists of 2018 proposed mitigation projects T. Tioga 1 and T. Tioga 3, combined.</i>	<p>Multi-phase project:</p> <p>Phase 1 being a study to identify solutions and engineer best solution over 1 year – Perform a study to evaluate the viability of building a dike wall on the west side of Pipe Creek from the existing rail road bridge on the north side of the Susquehanna River to the Route 17C bridge, then on northward to the Allen Road bridge. This could protect approximately 25 homes along Route 17C. during 100-year flood events.</p> <p>It would be 6 months to year before the next phase would start. Phase 2 would be to implement best solution.</p>	Flood	Town of Tioga Supervisor and Flood Administrator with support from SWCD	In Progress <i>The east side of Pipe Creek has been resolved (by road elevation as part of the emergency exit plan), but the west side of Pipe Creek still needs to be addressed.</i>	Yes

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Owego Creek-Catatonk Creek Intersection	<p>Initiate multi-phase project to study the problem, identify solution and engineer solution over 2 years. Phase 2 will be started less than 6 months after a solution has been identified. Phase 2 is to implement the engineered solution.</p> <p>2024 Update Note: The vision of this project is to establish Town-owned land with public fishing access.</p>	Flood	Town of Tioga Supervisor; Town of Tioga Floodplain Administrator; Tioga County SWCD	<p>In Progress</p> <p><i>HMGP funding for the buyout has been awarded, but NYS DHSES contract is still needed. The anticipated year of completion date is 2023, with a FEMA deadline of 2024.</i></p> <p><i>WQIP funding for stream work has been awarded, but matching funds are still needed.</i></p>	Yes
<p>Watershed Assessment of Pipe Creek Study</p> <p>Note: This action was previously titled Pipe Creek Study (T. Tioga 4)</p>	<p>Pipe Creek needs to be studied using the Rosgen method in order to stabilize sections of the stream. Smaller projects on Pipe Creek in progress. Tioga County SWCD has secured funding for several stabilization projects to occur in the Pipe Creek Watershed. In 2007, 3000 feet of streambank on Pipe Creek was mitigated after improper maintenance of the stream occurred.</p>	Flood	Town administration with support of SWCD	<p>No Progress</p> <p><i>While a watershed assessment has not been initiated, smaller assessments have taken place on a site-by-site basis as stream issues were reported.</i></p>	Yes

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Pipe Creek - stream erosion and gravel deposition	Identify work to alleviate excess gravel deposition within the hamlet and upstream (pipe creek within a mile of the river). Note: This action previously was not given a solution description.	Flood	Town administration with support of SWCD	In Progress <i>Five stream barbs have been installed in the last five years; more similar work will be completed in the next five years stream in the next 5 years following pursuit and award of grant funding.</i>	Yes
Halsey Valley Rd Note: Previously title Halsey Valley and Dubois Road (T. Tioga 6)	Raise a quarter-mile stretch of the southern portion of Halsey Valley Road to match the elevation of the perpendicular crossing road, NY State Route 17C. This would reduce future flooding along Halsey Valley Road and ensure that emergency vehicles can access homes located along Halsey Valley Road and nearby medical hospitals during future storms. When constructed, the road will meet all required specifications and safety standards.	Flood	Town administration with support of SWCD	Completed	No
Dubois Rd Note: Previously titled Halsey Valley and Dubois Road (T. Tioga 6)	Replace pipe on Dubois Rd to resolve flooding issues.	Flood	Town administration with support of SWCD	Complete	No

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Goodrich Settlement Area	Village of Owego will have to have proposal to increase berm height along Owego Creek evaluated by engineer to make sure it will not impact others. Concerns will be addressed by engineer review.	Flood	Town Administration with support of SWCD and Village of Owego	No Progress	No
Floodprone, repetitive loss and severe repetitive loss properties	Work with property owners of structures located in the floodplain. Inform the owners they are located in the floodplain and provide mitigation options for those properties. If property owner chooses to mitigate, Town will work with the property owner.	Flood, Severe Storm	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from NYSDHES, FEMA	In Progress <i>Thus far, property owners either moved forward with a buyout, accepted the consequences, or elevated their structure. Outreach efforts are ongoing.</i>	Yes
Update of Comprehensive Emergency Operations Plan	Complete the ongoing updates of the Comprehensive Emergency Management Plans –Include Tioga Central School District and the Tioga Fire District and use local media such as WEBO, WATS, and WBNG.	All Hazards	Municipality with support from NYSOEM	Completed	No
Agreements with FEMA and NYSDHSES	Identify and develop agreements with entities that can provide support with FEMA/NYSDHSES paperwork after disasters; qualified damage assessment personnel –Improve post-disaster capabilities – damage assessment; FEMA/NYSDHSES paperwork compilation, submissions, record-keeping	All Hazards	Municipality with support from County, NYSOEM, FEMA	In Progress <i>This action was related to the Glen Mary Drive project.</i>	No

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Salt Storage Facility and Cover, Town of Tioga	Purchase and install a salt storage facility (shed) and cover to protect municipal resources and reduce the potential for environmental contamination during future storm events.	All	Town Public Works	Completed	No
Alternative Energy Study	Explore use of micro-grids to help reduce the cost of long term operations and help residents, businesses and municipal facilities to thrive in the post storm economy.	All	Town Board with assistance from business owners	In Progress <i>Four to five micro-grid facilities have been established.</i>	Yes
Sewer Expansion	Town of Tioga partner with the Tioga Central School District to use the existing wastewater treatment plant at the school and create a shared municipal sewer system to reduce potential environmental contamination during future storm events. The project includes the engineering, design, and construction of new laterals.	Flood, Severe Storms	Town Public Works, Tioga Central School Board	Discontinue	No
Gap Analysis and Consolidated Emergency Plan	Prepare a Consolidated Emergency Plan for the Town of Tioga. This consolidated plan will identify existing gaps between Tioga County's Hazard Mitigation Plan and the Town of Tioga's Emergency Response Plan (ERP).	All	Town Board	In Progress <i>The Consolidated Emergency Plan is now up to date, but will always be an ongoing activity requiring future updates.</i>	Yes

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the Town of Tioga identified new mitigation actions for inclusion in the 2024 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 of Tioga could expand and improve the identified capabilities to achieve mitigation, as described in Section 1 of this annex. Then, a more comprehensive range of actions was evaluated as described in Section 7.2 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.

The Town proposed 11 new mitigation actions to be included in the 2024 HMP update. These actions are included in Table 7-2 below.

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
T Tioga F1	Floodplain Study of Mining Operation	G1, G2, G6	Flood	A new mining operation is being established approximately one mile downstream, which will have unknown impacts on future flood due to development and removal of gravel.	Complete a floodplain study to better understand how the new mining operation could impact flood elevation, and identify mechanisms for mitigating new or increased flood risk.	No	No	6 months – 1 year	Highway Dept with support from FEMA and SWCD	\$	By completing a floodplain study, the Town will be better prepared to implement effective flood mitigation measures resulting from new development, particularly the specific mining operation.	HMGP, FMA, BRIC, NYS HM RLF, NRCS WFPO	High
T Tioga MHI	Consolidation of Municipal Facilities	G1, G6	All Hazards	Town facilities are aging and spread out, limiting the extent to which Town buildings can withstand severe weather events, serve as emergency centers, and coordinate emergency services.	Create and implement a development plan for a single municipal complex that would house all Town offices and the Tioga Center Fire Department in a centralized location and modern facility.	Yes	Yes	5+ years	Highway Dept	\$\$\$	Consolidating municipal facilities into a single, modernized complex would allow for greater collaboration and sharing of equipment and services between departments, improve these facility's resilience to severe weather events, and expand opportunities to utilize Town facilities as emergency centers. Overall, these benefits would reduce the vulnerability of the Town to natural hazards.	HMGP, FMA, BRIC, NYS HM RLF, CDBG-MIT	High
T Tioga ET1	Heating & Cooling Assistance Plan	G1, G3, G4	Extreme Temperatures	The Town currently lacks a formalized strategy for providing assistance to residents during heat and cold waves.	Develop a Heating & Cooling Assistance Plan that identifies the appropriate use of Town and partner facilities (such as the Red Cross) as heating and cooling centers during heat waves and cold waves. Include considerations for the distribution of critical supplies to particular areas of concern and vulnerable populations. The strategy will also outline communications methods to be utilized to raise community awareness of such heating and cooling centers and the services they provide.	Yes	No	1-3 years	Highway Dept	\$	The development of a formalized strategy for heating and cooling assistance during extreme temperature events will increase the efficiency and effectiveness of emergency operations and increase overall public safety during such events.	HMGP, CDBG-MIT	High
T Tioga F2	Culvert & Bridge Improvements	G1, G3, G6	Flood	There is a lack of funding in the Town to be able to build and maintain culverts and bridges in a manner that mitigates flood risk and maintains public safety. This has resulted in increased flooding in the Town.	Assess the condition, size, and effectiveness of culverts within the Town at withstanding high volumes of water. Additionally, assess bridges within the Town for performance when there is a risk of flood events. Create a list of culverts and bridges that need attention, and work with the County SWCD to pursue funding opportunities to make necessary repairs and replacements, including resizing culverts where necessary.	No	Potentially	3-5 years	Highway Dept with assistance from SWCD	\$\$	Repairing and appropriately resizing culverts will allow for more efficient flow of water during flood events, reducing the extent of flooding and the risk of damage to and closure of bridges, roadways, and other infrastructure. Additionally, making improvements to bridges will increase the safety of travelers that use bridges when there is a risk of flooding.	HMGP, FMA, BRIC, EPA'S EFC Grant Program, EPA's Water Infrastructure and Resiliency Finance Center, NYS CDBG, NYS HM RLF, FEMA EMPG, NYS WQIP	High
T Tioga MH2	Hazardous Tree Inventory & Removal	G1, G2, G4	Severe Storm, Flood	Dying and dead trees are at risk of falling during severe storm events. This can result in road closures, damage to property and infrastructure (e.g. electrical utilities), blockage of streams and amelioration of flooding, and risk to public safety. Additionally, large trees have accumulated along the banks between the towns of Owego and Tioga, which could be washed into the Susquehanna River in a flood and create significant damage to bridges, docks, buildings, tied-up boats, and more.	Develop an inventory of hazardous trees that are at risk of falling into waterways and/or damaging infrastructure and property, as well as any trees and tree limbs that have already fallen and could do damage to infrastructure. Partner with SWCD to facilitate the appropriate removal of hazardous trees. Additionally, incorporate the regular inspection and management of hazardous trees into the Town's existing procedures for drainage system and infrastructure maintenance.	No	Potentially	1-3 years	Highway Dept with support from SWCD	\$\$	Identifying and removing hazardous trees prior to falling or being washed away by floodwaters will reduce the risk of injury to people, damage to property and infrastructure, and blockage and flooding of waterways.	HMGP, FMA, BRIC, NYS HM RLF, CDBG-MIT	High
T Tioga F3	Owego Creek Stabilization & Rehabilitation	G1, G4, G5	Flood	Erosion of the Owego Creek streambank from Talcott St to the Susquehanna River poses the risk of eroding existing flood mitigation systems (e.g. berms) and increasing flooding within the Town.	Partner with the Village of Owego to implement stabilization and rehabilitation projects along the 1.4 miles of Owego Creek between Talcott St and the Susquehanna River.	No	Yes	1-3 years	Highway Dept with support from SWCD	\$\$	Implementing stabilization and rehabilitation projects along Owego Creek from Talcott St to the Susquehanna River will protect and increase the longevity and effectiveness of existing flood mitigation infrastructure and reduce risk from flooding.	HMGP, FMA, BRIC, NYS HM RLF, CDBG-MIT, NRCS WFPO	Medium
T Tioga D1	Drought Mitigation & Emergency Plan for Local Agricultural Operations	G1, G3, G5, G6	Drought	The Town has many agriculture operations that rely on consistent water supplies to sustain crops and livestock. However, the Town does not have a public water supply or emergency water reserve for use during drought. The Town also does not have a program for spreading awareness of strategies and resources that local agricultural operations can reference to increase resiliency to drought.	Develop and implement a Drought Mitigation & Emergency Plan that establishes an outreach campaign to raise awareness of strategies and resources for reducing agricultural operations' risk to drought (e.g. planting cover crops, reducing tillage, harvesting rainwater, etc.). The outreach campaign will also provide information on relevant resources for technical assistance and grant funding, such as the USDA Emergency Conservation Program. Include in the Plan a strategy for providing support to agricultural operations during drought.	No	No	6 months – 1 year	Highway Dept with support from SWCD and the Tioga County Agricultural Resource Group	\$	The Drought Mitigation & Emergency Plan will provide local agriculture operations with the resources needed to reduce the impacts of drought on crops and livestock. Many of these actions, such as planting cover crops and reducing tillage, will reduce the impacts of drought over many seasons. The Plan will also establish a system for providing direct assistance to agricultural operations impacted by drought.	HMGP, BRIC, NYS HM RLF, CDBG-MIT, WaterSMART Drought Response Program	High
T Tioga F4	Outreach to Floodplain Development Applicants	G1, G3, G5	Flood	The Town receives applications for building permits within the floodplain and along stream corridors, despite the risks of erosion, flooding, and damage to infrastructure and property.	Collaborate with SWCD to meet with applicants of building permits within the floodplain to discuss the risks of property damage and associated costs in the case of a flood event. Suggestions may be offered for alternative locations outside of the floodplain and/or low-impact and flood-resistant building design techniques that could be utilized.	No	No	<6 months	Code Enforcement Officer with support from SWCD	\$	Educating building permit applicants on the risks of floodplain development and potential alternatives will reduce development pressures within the floodplain, preserving the function of the floodplain and reducing risk of damage to new development.	SWCD, NRCS WFPO	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
T Tioga MH3	Capacity-Building for Infrastructure Maintenance	G1, G3, G6	Severe Storm, Flood	One of the Town's primary concerns is how to move water/snow (e.g. keeping ditches, roads, and underpasses clean) in order keep roads safe during storm events and mitigate the risk of flooding.	Plan for and maintain adequate road and debris-clearing capabilities, including the necessary staff capacity, funding resources, protocols, and equipment. Pursue additional funding where necessary.	No	No	3-5 years	Highway Department	\$\$	The Town can improve public safety by reducing impacts on roadways during severe storm and flood events and ensuring that necessary travel can still take place. Establishing these capacities will lessen the impacts of storms and floods on public safety and infrastructure over a long time period.	HMGP, FMA, BRIC, EPA'S EFC Grant Program, NYS CDBG, NYS HM RLF, FEMA EMPG	High
T Tioga F5	Vulnerability Assessments of Critical Facilities	G1, G3, G6	Flood	It is currently undetermined whether or not several of the Town's critical facilities are protected against a 0.2% chance flood event or previous worst case flood event, leaving these facilities vulnerable to flood events.	Town staff will conduct vulnerability assessments to 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). This will serve as a first step toward protecting the facilities, if future funding becomes available. There are no local resources available at this time to conduct engineering design and retrofitting on these structures. Future efforts towards protecting these structures to an 0.2% chance flood event (or previous worst case flood event, if applicable) will be considered if funding becomes available. These may include engineering design, building retrofits, or other measures.	Yes	Maybe	3-5 Years	Highway Department	\$	Assessing the Town's critical facilities for their level of protection against a 0.2% chance flood event (or previous worst case flood event, if applicable), is a first step to ensuring that these facilities remain operable during and after flooding events, reducing the overall risk to people and infrastructure.	US HMGP, US BRIC, US Flood Mitigation Assistance, US HUD CDBG-MIT, NYS HM RLF	Medium
T Tioga MH4	Review and Update Municipal Regulations	G1, G3, G4	All Hazards	Flooding, severe storms, drought, and extreme temperatures all pose risks to the Town. Despite the risks, not all relevant municipal laws and ordinances incorporate hazard mitigation.	Review municipal laws and ordinances and update as necessary to incorporate hazard mitigation. This may include review of the zoning code, development regulations, subdivision regulations, building codes, and other regulations as applicable to ensure that new and existing developments are protected against a 500-year flood event and against other hazards. Examples that may be considered include, but are not limited to: <ul style="list-style-type: none"> - Requiring the submittal of a Stormwater Pollution Prevention Plan with subdivision applications, site plan applications, and applications for a special use permit, variance, or zoning change (flooding) - Encouraging tree plantings and green roofs in building codes to mitigate extreme heat (extreme temperatures) - Updating or creating site design review standards to include natural environmental features such as wind buffers, requiring regular maintenance of trees in high-wind areas, and/or require wind-resistant building techniques such as structural bracing in the building codes for high-wind areas (severe storms) - Updating or creating laws about the water system so that they include a plan for obtaining for secondary water sources that may be used during drought conditions (drought) 	No	No	1-3 years	Planning Board	\$	Updated municipal regulations will help ensure that new and existing developments are protected against flooding and other hazards, by incorporating hazard mitigation directly into planning processes. This will reduce the risk that is posed to people and property from the affected hazards.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, EPA EFC Grant Program, NYS CDBG Program	Medium

7.3 Mitigation Action Prioritization

Each of the Town's proposed mitigation actions was evaluated and prioritized according to the criteria listed in Section 7.2.4 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
T Tioga F1	Floodplain Study of Mining Operation	3	3	3	2	11	High
T Tioga MH1	Consolidation of Municipal Facilities	3	2	2	3	10	High
T Tioga ET1	Heating & Cooling Assistance Plan	2	3	3	2	10	High
T Tioga F2	Culvert & Bridge Improvements	2	3	3	2	10	High
T Tioga MH2	Hazardous Tree Inventory & Removal	3	2	3	3	11	High
T Tioga F3	Owego Creek Stabilization & Rehabilitation	2	2	3	2	9	Medium
T Tioga D1	Drought Mitigation & Emergency Plan for Local Agricultural Operations	2	3	3	2	10	High
T Tioga F4	Outreach to Floodplain Development Applicants	3	3	2	2	10	High
T Tioga MH3	Capacity-Building for Infrastructure Maintenance	3	2	2	3	10	High
T Tioga F5	Vulnerability Assessments of Critical Facilities	2	3	1	2	8	Medium
T Tioga MH4	Review and Update Municipal Regulations	2	3	3	1	9	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 as described in Section 7 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

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 Tioga 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. The Town also intends to engage in public education regarding the risks and costs (e.g., insurance) of building in a floodplain and adjacent to creeks where erosion is a concern.

Village of Candor

This section presents the jurisdictional annex for the Village of Candor for the 2024 Tioga 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 the Village of Candor regarding this Jurisdictional Annex are identified as follows:

- Primary: Gwen Isham, Village Mayor
 - mayor@villageofcandorny.org
 - (607)227-6275
- Alternate: Chad Edwards, Deputy Mayor
 - edwardsc@tiogacountyny.gov
 - (607)972-7584

Village of Candor Website: <http://villageofcandorny.org/>

2 COMMUNITY SNAPSHOT

2.1 Demographics

The 2020 Census estimated that 786 people live in the Village of Candor. The Village's population has decreased by 8% since the 2010 Census (851). The median age in the Village is 39.2 years, and 15% of the population is over the age of 65. The median household income in the Village is \$53,482.

2.2 Location & Land Characteristics

The Village of Candor is centrally located in the Town of Candor in Tioga County. The Village covers approximately 0.4 square miles. The properties within the Village have a total assessed value of approximately \$38,156,300, which is distributed across a variety of property classes.

Major transportation corridors in the Village include New York State Route 96 and New York State Route 96B (Ithaca Road). County Road 103 enters the Village from the north, as described in Section 2.8 of the main body of the HMP. Key water features within the Village include Catatunk Creek, which flows between the Upper and Lower Mill Ponds.

2.3 Governing Body

The Village of Candor is governed by a Village Board consisting of a Mayor and four Trustees.

2.4 Recent and Anticipated Future Development

According to a review of 239 Referrals since the last County HMP (2018), there were no new developments proposed within the Village.

Table 2-1. Developments from 2018 to March 2023

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
N/A - No 239 Referrals were proposed within the Village since the last County HMP (2018)						

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The Village of Candor identified the following planning mechanisms and capabilities that can support the Village 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 that 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	No	
Mitigation Planning Committee	No	
Mutual Aid or Shared Services Agreements	Yes	Town of Candor and almost all other Towns in the County; Tioga County
Planning Board	No	
Zoning Board	No	
Other	No	
Development Approvals		
Building Code	Yes	Local Law No. 1 of 2023 - Fire Prevention and Building Code
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	No	
Fire Department ISO Rating	No	
Site Plan Review Requirements	No	
Other	No	
Funding Resources		
Authority to Levy Taxes	No	
Capital Improvement Project Funds	Yes	Have a capital fund for the public water system
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	FEMA funding was utilized in 2011 for riverine flooding support (gravel road was washed out)
General Obligation Bonds and/or Special Tax Bonds	No	
Impact Fees for New Development	No	
State Funding Programs (i.e., NYSEFC, NYSOCR, NYSDEC, others)	Yes	Received EFC grant for the upgrading of public water supply system infrastructure
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	Yes	Public water supply
Other	No	

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?)
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	Yes	
NFIP Participant / Floodplain Ordinance	Yes	Village Flood Damage Prevention Ordinance (Local Law 2 of 2012)
Hillside Development Regulations	No	
Open Space Preservation	No	
Stormwater Management Regulations	No	
Streambank Setback Regulations	No	
Subdivision Regulations	No	
Zoning Ordinance	No	
Other	Yes	The wellhead protection ordinance (passed in 2012-2013) prevents drilling within certain areas
Plans		
Capital Improvement Plan	Yes	
Comprehensive Emergency Management Plan	No	
Comprehensive Plan	No	
Continuity of Operations Plan	No	
Economic Development Plan	No	
Other	No	
Programs/Organizations		
Climate Smart Community	No	
Local Emergency Preparedness/Disaster Response Organizations	No	
Local Environmental Protection Organizations	No	
National Weather Service StormReady Certification	Yes	County Level
Outreach Programs	No	
Partnerships with private entities addressing mitigation or disaster response	No	
School Programs or Adult Educational Programs	No	
Other	No	
Staff Positions		
Civil Engineer	No	
Code Enforcement Officer	Yes	
Emergency Manager	No	County Emergency Manager
Floodplain Administrator	Yes	Code Enforcement Officer
Planner/GIS Coordinator	No	
Other	No	
Technical Abilities		
Grant Writing	Yes	Board member assists with grant applications

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?)
Hazard Information Centers	No	
Hazard Warning Systems	No	
Other	No	

The Village’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 Village may consider creating a Comprehensive Plan and/or a Zoning Code, and reviewing Table 3-1 as part of this process. As part of this review, the Village 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 the creation of a 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 the creation of a 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.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10.3 of the main body of the HMP.

3.2 Integration of Planning Efforts

The Village of Candor understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The Village intends to reference the 2024 Tioga 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 Village 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 Village of Candor may use the local laws assessment (included in Section 2 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.

4 HAZARD IDENTIFICATION AND RISK ASSESSMENT

4.1 Profiled Hazards

In this HMP Update, the County reviewed multiple natural hazards and determined to profile four natural hazards: flooding, severe storm, extreme temperatures, and drought. Descriptions of each of these hazards are included in Section 5 of the main body of the HMP. The Village of Candor has chosen to profile the same hazards as the County. No hazards were omitted, and there were no additional hazards identified as unique and specific to the Village of Candor.

The hazard analysis criteria used to evaluate the Village's vulnerability to each natural hazard are summarized in *Table 4-1*, and the results are presented in *Table 4-2*.

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

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 (Coastal Flooding, Riverine Flooding, Ice Jam)	2	1	1	3	7 - Moderate	2	N/A
Drought	1	1	1	1	4 - Low	3	N/A
Severe Storm (Hail, Ice Storm, Lightning, Strong Wind, Winter Weather, Tornado, Hurricane/ Tropical Storm)	3	1	3	1	8 - Moderate	1	N/A
Extreme Temperatures (Cold Wave, Heat Wave)	1	1	3	3	8 - Moderate	1	N/A

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 5 of the main body of the HMP. The following is a subset of events that occurred specifically within the Village. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Village.

Table 4-3. Hazard Event Records, 2018-2022

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Thunderstorm Wind	6/13/2018	50 Knots	\$10,000.00	-
Thunderstorm Wind	8/18/2019	50 Knots	\$15,000.00	-
Hail	8/18/2019	1 Inch	-	-
Thunderstorm Wind	8/23/2020	50 Knots	\$10,000.00	-
Thunderstorm Wind	7/6/2021	50 Knots	\$10,000.00	-
Total			\$45,000.00	None Reported

4.3 Floodplain Statistics

Key waterways in the Village are described in Section 2.2. 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 294 acres in the Village, approximately 18.71% are located within the 1% annual chance flood event area and approximately 0.00% are located within 0.2% annual chance flood event area. The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-5. 85 parcels in the Village are located within the 1% annual chance flood event area, with an estimated total structure value of \$16,072,800. No parcels in the Village are located within the 0.2% annual chance flood event area.

Table 4-4. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	1% Annual Chance Flood Event Area	0.2% Annual Chance Flood Event Area
294	18.71%	0.00%

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

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Agricultural	0	N/A	0	N/A
Commercial	6	\$872,000	0	N/A

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Community Services	6	\$12,797,600	0	N/A
Industrial	0	N/A	0	N/A
Parks and Open Space	1	\$0	0	N/A
Public Services	0	N/A	0	N/A
Residential	45	\$2,391,100	0	N/A
Vacant	27	\$12,100	0	N/A
Recreation	0	N/A	0	N/A
Total	85	\$16,072,800	0	N/A

*Structure Value estimated by subtracting parcel Land Assessed Value from Total Assessed Value

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 insured structure incurs damage costs that are over 50% of its market value, the owner must comply with the local floodplain regulations 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.

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 Village of Candor currently participates in the NFIP (Community ID 360834), and its current FIRM(s) became effective on 4/17/12. FIRMs are available via FEMA's Flood Map Service Center (<https://msc.fema.gov/portal/home>). Digital FIRM data is also available for Tioga County via

FEMA's National Flood Hazard Layer Viewer, which was referenced during the development of this annex. The Village joined the NFIP on 10/01/91. The Village's local law governing floodplain development and NFIP compliance is located in Local Law No. 2 of 2012. There were no compliance issues identified in this hazard mitigation planning process. The Village 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 zero repetitive loss properties in the Village of Candor. Such properties 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

No concerns about future changes in hazard impacts specific to the Village were identified during the hazard mitigation planning process. The effects of climate change and other factors on future hazard events in Tioga County are covered in more detail in Section 5 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response or that requires a special emergency response in the event of hazardous incidents as identified by the Village of Candor. These 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 and Village 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 Village of Candor, and any particular vulnerabilities of note. More information about hazard vulnerability, including a tool for understanding the vulnerability of community assets to events of varying magnitudes, is included in Section 6 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 Village’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 Village has included an action in Section 7.2 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

The Village of Candor does not have any high-hazard potential dams located within the municipal boundaries.

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 Village of Candor has identified the following additional assets for consideration in hazard mitigation planning:

Table 5-2. Additional Assets

Important Assets	Description
Bread of Life Food Pantry	Located at 1 Water Street, Candor, NY 13743
Candor Bus Garage	Located in Town at 155 Spencer Rd, Candor, NY 13743
Candor Fire District	Located in Town at 74 Owego Rd, Candor, NY 13743
Two Wells and Water Tower	Located in Town, but owned by Village
John W. McCarty House	Historic site located at 118 Main St, Candor, NY 13743

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

6.1 Flood

The Village of Candor has ranked its overall vulnerability to a flood event as moderate, as indicated in Table 4-2. Flood events occur rarely in the jurisdiction and affect one or two problem areas within the jurisdiction, causing moderate damage. The jurisdiction is not prepared for flood events.

Information on flood event records (Section 1.1), 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 Village'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 Village of Candor has ranked its overall vulnerability to a severe storm event as moderate, as indicated in Table 4-2. Severe storms occur rarely in the jurisdiction and affect the entire jurisdiction, causing major damage. The jurisdiction is well prepared for severe storm events.

Records of severe storm events are described in Section 1.1. Impacts to the Village 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. Damage to the Village's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damage would primarily impact the more populated portions of the Village. The Village completes tree maintenance within Village Road right of ways to minimize potential damages to overhead utility lines. Private utility right-of-ways are generally maintained by individual utility companies.

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 Village is vulnerable to, likely making the Village 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 Village of Candor has ranked its overall vulnerability to a drought event as low, as indicated in Table 4-2. Drought events occur rarely in the jurisdiction and affect one or two problem areas within the jurisdiction, causing minor damage. The jurisdiction is well prepared for drought events.

The Village of Candor is served by a public water supply. This water supply, and certain critical facilities (e.g. Two wells and water tower) could be susceptible to impacts during a drought due to low water yields, particularly if a backup water supply has not been formally established. Additionally, any residents who rely on private wells would also be susceptible to the impacts of a drought due to low water yields.

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 Village'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 Village of Candor has ranked its overall vulnerability to an extreme temperature event as moderate, as indicated in Table 4-2. Extreme temperature events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is not 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 Village is under 5 years old, and 15% of the population is over 65 years old. Approximately 15% of the residents of the Village 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 7% of the Village's population is below the poverty level. Many residents within these populations are at a higher risk of being impacted by extreme temperature events.

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 Village'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 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 Village.

Top concerns about hazard mitigation in the Village included:

- Flooding

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

- None identified

The plan was revised to reflect the following changes in community priorities since the 2018 HMP Update:

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

Additional concerns that the Village would like addressed in the plan include:

- None identified

6.6 Additional Impacts

Additional impacts of the hazards are summarized in the problem descriptions in the Village'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 Village proposed 2 mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized in Table 7-1, 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 2024 HMP Update? (Yes/No)
Upper Candor Dam Rehabilitation Project Catatonk Creek	Cut and remove concrete from a portion of the top of the dam. Install 15' steel piles and replace concrete. Install 9' sheet piles below the dam, extend apron with rip rap & place grout between the joints. Remove debris below the dam 7 place rip rap on banks to prevent erosion.	Flood	Village of Candor working with the Town of Candor	Completed <i>Completed by the Town 3-5 years ago.</i>	No

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Catatonk Creek Flood Protection	Conduct an engineering study to determine the best solution to reduce or eliminate flooding along Catatonk Creek. Once solution is identified, complete project.	Flood	Village of Candor Engineering and Village Board working with Town of Candor	<p>No progress</p> <p><i>However, when NYS built the lower bridge, measures were implemented to prevent flooding upstream (led by the Town).</i></p> <p><i>Additional actions that the Village can engage in include coordinating with property owners to encourage development outside and/or flood-resilient building design (e.g. elevation).</i></p>	Yes

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the Village of Candor identified new mitigation actions for inclusion in the 2024 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 Village of Candor could expand and improve the identified capabilities to achieve mitigation, as described in Section 1 of this annex. Then, a more comprehensive range of actions were evaluated as described in Section 7.2 of the main body of the HMP. Finally, actions that tied in most closely with the vulnerabilities identified by the Village were selected for inclusion in the HMP.

The Village proposed 6 new mitigation actions to be included in the 2024 HMP update. These actions are included in Table 7-2 below.

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
V Candor MH1	Hazardous Tree Inspection and Management	G1, G2, G4	Severe Storm, Flood	Dying and dead trees that fall during severe storm events damage infrastructure, result in road closures and electricity outages, contribute to the severity of flooding by blocking the flow of water in creeks and streams, and pose a public safety risk.	Incorporate the regular inspection and management of hazardous trees into the Village's existing procedures for drainage system and infrastructure maintenance. This activity may also include outreach to property owners with information on tree maintenance best practices and resources.	No	Potentially	6 months - 1 year	Highway Department with support from SWCD	\$\$	By regularly inspecting and maintaining hazardous trees, the Town will reduce the impacts of severe storms and floods on infrastructure and public safety.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	High
V Candor F1	Inspection/Resizing of Culverts	G1, G3, G6	Flood	The three existing culverts within the Village have not been formally assessed recently to ensure they are right-sized and in good condition, resulting in increased flood risk.	Assess the condition, size, and effectiveness of culverts within the Town. Create a list of culverts that need attention, and work with the County SWCD to replace with new right-sized piping, where deemed necessary. Culverts should be up to applicable design standards, and should take into account flood risk, ecological impacts, and other factors.	No	Potentially	1-3 years	Highway Department, with assistance from SWCD	\$\$	Appropriately resizing culverts will allow for more efficient flow of water during flood events, reducing the extent of flooding and the risk of damage to and closure of bridges, roadways, and other infrastructure.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	High
V Candor MH2	Hazard Alert System	G2, G3, G6	All Hazards	The Village currently lacks a system through which it can alert residents of natural hazard events and assist them in reducing their exposure and vulnerability to such events.	Explore alternative options for a text-, call-, and/or email-based hazard alert system (e.g. NY-Alert) that would notify residents of predicted and ongoing natural hazard events. Such an alert system would notify residents of the risks of natural hazard events, how to protect themselves and their property before and during the event, and support resources. Implement the preferred system.	No	No	1-3 years	Village Board with assistance from County OES	\$	By implementing a hazard alert system, residents will be well-prepared to reduce their exposure and vulnerability to natural hazard events before they occur and during the event.	US CDBG, US HMGP, NYS HM RLF	High
V Candor ET1	Tree Planting Program	G1, G4, G5	Extreme Temperatures	Areas that have less tree canopy experience hotter temperatures in the summer, contributing to the impact of heat waves.	Work with the SWCD to implement and promote a tree planting program through the SWCD's Tree and Shrub Sale.	No	Potentially	6 months - 1 year	SWCD	\$	Planting additional trees in the Village will reduce the impacts of extreme temperatures, particularly heat waves.	US BRIC, SWCD, NRCS WFPO	High
V Candor D1	Assessment and Upgrades of Water Delivery Systems	G1, G6	Drought	Drought events may reduce the availability of public water supplies within the Village.	Assess water delivery systems for any existing breaks/leaks and needed upgrades/expansions. As deemed appropriate and necessary, upgrade public water infrastructure to maximize the efficiency water supply delivery to reduce vulnerability to drought.	Yes	Potentially	3-5 years	Highway Department with assistance from NYS EFC	\$\$	Eliminating breaks and leaks in water delivery systems will reduce the severity of drought impacts.	NYS EFC, NYS WIIA	Medium
V Candor F2	Vulnerability Assessments of Critical Facilities	G1, G3, G6	Flood	It is currently undetermined whether or not several of the Village's critical facilities are protected against a 0.2% chance flood event or previous worst case flood event, leaving these facilities vulnerable to flood events.	Village staff will conduct vulnerability assessments to the critical facilities identified in the Village'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). This will serve as a first step toward protecting the facilities, if future funding becomes available. There are no local resources available at this time to conduct engineering design and retrofitting on these structures. Future efforts towards protecting these structures to an 0.2% chance flood event (or previous worst case flood event, if applicable) will be considered if funding becomes available. These may include engineering design, building retrofits, or other measures.	Yes	Maybe	3-5 Years	Highway Department	\$	Assessing the Village's critical facilities for their level of protection against a 0.2% chance flood event (or previous worst case flood event, if applicable), is a first step to ensuring that these facilities remain operable during and after flooding events, reducing the overall risk to people and infrastructure.	US HMGP, US BRIC, US Flood Mitigation Assistance, US HUD CDBG-MIT, NYS HM RLF	Medium

7.3 Mitigation Action Prioritization

Each of the Village’s proposed mitigation actions was evaluated and prioritized according to the criteria listed in Section 7.2.4 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
V Candor MH1	Hazardous Tree Inspection and Management	3	2	3	3	11	High
V Candor F1	Inspection/Resizing of Culverts	2	3	3	2	10	High
V Candor MH2	Hazard Alert System	2	2	3	3	10	High
V Candor ET1	Tree Planting Program	1	3	3	3	10	High
V Candor D1	Assessment and Upgrades of Water Delivery Systems	2	2	3	2	9	Medium
V Candor F2	Vulnerability Assessments of Critical Facilities	2	3	1	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 Village’s new mitigation actions will be implemented and administered as described in Section 7 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

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 Village of Candor 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 Village Board meetings and by offering opportunities for members of the public to participate in the implementation of relevant mitigation actions.

Village of Newark Valley

This section presents the jurisdictional annex for the Village of Newark Valley for the 2024 Tioga 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 the Village of Newark Valley regarding this Jurisdictional Annex are identified as follows:

- Primary: James Tornatore, Mayor
 - mayor@newarkvalleyvillage.com
 - (607)642-8686
- Alternate: Matt Seamans, Supervisor
 - dpw@newarkvalleyvillage.com
 - (607)642-8700

Village of Newark Valley Website: <https://villagenv.com/>

2 COMMUNITY SNAPSHOT

2.1 Demographics

The 2020 Census estimated that 928 people live in the Village of Newark Valley. The Village's population has decreased by 7% since the 2010 Census (997). The median age in the Village is 37.8 years, and 18% of the population is over the age of 65. The median household income in the Village is \$59,938.

2.2 Location & Land Characteristics

The Village of Newark Valley is located in the western part of the Town of Newark Valley and is northwest of Binghamton, New York, of Broome County. The Village covers approximately 1.0 square miles. The properties within the Village have a total assessed value of approximately \$35,110,725, which is distributed across a variety of property classes.

Major transportation corridors in the Village include New York State Route 38 (Main Street), north of its junction with New York State Route -38B, as described in Section 2.8 of the main body of the HMP. Key water features within the Village include the East Branch of Owego Creek.

2.3 Governing Body

The Village of Newark Valley is governed by a Village Board consisting of a Mayor and a Board of three Trustees.

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 Village. The proposals that the Village received are summarized in Table 2-1 below. None of the proposals for the Village are specified as being located in the Special Flood Hazard Area (1% annual chance flood event area), and at least one of the proposals for the Village is located in the Moderate Flood Hazard Area (0.2% annual chance flood event area). These developments may affect the Village's vulnerability to the hazards identified in this HMP.

Table 2-1. Developments from 2018 to March 2023

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in a 1% or 0.2% Annual Chance Flood Event Area?
12/11/2018	Approval of the Site Plan Review with Condition Noted	10 S Main Street (State Route 38)	Site Plan Review	N/A	The applicant and owner of this currently vacant building wishes to rent the first floor space to a hair salon, Styled Just Right Spa and Salon, which will be moving from its current location on N Main Street.	0.2% annual chance flood event area
12/3/2020	Approval of the Site Plan Review	96 S Main Street (State Route 38)	Site Plan Review	N/A	The applicant is requesting site plan approval to convert a building at this address from an excavating company to his business, which involves Federal Firearms Licensing and powder coating of firearms and automotive parts.	Unspecified
7/21/2021	Approval of the Comprehensive Plan Update	N/A	Comprehensive Plan Update Review	N/A	The Village of Newark Valley Planning Board has worked together with the Village Board of Trustees over the past couple of years to develop this updated comprehensive plan in-house.	Unspecified

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The Village of Newark Valley identified the following planning mechanisms and capabilities that can support the Village 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 that 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	Cleans out catch basins, sluices, and the creek (Slossen Creek)
Mitigation Planning Committee	No	
Mutual Aid or Shared Services Agreements	Yes	Shared services – Town of Richford, Berkshire, Newark Valley, and Tioga Co for threats related to natural hazards
Planning Board	Yes	The Planning Board is advisory, not legislative
Zoning Board	No	
Other	Yes	The Village Board is the main driver of decisions
Development Approvals		
Building Code	Yes	Chapter 62 - Building Construction and Fire Prevention, Chapter 66 - Buildings, Unsafe, Chapter 101 - Mobile Homes and Mobile Home Parks)
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	No	
Fire Department ISO Rating	Yes	Class 5, May 2022
Site Plan Review Requirements	Yes	Chapter 130
Other	No	
Funding Resources		
Authority to Levy Taxes	Yes	
Capital Improvement Project Funds	Yes	
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	USDA Rural Water; FEMA; ARPA
General Obligation Bonds and/or Special Tax Bonds	Yes	
Impact Fees for New Development	No	

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?)
State Funding Programs (i.e., NYSEFC, NYSOOCR, NYSDEC, others)	Yes	Sidewalks and building improvements; Restore NY; CHIPS; Safe Routes to School Program
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	Yes	Public water Recycling for Village is handled through a contract (Casella), but Village is given a rate for residents
Other	Yes	Arts Grant for summer program (decentralization) for education and summer activities Utilizes solid waste department (garbage trucks) to clean up refuse like tree limbs and debris after a flood
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	Yes	
NFIP Participant / Floodplain Ordinance	Yes	Chapter 83 – Flood Damage Prevention
Hillside Development Regulations	No	
Open Space Preservation	No	
Stormwater Management Regulations	No	
Streambank Setback Regulations	No	
Subdivision Regulations	Yes	Chapter 144
Zoning Ordinance	No	
Other	Yes	Wellhead protection legislation through NYS to protect the water system Adhere to NYS regulations
Natural Resources		
Forest/Vegetation Management	No	
Stream Corridor Management	No	
Stream Dumping Regulations	Yes	No specific local regulations, but state laws apply
Urban Forestry and Landscape Management	No	
Watershed Management	Yes	Chapter 163 – Water, Chapter 164 – Wellhead Protection NYS DEC will implement a watershed assessment for the Village. The project was approved 2-4 years ago, but the Village is still waiting for the project kick-off with NYS; therefore, the timeline is to be determined.
Wetland Regulations	No	

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?)
Other	Yes	Follows Uniform Procedures Act (UPA), Article 70 of the NYS Environmental Conservation Law (ECL). Susquehanna River Basin Regulations, which relate to the efficiency of the water system. SWCD recently planted 200 trees across the stream bank in Trout Ponds Park.
Plans		
Capital Improvement Plan	Yes	
Comprehensive Emergency Management Plan	Yes	Chapter 10 – Emergency Disaster Plan (adopted 1981, revised 1993)
Comprehensive Plan	Yes	Village Master Plan – revised June 2021
Continuity of Operations Plan	Yes	Emergency Operations Plan
Economic Development Plan	Yes	Tioga County 2020 Strategic Plan
Other	No	
Programs/Organizations		
Climate Smart Community	No	
Local Emergency Preparedness/Disaster Response Organizations	No	
Local Environmental Protection Organizations	No	
National Weather Service StormReady Certification	Yes	County Level
Outreach Programs		
Partnerships with private entities addressing mitigation or disaster response	Yes	County
School Programs or Adult Educational Programs	No	
Other	Yes	Newark Valley School District supplies the Village with the HMP for Alexander Pond The Village is a co-partner in some activities for community gardens (e.g. on Route 38 and S Main St) and educational activities, but hazard mitigation is not a part of these activities
Staff Positions		
Civil Engineer	No	As needed, the Village utilizes an engineering contractor for engineering services
Code Enforcement Officer	Yes	
Emergency Manager	Yes	Matt Seamans/Jim Tornatore
Floodplain Administrator	Yes	Public Works Supervisor/Code Enforcement Officer
Planner/GIS Coordinator	No	
Other	No	
Technical Abilities		

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?)
Grant Writing	Yes	Internally. As necessary, utilize Tioga County as an additional grant writing resource.
Hazard Information Centers	No	
Hazard Warning Systems	No	Emergency broadcast system. Facebook and a website are used to communicate with residents.
Other	No	

The Village’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 Village should review Table 3-1 during future updates to the Comprehensive Plan, as well as in the event that the Village establishes a Zoning Code. As part of this review, the Village 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 the creation of a 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.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10.3 of the main body of the HMP.

3.2 Integration of Planning Efforts

The Village of Newark Valley understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The Village intends to reference the 2024 Tioga 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 Village 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 Village of Newark Valley may use the local laws assessment (included in Section 2 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.

4 HAZARD IDENTIFICATION AND RISK ASSESSMENT

4.1 Profiled Hazards

In this HMP Update, the County reviewed multiple natural hazards and determined to profile four natural hazards: flooding, severe storm, extreme temperatures, and drought. Descriptions of each of these hazards are included in Section 5 of the main body of the HMP. The Village of Newark Valley has chosen to profile the same hazards as the County. No hazards were omitted and there were no additional hazards identified as unique and specific to the Village of Newark Valley.

The hazard analysis criteria used to evaluate the Village's vulnerability to each natural hazard are summarized in *Table 4-1*, and the results are presented in *Table 4-2*.

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

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 (Coastal Flooding, Riverine Flooding, Ice Jam)	2	2	1	2	7 - Moderate	2	Climate change
Drought	1	1	1	1	4 - Low	4	Climate change
Severe Storm (Hail, Ice Storm, Lightening, Strong Wind, Winter Weather, Tornado, Hurricane/ Tropical Storm)	2	2	3	1	8 - Moderate	1	Climate change
Extreme Temperatures (Cold Wave, Heat Wave)	1	1	3	1	6 - Moderate	3	Climate change

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 5 of the main body of the HMP. The following is a subset of events that occurred specifically within the Village. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Village.

Table 4-3. Hazard Event Records, 2018-2022

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Thunderstorm Wind	5/28/2018	50 Knots	\$10,000.00	-
Thunderstorm Wind	6/13/2018	50 Knots	\$10,000.00	-
Thunderstorm Wind	8/8/2019	50 Knots	\$5,000.00	-
Thunderstorm Wind	8/18/2019	50 Knots	\$10,000.00	-
Thunderstorm Wind	8/18/2019	50 Knots	\$10,000.00	-
Thunderstorm Wind	7/23/2020	50 Knots	\$5,000.00	-
Thunderstorm Wind	7/13/2021	50 Knots	\$2,000.00	-
Total			\$52,000	None Reported

4.3 Floodplain Statistics

Key waterways in the Village are described in Section 2.2. 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 633 acres in the Village, approximately 17.85% are located within the 1% annual chance flood event area and approximately 2.69% are located within 0.2% annual chance flood event area. The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-5. 117 parcels in the Village are located within the 1% annual chance flood event area, with an estimated total structure value of \$4,742,800. 100 parcels in the Village are located within the 0.2% annual chance flood event area, with an estimated total structure value of \$3,608,635.

Table 4-4. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	1% Annual Chance Flood Event Area	0.2% Annual Chance Flood Event Area
633	17.85%	2.69%

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

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Agricultural	2	\$0	1	\$0
Commercial	29	\$1,905,650	20	\$1,205,400
Community Services	1	\$173,000	2	\$408,400
Industrial	0	N/A	0	N/A
Parks and Open Space	0	N/A	1	\$0
Public Services	2	\$132,600	2	\$132,600
Residential	55	\$2,528,350	44	\$1,860,035
Vacant	24	\$3,200	26	\$2,200
Recreation	4	\$0	4	\$0
Total	117	\$4,742,800	100	\$3,608,635

*Structure Value estimated by subtracting parcel Land Assessed Value from Total Assessed Value

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 insured structure incurs damage costs that are over 50% of its market value, the owner must comply with the local floodplain regulations 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.

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 Village of Newark Valley currently participates in the NFIP (Community ID 360836), and its current FIRM(s) became effective on 4/17/12. FIRMs are available via FEMA's Flood Map Service Center (<https://msc.fema.gov/portal/home>). Digital FIRM data is also available for Tioga County via FEMA's National Flood Hazard Layer Viewer, which was referenced during the development of this annex. The Village joined the NFIP on 2/3/82. The Village's local law governing floodplain development and NFIP compliance is located in Chapter 83 of the Village code. There were no compliance issues identified in this hazard mitigation planning process. The Village 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 is one repetitive loss property in the Village of Newark Valley. Such properties 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 Village also considered future changes in hazards due to climate change, population changes, land use, and other factors. They identified the following concerns: Climate change is an overall vulnerability, and it applies to all hazards identified. The Village did not identify any development pressures of concern. These concerns were taken into consideration when developing the mitigation strategy. The effects of climate change and other factors on future hazard events in Tioga County are covered in more detail in Section 5 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response or that requires a special emergency response in the event of hazardous incidents as identified by the Village of Newark Valley. These 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 and Village 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 Village of Newark Valley, and any particular vulnerabilities of note. More information about hazard vulnerability, including a tool for understanding the vulnerability of community assets to events of varying magnitudes, is included in Section 6 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 Village'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 Village has included an action in Section 7.2 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

The Village of Newark Valley does not have any high-hazard potential dams located within the municipal boundaries.

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 Village of Newark Valley has identified the following additional assets for consideration in hazard mitigation planning:

Table 5-2. Additional Assets

Important Assets	Description
Historical Homes and Buildings	The municipal building and Library are both historic structures
Project Neighbor of Newark Valley	Food Distribution Center (79 Whig St, Newark Valley, NY 13811)
Newark Valley High School	Located at 68 Wilson Creek Rd #2601, Newark Valley, NY 13811, which is located outside the Village limits

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

6.1 Flood

The Village of Newark Valley has ranked its overall vulnerability to a flood event as moderate/high, as indicated in Table 4-2. Flood events occur infrequently in the jurisdiction and affect one or two problem areas within the jurisdiction, causing moderate damage. The jurisdiction is moderately prepared for flood events.

Information on flood event records (Section 1.1), 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 Village'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 Village of Newark Valley has ranked its overall vulnerability to a severe storm event as moderate, as indicated in Table 4-2. Severe storms occur infrequently in the jurisdiction and affect the entire jurisdiction, causing moderate damage. The jurisdiction is well prepared for severe storm events.

Records of severe storm events are described in Section 1.1. Impacts to the Village 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. Damage to the Village's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damages would primarily impact the more populated portions of the Village. The Village completes tree maintenance within Village Road right of ways to

minimize potential damages to overhead utility lines. Private utility right-of-ways are generally maintained by individual utility companies.

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 Village is vulnerable to, likely making the Village 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 Village of Newark Valley has ranked its overall vulnerability to a drought event as low, as indicated in Table 4-2. Drought events occur rarely in the jurisdiction and affect one or two problem areas within the jurisdiction, causing minor damage. The jurisdiction is well prepared for drought events.

The Village of Newark Valley is served by a public water supply. This water supply, and certain critical facilities (e.g., Water Tank and Wells 3 and 4) 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. Additionally, any residents who rely on private wells would also be susceptible to the impacts of a drought due to low water yields.

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 Village'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 Village of Newark Valley has ranked its overall vulnerability to an extreme temperature event as moderate, as indicated in Table 4-2. Extreme temperature events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is well 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 6% of the population in the Village is under 5 years old, and 18% of the population is over 65 years old. Approximately 12% of the residents of the Village 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 10% of the Village's population is below the poverty level. Many residents within these populations are at a higher risk of being impacted by extreme temperature events.

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 Village'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 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 Village.

Top concerns about hazard mitigation in the Village included:

- Flooding resulting in damage to property is a concern. Without proper funding, there is little the municipality can do.
- The watershed assessment of the concrete channel should go up to the Rock St bridge.
- With the help of other communities, the Village can get through winter weather events.

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

- People without vehicles are unable to evacuate.

The plan was revised to reflect the following changes in community priorities since the 2018 HMP Update:

- Flooding has consistently been a concern throughout the years.

Additional concerns that the Village would like addressed in the plan include:

- None identified

6.6 Additional Impacts

Additional impacts of the hazards are summarized in the problem descriptions in the Village'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 Village proposed 11 mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized in Table 7-1, 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 2024 HMP Update? (Yes/No)
Cook Hill Runoff & Rt 38 Flood Mitigation	NYS DOT, Town of Newark Valley, and residents of the properties (impacted areas) all work together to alleviate the problem. This would include NYSDOT maintain the system and installing larger pipes. The Village will need to request permission from the private property owners to install appropriate vegetation to reduce runoff from the hill.	Flood, Severe Storm	Village of Newark Valley Public Works	No progress <i>This is part of NYS funding for watershed assessment, awaiting kick-off.</i>	Yes
Owego Creek Cleanout	Dredging or cleaning of debris/eliminate barriers, is needed along approximately 1000' of Owego Creek from Water St to Bridge St. This will eliminate flooding from the flood events of recent history.	Flood, Severe Storm	Village of Newark Valley Public Works	In progress <i>Progress has been made but additional work is to be done as per federal and state standards.</i>	Yes
Village Library Generator	Purchase and install a generator at the village library.	All	Village DPW in coordination with library staff	No progress <i>Library funds are now available to help with this.</i>	Yes

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Slosson Creek Mitigation	Widening/deepening of Slosson Creek. Work with property owners along Brook Street to acquire the homes or implement retrofitting of structures to protect from flooding from Slosson Creek.	Flood, Severe Storm, Severe Winter Storm	Village of Newark Valley Public Works with support from the Town of Newark Valley and NYS DOT	No progress <i>This is a multi-million dollar project funded by NYS, currently awaiting kick-off. The Village intends to follow up with NYS on the status of the funding (to ensure funding is still available and the Village is shovel-ready).</i>	Yes
Adopt updated NYS code to ICC standards.	Adopt updated NYS code to ICC standards.	All	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from NYSOEM, FEMA	Completed	No
Code Officer Training	Have code officer undergo training to be designated NFIP Floodplain Administrator (FPA) become a Certified Floodplain Manager through the ASFPM, and pursue relevant continuing education training such as FEMA Benefit-Cost Analysis.	Flood, Severe Storms	NFIP Floodplain Administrator	No progress <i>The Village has a new Code Enforcement Officer undergoing standard training, so this will be a future step.</i>	Yes
Archive elevation certificates	locate elevation certificates with assistance and archive them electronically and hard copy in village town hall	Flood, Severe Storm	NFIP Floodplain Administrator with support from NYSDEC, NYSOEM, FEMA	No progress	Yes

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Critical facility – former ladder factory	Inform property owner of the former ladder factory site that is it located in the 0.2% annual chance floodplain and provide floodproofing options to the property/facility owner	Flood	Village Floodplain Administrator and facility owner/operator	Discontinue <i>Building has been demolished.</i>	No
Critical facility – petroleum spill location	Inform property owner of the petroleum spill location at Maple and Marble Streets that is it located in the 0.2% annual chance floodplain and provide floodproofing options to the property/facility owner	Flood	Village Floodplain Administrator and facility owner/operator	Completed <i>This facility is in the floodplain.</i>	No
Critical facility – Citizens Telecom Co.	Inform property owner of the Citizens Telecom Co. that is it located in the 0.2% annual chance floodplain and provide floodproofing options to the property/facility owner	Flood	Village Floodplain Administrator and facility owner/operator	No progress	Yes
Critical facility – Well 4	Inform property owner of the Trout Pond Well 4 that is it located in the 1% and 0.2% annual chance floodplains and provide floodproofing options to the property/facility owner	Flood	Village Floodplain Administrator and facility owner/operator	Completed <i>The well has been elevated and streambank stabilization has occurred adjacent to the well. The well is owned by the Village, not a separate property owner.</i>	No

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the Village of Newark Valley identified new mitigation actions for inclusion in the 2024 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 Village of Newark Valley could expand and improve the identified capabilities to achieve mitigation, as described in Section 1 of this

annex. Then, a more comprehensive range of actions was evaluated as described in Section 7.2 of the main body of the HMP. Finally, actions that tied in most closely with the vulnerabilities identified by the Village were selected for inclusion in the HMP. The Village proposed 16 new mitigation actions to be included in the 2024 HMP update. These actions are included in Table 7-2 below.

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
V Newark Valley F1	Funding for Flooding	G1, G2, G5, G6	Flood	Flooding causes minor damages in one or two problem areas of the Village on an infrequent basis. The Village is concerned about property damage due to flooding, but without proper funding there is little the municipality can do.	Make a list of problem areas that the Village is particularly concerned about due to flooding (e.g. specific areas of the Village, specific buildings, etc.). Then work with the County SWCD and the Department of Public Works to identify potential infrastructure projects (e.g. resizing culverts or green infrastructure), conservation projects (e.g. working with landowners to implement stormwater management on their property), or educational projects (e.g. educating landowners on sealing their basements or installing downspout extensions for gutters) that could reduce the problem, starting with the list in this HMP. Then, work with the County SWCD or other partners to identify appropriate funding sources and apply for funding. Consider utilizing additional resources such as Cornell University students, for research and/or grant-writing assistance. Utilize the list of funding sources in the Mitigation Strategy section of this Hazard Mitigation Plan (section 7.2.5: Funding Sources, subject to update of section numbers) as a starting point. If needed, pursue additional technical assistance from programs such as the USACE Floodplain Management Services Program, USACE Small Flood Control, EPA Smart Growth Support, EPA Greening America's Communities, and/or other resources.	No	No	3-5 years	Village Board, with support from the Department of Public Works and Tioga County SWCD	\$	Identifying and pursuing additional funding sources for flood mitigation, with adequate assistance, will enable the Village to implement the flood mitigation projects identified in this HMP and/or additional flood mitigation projects. Ultimately, these projects will reduce flood risk and vulnerability for the Village.	US BRIC, US HMGP, US FMA, NYS HM RLF, NYS GIGP, NRCS WFPO	High
V Newark Valley ET1	Heating and Cooling Centers	G1, G5, G6	Extreme Temperatures	Although rare, extreme temperatures do occur in the Village and have a minor impact Village-wide, especially to certain vulnerable populations such as many senior citizens.	Designate heating and cooling centers in the Village. For example, the library could be designated as a heating and cooling center, and the municipal building could be designated as a heating center. Publicize the availability of these heating and cooling centers to residents in the Village (and Town of Newark Valley if desired). Publicity strategies may include social media posts, partnering with Social Services and nonprofits like Tioga Opportunities to spread the word to vulnerable residents, signage on buildings that are designated as heating/cooling centers, flyers in buildings frequented by senior citizens and other vulnerable residents in the County, press releases to media outlets before heat waves and cold waves, inclusion on the Department of Health Cooling Centers map (https://apps.health.ny.gov/statistics/environmental/public_health_tracking/tracker/#/CCMap), and/or other strategies.	Yes	No	1 year	Village Board	\$	Designating and publicizing heating and cooling centers would help residents be aware of existing options they have to remain safe during extreme heat and extreme cold, thereby reducing their vulnerability to these extreme temperatures.	FEMA HMGP, FEMA BRIC, NYS HM RLF, FEMA Emergency Management Performance Grant (EMPG), NYS Climate Smart Communities, CDBG-MIT	High
V Newark Valley MH1	Natural Hazard Outreach Strategy	G1, G2, G6	All Hazards (Flood, Severe Storm, Drought, Extreme Temperatures)	The Village currently has an emergency broadcasting system, a Facebook page, and a website that many residents utilize to stay informed of hazards. However, there is no formalized outreach strategy, and these methods do not reach all residents.	Create and formalize a community outreach strategy for natural hazards. This may include the use of current methods, such as an emergency broadcasting system, a Facebook page, and a website, as well as other potential methods such as automated voice calls (e.g. when there is a potential of drought or when a storm is approaching), an email/text alert system, and/or mailers. Evaluate which combination of methods could reach a broad array of residents. The outreach strategy may include ready-made information about what steps residents can take before and during natural hazards in order to stay safe. Pursue additional funding as necessary in order to implement the strategy.	No	No	1 year	Village Board	\$\$	Having a formalized outreach system for warning residents about natural hazards (which may include additional outreach methods and information about how residents can stay safe from natural hazards) will help more residents be aware of natural hazards and keep themselves safe.	FEMA HMGP, FEMA BRIC, FEMA EMPG, NYS HM RLF, EPA EJSG	High
V Newark Valley MH2	Evacuation Strategy	G1, G5, G6	All Hazards (Flood, Severe Storm, Drought, Extreme Temperatures)	Floods, Severe Storms, Drought, and Extreme Temperatures all pose risks to the Village. However, there are many residents without cars who would have difficulty evacuating should the need arise.	Create an evacuation strategy detailing how to provide assistance to residents without cars. If feasible, this may include working with partners such as schools, churches, nonprofits, the County, or neighboring jurisdictions to coordinate resources and/or provide estimates as to the number of residents without cars and their needs. The Village may also consider buddy-to-buddy or Neighbor 2 Neighbor programs, or creating a sign-up process where people can register if they feel like they would need help during a flood or if they'd like to volunteer to check on (and perhaps transport) neighbors during an emergency. Ensure that all parties involved are aware of this strategy and publicize as needed, for example through media outlets or mailings to residents.	No	No	1 year	Village Board	\$	Having an evacuation strategy for residents without cars will ensure that all residents have a way to evacuate during a flood, severe storm, heat/cold wave, or drought if needed. This will reduce the vulnerability of these residents to such hazard events.	FEMA HMGP, FEMA BRIC, NYS HM RLF, EPA EJSG	High
V Newark Valley MH3	Hazardous Tree Inventory	G1, G2, G4	Severe Storm, Flood	During severe storms, trees and tree limbs can fall on roads, power lines, and creek beds during severe storm events. They can also block culverts, leading to increased flooding. All of these phenomena result in road closures and electricity outages, increases the severity of flooding, and pose a public safety risk.	Conduct a hazardous tree inventory to identify trees or tree limbs that may pose a hazard -- e.g. trees that may fall on roads, power lines, creeks, or culverts or have already fallen in these locations. Conduct maintenance on these trees, prioritizing high-hazard trees. Create a schedule for incorporating regular inspection and management of hazardous trees into the Village's procedures. Pursue funding for additional resources (e.g. staff time, machinery, etc.) as necessary to accomplish these tasks.	No	Maybe	1-3 years	Highway Department	\$\$	By regularly inspecting and maintaining hazardous trees, the Town will reduce the impacts of severe storms and floods on infrastructure and public safety.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF, FEMA 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
V Newark Valley MH4	Backup Generators	G1, G6	Severe Storm, Flood, Extreme Temperatures	The Village of Newark Valley infrequently experiences severe storms which cause moderate damages throughout the Village. These storms can cause power outages. Currently, the Library does not have generators, even though it provides critical services -- including heating and cooling during extreme temperatures, shelter during a severe storm, and respite during floods.	Purchase a backup generator for the Tappan-Spaulling Memorial Library. Additionally, explore the utility and feasibility of purchasing generators for other facilities that provide important services, and purchase if desired (or provide guidance/funding if those facilities are not within the Village's jurisdiction). Pursue funding sources as necessary.	Yes	Maybe	1-3 years	Village Board	\$\$	By ensuring that the library (and perhaps other critical facilities) have backup generators and do not lose power during a severe storm, the Village can ensure that these facilities can continue to provide critical services, including providing heating/cooling services if those storms coincide with extreme temperatures, and respite if the storms coincide with flooding. This will make residents less vulnerable to these hazard events as they will have a place to go if needed and can continue to receive critical services.	FEMA BRIC, US CDBG-MIT, US HMGP, NYS HM RLF	Medium
V Newark Valley MH5	Expand Watershed Assessment to Rock Street Bridge	G1, G2, G6	Flood, Severe Storm	Heavy rains and flash flooding cause damages to the terrain and flooding in parking lots, commercial villages, roads, etc. New York State is anticipated to implement a watershed assessment to address this problem. However, it is a priority to ensure that this assessment and flood mitigation strategies that come out of it extend up to Rock Street Bridge, which has seen some issues; the Village is unsure of whether the current watershed assessment extends this far.	Determine whether the watershed assessment on the concrete channel planned through NYS extends up to Rock Street Bridge. If it does not, expand the watershed assessment so that it does extend to Rock Street Bridge.	No	Maybe	1-3 years	Village of Newark Valley Public Works with support from NYSDOT and the Town of Newark Valley	\$\$	By ensuring that the watershed assessment and associated improvements extend up to Rock Street Bridge, the Village can ensure that flood mitigation measures that are taken adequately addresses flood risk.	NYSDOT, USDA (Rural Water), FEMA HMA grants (FMA, HMGP, BRIC), NRCS WFPO	High
V Newark Valley MH6	Review and Update Municipal Regulations	G1, G3, G4	All Hazards (Flood, Severe Storm, Drought, Extreme Temperatures)	Flooding, severe storms, drought, and extreme temperatures all pose risks to the municipality. However, not all relevant municipal laws and ordinances incorporate hazard mitigation.	Incorporate hazard mitigation into local planning mechanisms. This may include the following actions and/or other actions as determined by the Village: <ul style="list-style-type: none"> - Adopt a procedure to incorporate hazard mitigation into new laws and/or updates to existing local laws. For example, include hazard mitigation as an agenda item at Village Board meetings where local laws are being developed or updated, include hazard mitigation in any templates used to make new laws, and/or adopt an ordinance that all new local laws need to consider hazard mitigation. - Utilize community feedback within the master plan, through questionnaires or other means, and include questions about hazard mitigation in this feedback process. - Adopt regulations regarding stormwater management, erosion and sediment control, natural area protection, a zoning ordinance that includes hazard mitigation, and/or other regulations as listed in the Planning Mechanisms and Capabilities section of this annex. - Review local laws to identify where hazard mitigation could be incorporated. Examples that may be considered include, but are not limited to: <ul style="list-style-type: none"> * Requiring the submittal of a Stormwater Pollution Prevention Plan with subdivision applications, site plan applications, and applications for a special use permit, variance, or zoning change. (flooding) - Update the building code to ensure that new developments are protected against a 500-year flood event and against other hazards * Encouraging tree plantings and green roofs in building codes to mitigate extreme heat (extreme temperatures) * Updating or creating site design review standards to include natural environmental features such as wind buffers, requiring regular maintenance of trees in high-wind areas, and/or require wind-resistant building techniques such as structural bracing in the building codes for high-wind areas (severe storms) * Updating or creating laws about the water system so that they include a plan for obtaining for secondary water sources that may be used during drought conditions (drought). <p>Additional resources that may be utilized include: <ul style="list-style-type: none"> - Model local laws to increase resilience: https://www.planning.org/publications/report/9026884/ - FEMA guide to expanding mitigation in codes and standards: https://www.fema.gov/sites/default/files/documents/fema_guides-expanding-mitigation-codes-standards_08052021.pdf - Hazard Mitigation: Integrating Best Practices into Planning: https://www.planning.org/publications/report/9026884/ </p>	No	No	1-3 years	Village Board	\$	Updated municipal regulations will help ensure that new and existing developments are protected against flooding and other hazards, by incorporating hazard mitigation directly into planning processes. This will reduce the risk that is posed to people and property from the affected hazards.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, EPA EFC Grant Program, NYS CDBG Program, NYS DOS Smart Growth 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
V Newark Valley MH7	Hazard Mitigation Education	G2, G6	All Hazards (Flood, Severe Storm, Drought, Extreme Temperatures)	Flooding, severe storms, drought, and extreme temperatures all pose risks to the municipality. The Village is a co-partner in some educational activities, but hazard mitigation is not a part of these activities.	Incorporate hazard mitigation education into existing educational programs that the Village engages in, including school programming. Include education about the risks of each of the hazards in this HMP (flood, severe storm, drought, extreme temperatures) as well as what students and their families can do to prepare and stay safe during these hazards.	No	No	1 year	Village Board	\$	Educating students about the hazards in this plan and what they can do to stay safe will reduce the vulnerability of school students to flood, severe storm, drought, and extreme temperatures.	FEMA HMGP, FEMA BRIC, FEMA EMPG, NYS HM RLF, EPA EJSG	High
V Newark Valley D1	Drought Monitoring Plan	G1, G3, G5, G6	Drought	Drought occurs rarely in the municipality, causing minor damages in one or two areas of the Village.	Establish a regular schedule to monitor and report indicators of drought on a monthly basis, and perhaps on a more frequent basis during the summer. Examples of indicators include surface water levels, groundwater levels, soil moisture, and water quality levels. Incorporate into the Natural Hazard Outreach Strategy (mentioned above) a system to issue warnings to Village residents when drought conditions are deemed likely to occur or when water supply or quality is low, and tell them about actions that they can take to reduce their vulnerability to drought (such as water-saving techniques, drinking water safety tips, etc.).	No	No	1-3 years	Department of Public Works	\$	Monitoring drought conditions on a regular basis will enable the Village to warn residents when drought may occur. Based on this, the Village can also give timely information as to what actions residents can take to reduce the severity of the drought and reduce their own vulnerability.	US CDBG-MIT, US HMGP, NYS HM RLF, FEMA EMPG, NRCS EWP Program	High
V Newark Valley D2	Drought Emergency Plan	G1, G3, G5, G6	Drought	Drought occurs rarely in the municipality, causing minor damages in one or two areas of the Village.	Create a Drought Emergency Plan to identify actions that can be taken in the case of drought. This may include agreements for secondary water sources that may be used during drought conditions, a distribution plan for emergency water supplies, a drought communication plan, and water-saving actions that may be triggered when a drought is deemed likely to occur. The municipality may take into account EPA guidance on establishing a backup water supply, found at: https://www.epa.gov/sites/default/files/2015-03/documents/planning_for_an_emergency_drinking_water_supply.pdf	Yes	Maybe	1-3 years	Department of Public Works	\$	Having a drought emergency plan will reduce the risk that the area faces from drought, because it will ensure that residents still have access to safe drinking water and water for other uses.	US CDBG-MIT, US HMGP, NYS HM RLF, FEMA EMPG, NRCS EWP Program	High
V Newark Valley F2	Vulnerability Assessments of Critical Facilities	G1, G3, G6	Flood	It is currently undetermined whether or not several of the Village's critical facilities are protected against a 0.2% chance flood event or previous worst case flood event, leaving these facilities vulnerable to flood events.	Village staff will conduct vulnerability assessments to the critical facilities identified in the Village'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). This will serve as a first step toward protecting the facilities, if future funding becomes available. There are no local resources available at this time to conduct engineering design and retrofitting on these structures. Future efforts towards protecting these structures to an 0.2% chance flood event (or previous worst case flood event, if applicable) will be considered if funding becomes available. These may include engineering design, building retrofits, or other measures.	Yes	Maybe	3-5 Years	Department of Public Works	\$	Assessing the Village's critical facilities for their level of protection against a 0.2% chance flood event (or previous worst case flood event, if applicable), is a first step to ensuring that these facilities remain operable during and after flooding events, reducing the overall risk to people and infrastructure.	US HMGP, US BRIC, US Flood Mitigation Assistance, US HUD CDBG-MIT, NYS HM RLF	Medium
V Newark Valley F3	Inspection / Right-sizing of Culverts	G1, G4	Flood	Existing culverts within some municipalities in Tioga County are not sized appropriately, resulting in increased flood risk. This may include the Village of Newark Valley.	Assess the condition, size, and effectiveness of culverts within the Village. Create a list of culverts that need attention, and work with the County SWCD to replace with new right-sized piping, where deemed necessary. Culverts should be up to applicable design standards, and should take into account flood risk, ecological impacts, and other factors.	No	Maybe	1-3 years	Department of Public Works, with assistance from SWCD	\$\$	Appropriately resizing culverts will allow for more efficient flow of water during flood events, reducing the extent of flooding and the risk of damage to and closure of bridges, roadways, and other infrastructure.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
V Newark Valley F4	Village-Wide Nature-Based Flood Mitigation Plan	G1, G3, G4, G6	Flood	Flooding causes minor damages in one or two problem areas of the Village on an infrequent basis. While infrastructure solutions are necessary, nature-based solutions are often particularly cost-effective and have other environmental and social benefits.	Assess the feasibility, costs, and benefits of nature-based solutions for flood mitigation on Village properties, such as stormwater parks, vegetated swales, rain gardens, tree trenches, green streets and more. Additional actions to consider can be found on the FEMA Nature-Based Solutions Guide (https://www.fema.gov/sites/default/files/documents/fema_riskmap-nature-based-solutions-guide_2021.pdf). Create a plan to implement these solutions where feasible.	No	Maybe	3-5 years	Department of Public Works, with assistance from SWCD	\$\$	Nature-based solutions for flood mitigation can reduce the extent and severity of flooding, be cost-effective, and have environmental and social benefits such as reducing water pollution and enhancing recreational and scenic qualities of a place.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, NYS DOS Smart Growth program, Environmental Impact Bonds, HUD Community Development Block Grant, EPA Section 319 Nonpoint Source Management Program, NRCS WFPO	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
V Newark Valley F5	Farmer Outreach Campaign for Flood Mitigation Measures	G1, G4, G5	Flood	Flooding from agricultural lands impacts properties and infrastructure.	Work with the SWCD to implement an outreach campaign to farmers to encourage the installation of stormwater retention ponds, wetlands, and riparian forest buffers to limit flooding within the watershed, especially along Slosson Creek.	No	No	1-3 years	Village Board with support from SWCD	\$	Farmers will be equipped to implement infrastructural changes that reduce stormwater runoff and the impacts of flooding.	CRF, USC, WQIP, US BRIC, NRCS WFPO	High
V Newark Valley F6	Tree Planting Program	G1, G4, G5	Flood	Areas that have less tree canopy experience hotter temperatures in the summer, contributing to the impact of heat waves.	Work with the SWCD to implement and promote a tree planting program through the SWCD's Tree and Shrub Sale.	No	Potentially	6 months - 1 year	SWCD	\$	Planting additional trees in the Village will reduce the impacts of extreme temperatures, particularly heat waves.	US BRIC, SWCD, NRCS WFPO	High

7.3 Mitigation Action Prioritization

Each of the Village’s proposed mitigation actions was evaluated and prioritized according to the criteria listed in Section 7.2.4 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
V Newark Valley F1	Funding for Flooding	3	3	2	3	11	High
V Newark Valley ET1	Heating and Cooling Centers	2	3	3	2	10	High
V Newark Valley MH1	Natural Hazard Outreach Strategy	3	2	3	3	11	High
V Newark Valley MH2	Evacuation Strategy	3	3	3	2	11	High
V Newark Valley MH3	Hazardous Tree Inventory	3	2	3	3	11	High
V Newark Valley MH4	Backup Generators	2	2	2	2	8	Medium
V Newark Valley MH5	Expand Watershed Assessment to Rock Street Bridge	3	2	2	3	10	High
V Newark Valley MH6	Review and Update Municipal Regulations	2	3	3	1	9	Medium
V Newark Valley MH7	Hazard Mitigation Education	2	3	2	3	10	High
V Newark Valley D1	Drought Monitoring Plan	2	3	3	2	10	High
V Newark Valley D2	Drought Emergency Plan	2	3	3	3	11	High

Mitigation Action ID	Mitigation Action Name	Ability to Increase Resilience	Economic Feasibility	Low Environmental Impact	Ability to Implement	Total Score	Priority
V Newark Valley F2	Vulnerability Assessments of Critical Facilities	2	3	1	2	8	Medium
V Newark Valley F3	Inspection / Right-sizing of Culverts	3	2	2	2	9	Medium
V Newark Valley F4	Village-Wide Nature-Based Flood Mitigation Plan	2	2	3	2	9	Medium
V Newark Valley F5	Farmer Outreach Campaign for Flood Mitigation Measures	2	3	3	3	11	High
V Newark Valley F6	Tree Planting Program	1	3	3	3	11	High

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 Village's new mitigation actions will be implemented and administered as described in Section 7 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

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 Village of Newark Valley 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 Village Board meetings and by offering opportunities for members of the public to participate in the implementation of relevant mitigation actions.

Village of Nichols

This section presents the jurisdictional annex for the Village of Nichols for the 2024 Tioga 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 the Village of Nichols regarding this Jurisdictional Annex are identified as follows:

- Primary: Lesley Pelotte, Mayor
 - (607)699-3947
 - Pelotte101@gmail.com
- Alternate: Steven Varga, Deputy Mayor
 - (607)239-8021

Village of Nichols Website: N/A – the Village does not have an official website

2 COMMUNITY SNAPSHOT

2.1 Demographics

The 2020 Census estimated that 457 people live in the Village of Nichols. The Village's population has decreased by 11% since the 2010 Census (512). The median age in the Village is 50.1 years and 29% of the population is over the age of 65. The median household income in the Village is \$58,750.

2.2 Location & Land Characteristics

The Village of Nichols is located on the northern border of the Town and is in the Southern Tier of New York, halfway between Binghamton and Elmira. The Village covers approximately 0.5

square miles. The properties within the Village have a total assessed value of approximately \$6,962,810, which is distributed across a variety of property classes.

Major transportation corridors in the Village include the Southern Tier Expressway (New York State Route 17 and future Interstate 86) and New York State Route 282, which pass through the Village as described in Section 2.8 of the main body of the HMP. Key water features within the Village include the Susquehanna River to the north and Wappasening Creek, which roughly parallels the Village boundary to the east and is 564 feet from the boundary line at its most distant point. 1,611 feet to the west of the Village is Sackett Creek.

2.3 Governing Body

The Village of Nichols is governed by a Village Board consisting of a Mayor and four Trustees.

2.4 Recent and Anticipated Future Development

According to a review of 239 Referrals since the last County HMP (2018), one new development has been approved or proposed within the Village. The proposal that the Village received is summarized in Table 2-1 below; it is not specified as being located in the Special Flood Hazard Area (1% annual chance flood event area) or in the Moderate Flood Hazard Area (0.2% annual chance flood event area). This development may affect the Village's vulnerability to the hazards identified in this HMP.

Table 2-1. Developments from 2018 to March 2023

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
1/24/2020	Approval of the Site Plan Review	150 S Main Street	Site Plan Review	N/A	The applicant is requesting site plan approval to convert an existing building into a 4-unit apartment building.	Unspecified

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The Village of Nichols identified the following planning mechanisms and capabilities that can support the Village 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	Levee maintenance is shared with DEC; the Village also maintains streets and sidewalks
Mitigation Planning Committee	No	The Emergency Preparedness Committee is no longer active
Mutual Aid or Shared Services Agreements	Yes	Have agreements with neighboring communities (Towns of Nichols, Barton, and Tioga), County OES, NYS DOT, County DOT, and local fire departments
Planning Board	Yes	
Zoning Board	No	
Other	No	
Development Approvals		
Building Code	Yes	Local Law No. 1 of 2016
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	No	
Fire Department ISO Rating	Yes	9
Site Plan Review Requirements	Yes	Local Law 1 of 2005
Other	No	
Funding Resources		
Authority to Levy Taxes	Yes	Fire District
Capital Improvement Project Funds	No	
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	
General Obligation Bonds and/or Special Tax Bonds	Yes	
Impact Fees for New Development	No	

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?)
State Funding Programs (i.e., NYSEFC, NYSOOCR, NYSDEC, others)	Yes	
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	No	All utilities, including the wells, are administered by utility provider
Other	No	
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	Yes	
NFIP Participant / Floodplain Ordinance	Yes	Local Law 2-2017
Hillside Development Regulations	No	
Open Space Preservation	No	
Stormwater Management Regulations	No	
Streambank Setback Regulations	No	
Subdivision Regulations	No	
Zoning Ordinance	No	
Other	Yes	Wellhead Protection (Local Law 1 of 2004)
Natural Resources		
Forest/Vegetation Management	No	
Stream Corridor Management	No	
Stream Dumping Regulations	No	State laws apply
Urban Forestry and Landscape Management	No	The SWCD is working with the Village and the American Legion to plant a tree buffer along creek bank through the SWCD's spring and fall program
Watershed Management	Yes	Work with the SWCD and DEC to manage Wappasening Creek
Wetland Regulations	No	
Other	Yes	Follow Uniform Procedures Act (UPA), Article 70 of the NYS Environmental Conservation Law (ECL). Junk Cars (Local Law 3 of 2011).
Plans		
Capital Improvement Plan	No	
Comprehensive Emergency Management Plan	Yes	
Comprehensive Plan	Yes	The Greater Nichols 2020 Plan (January 2016)
Continuity of Operations Plan	Yes	Emergency Operations Plan
Economic Development Plan	Yes	Tioga County 2020 Strategic Plan
Other	No	
Programs/Organizations		
Climate Smart Community	No	
Local Emergency Preparedness/Disaster Response Organizations	Yes	SWCD

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?)
Local Environmental Protection Organizations	No	
National Weather Service StormReady Certification	Yes	County Level
Outreach Programs	No	The Village used to have a newsletter
Partnerships with private entities addressing mitigation or disaster response	Yes	The Village used to have an Emergency Preparedness Committee made up of Village departments, residents, non-profits, and business owners
School Programs or Adult Educational Programs	No	
Other	No	
Staff Positions		
Civil Engineer	No	The Village received engineering services from the County and NYS DOT
Code Enforcement Officer	Yes	
Emergency Manager	Yes	Mayor
Floodplain Administrator	Yes	Code Enforcement Officer
Planner/GIS Coordinator	Yes	County
Other	No	
Technical Abilities		
Grant Writing	Yes	The Mayor and Board members engage in grant writing, and the Village collaborates with County on grant applications as well
Hazard Information Centers	No	
Hazard Warning Systems	No	There is a siren at Village Hall used for evacuation notices (funded by NY Rising)
Other	No	

The Village’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 Village should review Table 3-1 during future updates to the Comprehensive Plan, as well as in the event that the Village establishes a Zoning Code. As part of this review, the Village 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 the creation of a 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.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10.3 of the main body of the HMP.

3.2 Integration of Planning Efforts

The Village of Nichols understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The Village intends to reference the 2024 Tioga 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 Village 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 Village of Nichols may use the local laws assessment (included in Section 2 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.

4 HAZARD IDENTIFICATION AND RISK ASSESSMENT

4.1 Profiled Hazards

In this HMP Update, the County reviewed multiple natural hazards and determined to profile four natural hazards: flooding, severe storm, extreme temperatures, and drought. Descriptions of each of these hazards are included in Section 5 of the main body of the HMP. The Village of Nichols has chosen to profile the same hazards as the County. No hazards were omitted and there were no additional hazards identified as unique and specific to the Village of Nichols.

The hazard analysis criteria used to evaluate the Village's vulnerability to each natural hazard are summarized in *Table 4-1*, and the results are presented in *Table 4-2*.

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

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 (Coastal Flooding, Riverine Flooding, Ice Jam)	3	3	2	2	10 – High	1	Climate change will impact the frequency/severity of flooding in Wappasening Creek, Ellis Creek, and the Susquehanna River
Drought	1	2	1	2	6 – Moderate	4	N/A
Severe Storm (Hail, Ice Storm, Lightning, Strong Wind, Winter Weather, Tornado, Hurricane/Tropical Storm)	2	3	2	2	9 – High	3	N/A
Extreme Temperatures (Cold Wave, Heat Wave)	2	3	3	2	10 – High	2	Increasing senior and renter populations may be particularly vulnerable

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 5 of the main body of the HMP. The following is a subset of events that occurred specifically within the Village. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Village.

Table 4-3. Hazard Event Records, 2018-2022

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Flash Flood	8/14/2018		\$15,000.00	-
Flash Flood	10/31/2019		\$25,000.00	-
Thunderstorm Wind	3/20/2020	50 Knots	\$5,000.00	-
Total			\$45,000	None Reported

4.3 Floodplain Statistics

Key waterways in the Village are described in Section 2.2. 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 374 acres in the Village, approximately 22.46% are located within the 1% annual chance flood event area and approximately 2.94% are located within 0.2% annual chance flood event area. The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-5. 35 parcels in the Village are located within the 1% annual chance flood event area, with an estimated total structure value of \$1,619,271. Seven parcels in the Village are located within the 0.2% annual chance flood event area, with an estimated total structure value of \$31,000.

Table 4-4. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	1% Annual Chance Flood Event Area	0.2% Annual Chance Flood Event Area
374	22.46%	2.94%

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

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Agricultural	4	\$159,200	1	0
Commercial	2	\$41,900	0	0
Community Services	0	N/A	0	N/A

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Industrial	0	N/A	0	N/A
Parks and Open Space	1	\$0	0	N/A
Public Services	3	\$41,500	1	\$0
Residential	19	\$404,171	1	\$22,500
Vacant	4	\$0	3	\$0
Recreation	2	\$972,500	1	\$8,500
Total	35	\$1,619,271	7	\$31,000

*Structure Value estimated by subtracting parcel Land Assessed Value from Total Assessed Value

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 insured structure incurs damage costs that are over 50% of its market value, the owner must comply with the local floodplain regulations 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.

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 Village of Nichols currently participates in the NFIP (Community ID 360838), and its current FIRM(s) became effective on 4/17/12. FIRMs are available via FEMA's Flood Map Service Center (<https://msc.fema.gov/portal/home>). Digital FIRM data is also available for Tioga County via FEMA's National Flood Hazard Layer Viewer, which was referenced during the development of this annex. The Village joined the NFIP on 9/29/86. The Village's local law governing

floodplain development and NFIP compliance is located in Local Law No. 1 of 2017. There were no compliance issues identified in this hazard mitigation planning process. The Village 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 zero repetitive loss properties in the Village of Nichols. Such properties have had at least two paid flood losses of more than \$1,000 each in any 10-year period since 1978.

It is also important to note that the levee within the Village is still functioning as intended and was recently re-certified, which has allowed Village residents to not be mandated to purchase flood insurance.

4.5 Considerations for Future Hazards

The Village also considered future changes in hazards due to climate change, population changes, land use, and other factors. They identified the following concerns:

- Climate change impacting flooding of local waterways
- The population is aging
- The renter population is growing (less autonomy over housing)
- The Village has the oldest housing in the County
- More full-house generators have been installed lately

These concerns were taken into consideration when developing the mitigation strategy. The effects of climate change and other factors on future hazard events in Tioga County are covered in more detail in Section 5 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response or that requires a special emergency response in the event of hazardous incidents as identified by the Village of Nichols. These 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 and Village 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 Village of Nichols, and any particular vulnerabilities of note. More information about hazard vulnerability, including a tool for understanding the vulnerability of community assets to events of varying magnitudes, is included in Section 6 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*, all critical facilities within the Village are protected to a 0.2% annual chance flood event by a recently re-certified levee. Should the Village find need to further assess these critical facilities’ vulnerability to flood, 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

The Village of Nichols does not have any high hazard potential dams located within the municipal boundaries.

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 Village of Nichols has identified the following additional assets for consideration in hazard mitigation planning:

Table 5-2. Additional Assets

Important Assets	Description
Cady Library	Historic structure located in Village
Old Town Hall	Existing Museum and a historic structure located in the Village
Bank	Existing Bank and a historic structure located in the Village

Important Assets	Description
Barstow House	Historic structure privately owned located in the village
Nichols Kirby Park	Owned by Village

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

6.1 Flood

The Village of Nichols has ranked its overall vulnerability to a flood event as high, as indicated in Table 4-2. Flood events occur regularly in the jurisdiction and affect a significant portion of the jurisdiction, causing major damage. The jurisdiction is moderately prepared for flood events.

Information on flood event records (Section 1.1), 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 Village'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 Village of Nichols has ranked its overall vulnerability to a severe storm event as high, as indicated in Table 4-2. Severe storms occur regularly in the jurisdiction and affect a significant portion of the jurisdiction, causing moderate damage. The jurisdiction is moderately prepared for severe storm events.

Records of severe storm events are described in Section 1.1. Impacts to the Village 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. Damage to the Village's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damage would primarily impact the more populated portions of the Village. The Village completes tree maintenance within Village Road right of ways to minimize potential damages to overhead utility lines. Private utility right-of-ways are generally maintained by individual utility companies.

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 Village is vulnerable to, likely making the Village 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 Village of Nichols has ranked its overall vulnerability to a drought event as moderate, as indicated in Table 4-2. Drought events occur infrequently in the jurisdiction and affect one or two problem areas within the jurisdiction, causing minor damage. The jurisdiction is moderately prepared for drought events.

The Village of Nichols is served by a public water supply. This water supply, and certain critical facilities (e.g., Wells 1 and 2 and the Nichols Village Water Pump) 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. Additionally, any residents who rely on private wells would also be susceptible to the impacts of a drought due to low water yields.

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 Village'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 Village of Nichols has ranked its overall vulnerability to an extreme temperature event as high, as indicated in Table 4-2. Extreme temperature events occur regularly in the jurisdiction and affect the entire jurisdiction, causing moderate damage. The jurisdiction is 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 2% of the population in the Village is under 5 years old, and 29% of the population is over 65 years old. Approximately 20% of the residents of the Village 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% of the Village's population is below the poverty level. Many residents within these populations are at a higher risk of being impacted by extreme temperature events.

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 Village'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 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 Village.

Top concerns about hazard mitigation in the Village included:

- Flooding – flooding of the Susquehanna River results in backup flooding into Wappasening Creek
- Storms

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

- 65+ population and the disabled population (particularly those requiring medical equipment)
- Cady Ave, which is near the levee and experiences groundwater flooding

The plan was revised to reflect the following changes in community priorities since the 2018 HMP Update:

- Drainage on Roki Blvd – water flowing out of the Town facility parking lot does not flow into existing drainage infrastructure (need ditches installed)

Additional concerns that the Village would like addressed in the plan include:

- None identified

6.6 Additional Impacts

Additional impacts of the hazards are summarized in the problem descriptions in the Village'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 proposed 6 mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized in Table 7-1, 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 2024 HMP Update? (Yes/No)
Municipal website	Once developed, the FPA will post hazard-related educational and outreach information, along with flood warnings.	All	Village Board and Floodplain Administrator	In Progress <i>Need technical assistance/funding to develop the website.</i>	Yes

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Implement flood disaster communications	<p>The Village would like to develop professional materials that communicate flood risk and clearly explain the routes households and businesses should use to evacuate in one or more scenarios. There is a marker on the Wappasening Creek at the east end of the village and a gauge in Kirby Park to monitor the water level near the confluence of the creek and the Susquehanna River, but these are not the only directions from which water can affect residents. The village is conducting talks with the Tioga County Office of Emergency Management to identify evacuation routes based on different scenarios because in 2011 the flooding was so widespread that it was nearly impossible to designate specific routes out of the village. In addition to developing print media to disseminate information for planning purposes and electronic media for immediate announcements, the village would like to purchase portable signs identifying evacuation routes as part of its Emergency Preparedness and Public Awareness Projects. The Village will also purchase and install permanent electronic message boards which will be used to notify residents of emergency alerts, warnings, and other important information. The Village will be installing a warning siren, as well, to aid in another emergency alert system for residents.</p>	Flood and Severe Storm	Village Board	In Progress	Yes

Routes have been mapped, but need funding for outreach efforts.

The Village did install an electronic messaging board (and have a portable generator for this) via NY Rising funds.

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Community Shelter generator	The former elementary school has been designated as an emergency shelter for the Village. The Village is currently working on purchasing and installing a generator and fuel source, which have been purchased with NY Rising funding.	All hazards	Village Board Support Agencies: FEMA, Red Cross, Town of Nichols and CCNN	Completed	No
Recreation Improvements and Creek Stabilization	Silt removal, hydroseeding, and rip rap have been installed to the bank of Wappasening Creek. Additional work is still needed. This work will be completed with assistance from NYS DOT and USACE. Project is funded through NY Rising.	Flood, Severe Storm	Village Administration, County Highway Department, NYS DEC, NYS DOT, and Army Corps of Engineers	In Progress <i>This is an ongoing effort – DEC is working on a clean-out again.</i>	Yes
Improving the resiliency of the fire station	Current designing project to remediate the current fire house and expand capacity with a new addition. The ultimate goal is to make the structure more flood resilient by elevating the utilities and installing flood-resistant doors. The retrofit of the building will protect to the 500-year flood level and alleviate groundwater flooding. DASNY is currently reviewing the building specifications.	Flood	Joint Fire District	Completed	No
Critical Facility – Well	The village will inform the owner/operator (Violia Water) that their well is located in the floodplain and needs to be protected against a 500-year event. The village will provide mitigation options to the property owner.	Flood	Village Floodplain Administrator	In Progress <i>One inoperable well will be rehabilitated with a new filtering system.</i>	Yes

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the Village of Nichols identified new mitigation actions for inclusion in the 2024 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 Village of Nichols could expand and improve the identified capabilities to achieve mitigation, as described in Section 1 of this annex. Then, a more comprehensive range of actions was evaluated as described in Section 7.2 of the main body of the HMP. Finally, actions that tied in most closely with the vulnerabilities identified by the Village were selected for inclusion in the HMP.

The Village proposed 7 new mitigation actions to be included in the 2024 HMP update. These actions are included in Table 7-2 below.

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
V Nichols F1	Drainage improvements on Roki Blvd	G1, G4	Flood	Water flowing off of the parking lot at the new Town Hall facility on Roki Blvd does not divert to existing drainage infrastructure, exacerbating the extent and impact of flooding during flood events.	Complete a drainage assessment of the new Town Hall parking lot and implement appropriate drainage infrastructure improvements, such as ditches and green infrastructure.	Yes	Yes	1-3 years	Village Board in collaboration with Town of Nichols and SWCD	\$\$	Implementing drainage improvements at the Town Hall parking lot will appropriately divert stormwater runoff and floodwater, reducing the risk of property damage and improving access to Town Hall.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF, NYS GIGP	High
V Nichols MH1	Hazardous Tree Inspection and Management	G1, G4	Severe Storm, Flood	During severe storm events, trees and tree limbs fall on roads, power lines, and creek beds. This results in road closures and electricity outages, contributes to the severity of flooding by blocking the flow of water in creeks and streams, and pose a public safety risk.	Incorporate the regular inspection and management of hazardous trees into the Village's existing procedures for drainage system and infrastructure maintenance. Additionally, clear trees out of creeks and establish a schedule for doing so regularly.	No	Maybe – location-based action	6 months – 1 year	Highway Department	\$\$	By regularly inspecting and maintaining hazardous trees, the Village will reduce the impacts of severe storms and floods on infrastructure and public safety.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	High
V Nichols MH2	Re-establish the Emergency Mitigation and Preparedness Committee	G2, G6	All Hazards (Flood, Severe Storm, Drought, Extreme Temperatures)	The Village's former Emergency Preparedness Committee has been inactive, leaving the Village without an advisory group to identify and implement strategies for reducing risk to natural hazard events.	Re-establish the Emergency Preparedness Committee, including membership from key Village officials/staff, Town officials/staff, utility providers (e.g. Veolia Water), and businesses (e.g. Tioga Downs). Since the focus of the committee will be on identifying ways to mitigate hazards as well as prepare for them, consider renaming to Emergency Mitigation and Preparedness Committee. Once reestablished, ensure that the Committee discusses ways to mitigate all hazards (Flood, Severe Storm, Drought, Extreme Temperatures).	No	No	0-6 months	Village Board	\$	Re-establishing the Emergency Preparedness Committee will enable the Village to reduce risk to a variety of natural hazards by effectively identifying issues, projects, and partnerships related to hazard mitigation, preparedness, and response.	N/A	High
V Nichols ET1	Formalize the Fire Department as a heating and cooling center	G1, G5, G6	Extreme Temperatures	While the Elementary School may serve as an emergency shelter, the Village currently lacks other alternative facilities to offer community members as heating and cooling centers during extreme temperature events.	Collaborate with the Fire Department to establish the facility as a formal heating and cooling center. Provide outreach to community members to inform them of the use of Fire Department as such, through mailing handouts to residents, sending a press release to media outlets for dissemination, creating a flyer and distributing it to Village buildings for display (including Nichols Schoolhouse Apartments), and/or other methods as determined by the Town once the heating/cooling center is established.	Yes	No	0-6 months	Fire Department	\$	Formalizing the Fire Department as a heating and cooling center will provide an alternative location for Village residents to protect themselves from the health risks of heat waves and cold waves. Moreover, providing outreach to residents to inform them of the availability of the heating and cooling center in advance of an extreme heat event will reduce their vulnerability to heat and cold waves as they will be able to plan for these hazards in advance.	US CDBG, US HMGP, NYS HM RLF	High
V Nichols D1	Drought Emergency Plan	G1, G3, G5, G6	Drought	Two wells support a public water supply in the Village, however, the Village currently lacks a strategy for preserving such water supplies during drought events. This poses the risk of residents and businesses losing access to public water supplies during drought.	Establish a Drought Emergency Plan that develops a strategy for increasing public awareness of drought risk and mitigation opportunities both before and during drought events. Such strategies may include messaging on a public emergency sign and flyers that recommend water conservation strategies, suggest resources for funding and technical resources related to drought mitigation, and provide notice of drought events when they occur. The strategy will also include steps that the Village can take to protect and provide support to residents during drought, such as establishing a back-up water supply.	No	No	0-6 months	Highway Dept in collaboration with Veolia	\$	Establishing a Drought Emergency Plan will encourage residents to proactively implement drought mitigation activities as well as provide support to residents during a drought event.	US CDBG-MIT, US HMGP, NYS HM RLF	High
V Nichols F2	Inspection / Right-sizing of Culverts	G1, G4	Flood	Inappropriately sized culverts result in increased flood risk.	Assess the condition, size, and effectiveness of culverts within the Village. Create a list of culverts that need attention, and work with the County SWCD to replace with new right-sized piping, where deemed necessary. Culverts should be up to applicable design standards, and should take into account flood risk, ecological impacts, and other factors.	No	Potentially	1-3 years	Highway Dept, with assistance from SWCD	\$\$	Appropriately resizing culverts will allow for more efficient flow of water during flood events, reducing the extent of flooding and the risk of damage to and closure of bridges, roadways, and other infrastructure.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
V Nichols MH3	Review and Update Municipal Regulations	G1, G3, G4	All Hazards (Flood, Severe Storm, Drought, Extreme Temperatures)	Flooding, severe storms, drought, and extreme temperatures all pose risks to the Town. Despite the risks, not all relevant municipal laws and ordinances incorporate hazard mitigation.	Review municipal laws and ordinances and update as necessary to incorporate hazard mitigation. This may include review of the zoning code, development regulations, subdivision regulations, building codes, and other regulations as applicable to ensure that new and existing developments are protected against a 500-year flood event and against other hazards. Examples that may be considered include, but are not limited to: - Requiring the submittal of a Stormwater Pollution Prevention Plan with subdivision applications, site plan applications, and applications for a special use permit, variance, or zoning change (flooding) - Encouraging tree plantings and green roofs in building codes to mitigate extreme heat (extreme temperatures) - Updating or creating site design review standards to include natural environmental features such as wind buffers, requiring regular maintenance of trees in high-wind areas, and/or require wind-resistant building techniques such as structural bracing in the building codes for high-wind areas (severe storms) - Updating or creating laws about the municipal water system so that they include a plan for obtaining for secondary water sources that may be used during drought conditions (drought)	No	No	1-3 years	Planning Board	\$	Updated municipal regulations will help ensure that new and existing developments are protected against flooding and other hazards, by incorporating hazard mitigation directly into planning processes. This will reduce the risk that is posed to people and property from the affected hazards.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, EPA EFC Grant Program, NYS CDBG Program	Medium

7.3 Mitigation Action Prioritization

Each of the Village’s proposed mitigation actions was evaluated and prioritized according to the criteria listed in Section 7.2.4 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
V Nichols F1	Drainage improvements on Roki Blvd	2	2	3	3	10	High
V Nichols MH1	Hazardous Tree Inspection and Management	2	2	3	3	10	High
V Nichols MH2	Re-establish the Emergency Mitigation and Preparedness Committee	2	3	3	2	10	High
V Nichols ET1	Formalize the Fire Department as a heating and cooling center	2	3	3	2	10	High
V Nichols D1	Drought Emergency Plan	2	3	2	3	10	High
V Nichols F2	Inspection / Right-sizing of Culverts	3	2	2	2	9	Medium
V Nichols MH3	Review and Update Municipal Regulations	2	3	3	1	9	Medium
V Nichols F3	Vulnerability Assessments of Critical Facilities	2	3	1	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 Village’s new mitigation actions will be implemented and administered as described in Section 7 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

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 Village of Nichols 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 Village Board meetings and by offering opportunities for members of the public to participate in the implementation of relevant mitigation actions.

Village of Owego

This section presents the jurisdictional annex for the Village of Owego for the 2024 Tioga 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.

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1 CONTACT INFORMATION

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

- Primary: Mike Baratta, Mayor
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 - (607) 972-6034
- Alternate: Rod Marchewka, Village Clerk/Treasurer
 - clerk@villageofowegony.gov
 - (607) 687-3555

Village of Owego Website: <https://www.villageofowego.com/>

2 COMMUNITY SNAPSHOT

2.1 Place Narrative

The Village of Owego is the county seat of Tioga County, located in the Southern Tier region of New York State. Derived from the Iroquois word Ahwaga, meaning where the valley widens, Owego is situated where the Owego Creek joins the Susquehanna River. The Susquehanna River and its tributaries shape the community, with the entire Village located within a mile of either the Owego Creek or the Susquehanna River and closely encircled by steep hills.

The Village was voted the “Coolest Small Town in America” in 2009 by Budget Travel Magazine due to the character of its centralized village. The Village downtown core is marked by the historic character of the 19th century architecture, tree-lined streets, scenic waterfront parks, walkability, novel small shops and local eateries, and connection to the Susquehanna River.

2.2 Socioeconomic Data

The Village is 2.7 square miles with a population of 3,654 people. The Village of Owego population has decreased by 6% since the 2010 census (3,896). The poverty rate for the Village is 14%, which is in line with the statewide average of 13.9%. The median household income for the Village is \$46,703, which is below the New York State average of \$75,157 and below Tioga County’s median household income of \$64,987. The median age in the Village of Owego is 41.4 years old and the percentage of people in the Village over the age of 65 is 21%, which is in line with both Tioga County (22.3%) and New York State (18.1%).

Local businesses are major employers for Village residents, with many working in the retail businesses or restaurants located within the Village downtown core. Additionally, the Village has major employers within its boundary, such as Tioga County and the Owego-Apalachin School District; however, many village residents must commute outside of the Village for employment outside of the service industry and government jobs to places like the Town of Owego (Lockheed Martin), Nichols (FedEx), and Broome County (BAE Systems, United Health Services, Binghamton University).

Fifty-five percent of village residents are renters and do not own their houses, compared to only 22% of residents in Tioga County. This low rate of home ownership can present barriers when adapting to climate change with solutions such as increasing the number of home charging stations and mitigating flood structures.

Based on 2022 tax assessment data, the properties within the Village of Owego have a total assessed value of approximately \$197,750,171, which is distributed across a variety of property classes.

2.3 Transportation

The Village of Owego is at the nexus of several major transportation corridors, which help to drive the local economy. New York State Route 17, future Interstate 86, runs through the Village which connects the New York City metropolitan area to Lake Erie and has an average daily traffic volume of nearly 20,000 vehicles on the road per day. Additionally, 17C, part of Fifth Avenue, Front Street and Main Street in the Village of Owego, runs through the Village and is the roadway where downtown Owego small businesses and shops are located, and generates up to 7000 vehicles per day. NY 96 connects the Southern Tier to the Finger Lakes and runs from the Village of Owego to the City of Ithaca. Within the Village, NY96, the bridge, Court Street, and North Avenue, receives nearly 15,000 vehicles per day with almost 2,000 trucks passing through the village daily.

As a concentrated and small Village with significant history, the Village is relatively walkable, with sidewalks throughout the village, a recent investment in crossings throughout the village, and small local businesses to walk to located within the Village. Lacking a public transportation system within the Village or County, ownership of a personal vehicle is vital to access provisions and health care. Twelve percent of village households do not own a vehicle, which can make accessing necessities outside of walking distance a barrier for these households.

2.4 Governing Body

The Village of Owego is governed by a Village Mayor and a six-member Board of Trustees.

2.5 Recent and Anticipated Future Development

According to a review of NYS General Municipal Law Section 239 referrals, since the last County HMP (2018), several new developments have been approved or proposed within the Village of Owego. The proposals that the Village of Owego received are summarized in Table 2-1 below. Seven of the proposals for the Village are in the Special Flood Hazard Area (1% annual chance flood event area), and seven of the proposals for the Village are located in the

Moderate Flood Hazard Area (0.2% annual chance flood event area). These developments may affect the Village's vulnerability to the hazards identified in this HMP.

Table 2-1. Developments from 2018 through March 2023

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
2/6/2018	Approval of the Rezoning Request	28 properties along Fulton Street, East Front Street, Farm Street and Division Street	Rezone Residential 3 (R3) to Residential 2 (R2)	Residential 3 (R3)	The applicants are requesting to rezone their properties as indicated in the local law and on the map from the current Residential 3 (R3) to Residential 2 (R2).	1%
2/9/2018	Approval of the Rezoning Request with the Conditions Noted	233 – 249 Front Street	Rezone Residential 2 (R2) to Residential 3 (R3)	Residential 2 (R2)	The applicants are requesting to rezone their properties as indicated in the local law and on the map from the current Residential 2 (R2) to Residential 3 (R3) along the north side of Front Street. Two of the four property owners are requesting this zoning change and have signed the local Village of Owego zoning application. These two properties make up 57% of the street frontage along these four lots.	0.2%

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
4/6/2018	Approval of the Special Use Permits with the Conditions Noted	249 Front Street	Special Use Permit for Hotel/Motel with Accessory Service	Residential 3 (R3)	The applicants are requesting a special use permit to establish and operate their bed and breakfast, Belva Lockwood Inn, at 249 Front Street.	0.2%
5/4/2018	Approval of the Use Variance <i>Note: Not approved</i>	263 Front Street	Use Variance	Residential 2 (R2)	The applicant requests a use variance to be able to host Bike Night events once a week in the evening during the summer months.	0.2%
7/6/2018	Approval of the Site Plan with the Conditions Noted	114 Southside Drive	Site Plan Review	Business (B)	The applicant is requesting site plan review approval to construct a 1,307-square-foot addition to the northwest corner of their current 4,050-square-foot building.	No

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
8/3/2018	Approval of the Area Variance, Special Use Permit, and Site Plan Review	Belva Lockwood Lane	Area Variance, Special Use Permit, and Site Plan Review	Office Park (OP)	The applicant is requesting a special use permit, area variance, and site plan review approval for their Owego Gardens 2 general occupancy housing project, which includes a total of 93 residential units.	No
8/3/2018	Approval of the Rezoning, Area Variance, and Site Plan Review	62-64 Central Ave	Rezoning, Area Variance, and Site Plan Review	Central Business (CB) to Industrial (I)	The applicant is requesting rezoning, an area variance, and site plan review approval to expand the existing Applied Technology Manufacturing Corporation (ATMC) from its existing location at 71-73 Temple Street to the existing 14,000-square-foot building at 62-64 Central Avenue.	0.2%

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
9/6/2018	Rezoning Request Denied	Montrose Ave	Rezone Residential 2 (R2) to Residential 3 (R3)	Residential 2 (R2)	The applicant is requesting to rezone their 19-acre vacant land property as indicated in the local law and on the map from the current Residential 2 (R2) to Residential 3 (R3).	No
11/9/2018	Approval of the Historic Preservation Local Law Repeal and Replacement	Individual landmark properties and designated historic districts	Code Amendment Repealing and Replacing Chapter 126 Historic Preservation	Multiple zones in historic district	The Village of Owego Board of Trustees has created a new proposed local law to govern properties within designated historic districts as well as individually designated landmarks.	Historic properties in 1% and 0.2% areas, as well as not in the floodplain.
1/4/2019	Approval of the Rezoning Request	590 Fifth Avenue	Rezone Residential 2 (R2) to Business (B)	Residential 2 (R2)	The applicant is requesting to rezone said property from Residential 2 (R2) to Business (B) to construct a parking lot for their business next door at 596 Fifth Avenue, MJ's Bar and Restaurant.	1% annual chance flood event area

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
2/19/2019	Approval of Local Law 3 to reinstate the Owego Historic Preservation Commission	Individual landmark properties and designated historic districts	The village's Certified Local Government status was reinstated with passage of this local law.	Multiple zones in the historic zones	Local Law 3 of 2019 revised and updated Chapter 126: Historic Preservation and reinstated an independent Owego Historic Preservation Commission.	Historic properties in 1% and 0.2% areas, as well as not in the floodplain.
4/5/2019	Approval of the Site Plan Review	590 Fifth Avenue	Site Plan Review	Business (B)	The applicant is requesting site plan approval to construct an additional parking area containing 12 more parking spaces on their property adjacent to the west, which the Village Board of Trustees just rezoned from Residential 2 (R2) to Business (B).	1%

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
4/3/2020	Approval of the Site Plan Review and Area Variances with the Conditions Noted	221-229 North Avenue	Site Plan Review and Area Variance	Industrial (I)	The applicant is requesting site plan approval to construct and operate a brewery, taproom, deli restaurant, and incubator retail space at the site of the former Thompson's Grocery, which measures approximately 4,800 square feet.	No
12/4/2020	Approval of the Site Plan Review	113 Southside Avenue	Site Plan Review	Business (B)	The applicant is requesting site plan approval to construct a one-story garage on their current business property to store three heavy-duty tow trucks for tractor-trailers.	No
1/8/2021	Approval of the Site Plan Review	114 Southside Avenue	Site Plan Review	Business (B)	The applicant is requesting site plan approval to construct a one-story 1,900-square-foot addition to the 5,900-square-foot existing building.	No

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
1/8/2021	Approval of the Site Plan Review and Floodplain Special Use Permit	127 McMaster Street	Site Plan Review and Floodplain Special Use Permit	Industrial (I)	The applicant is requesting site plan approval and a floodplain special use permit to construct and operate a 1,405-square-foot, one-story addition on the existing 3,688-square-foot hair and nail salon structure to add spa services.	1% annual chance flood event area
7/9/2021	Approval of the Site Plan Review and Area Variance with Condition Noted	133 Central Ave	Site Plan Review and Area Variance	Industrial (IN)	The applicant is requesting site plan approval to renovate and convert this vacant structure on their property to a kitchen and bathroom showroom and design center.	0.2%

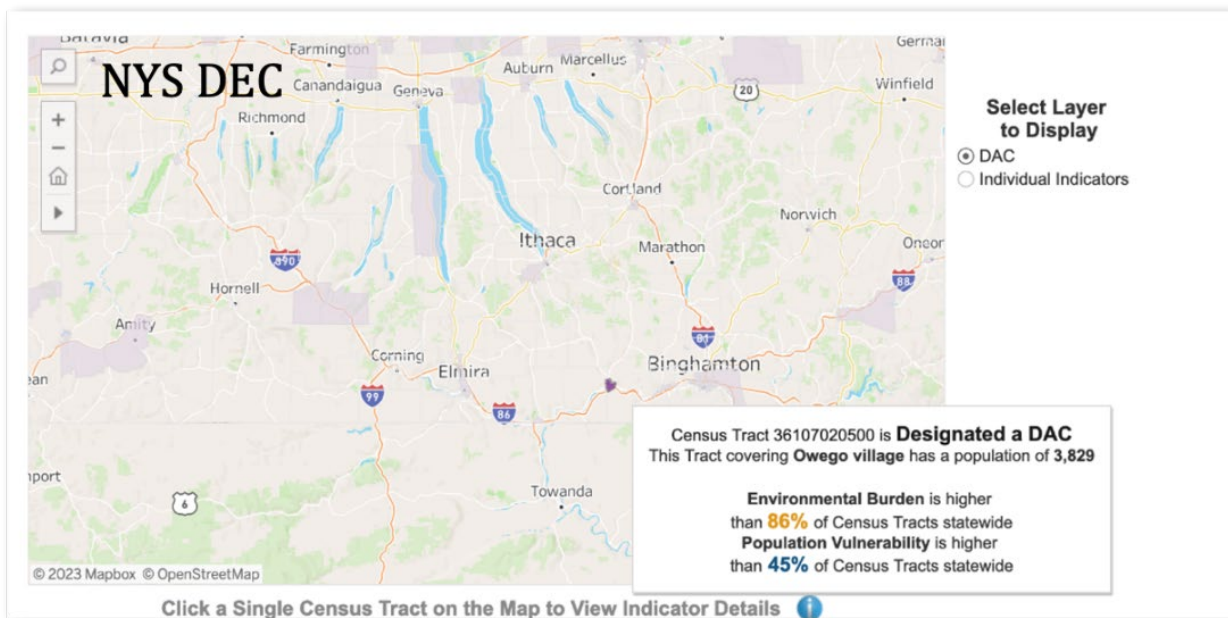
Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
8/6/2021	Approval of the Site Plan Review and Floodplain Special Use Permit with the Conditions Noted Floodplain development permit issued.	105 North Ave (State Route 96)	Site Plan Review and Floodplain Special Use Permit	Central Business district	The applicant is requesting site plan approval and a floodplain special use permit to construct and operate a 720-square-foot, one-story building called the "Steamer House," with grounds, to house their restored 1866 Amoskeag Harp-Frame Steam Pumper, the restored bell from the fire station (which can no longer structurally support the bell), as well an eternal flame memorial.	1% annual chance flood event area
3/4/2022	Approval of the Site Plan Review and Area Variance with the Condition Noted	North Avenue	Site Plan Review and Area Variance	Industrial (I)	The applicant is requesting site plan approval to construct a new single-story, 15,971-square-foot building that will house offices for several long-standing community non-profit organizations (Racker Center).	0.2% annual chance flood event area

2.6 State and Federal Disadvantaged Community Designations

2.6.1 NYSDEC Disadvantaged Communities

New York State, as part of the Climate Act (CLCPA), formed the Climate Justice Working Group (CJWG) to develop criteria to identify disadvantaged communities, recognizing that climate change does not affect all communities equally. The goal of identifying disadvantaged communities is to ensure that frontline and underserved communities can benefit from the CLCPA and the state's historic effort to address climate change. The Climate Justice Working Group was comprised of representatives from State Agencies and Environmental Justice groups from across the state to identify disadvantaged communities (DACs). The CJWG used 45 indicators to represent environmental burdens or climate change risks within a community, as well as population characteristics and health vulnerabilities that can contribute to more severe adverse effects from climate change. Pursuant to the Climate Act, disadvantaged communities are identified at the census tract level and based on geographic, public health, environmental hazard, and socioeconomic criteria, which includes:

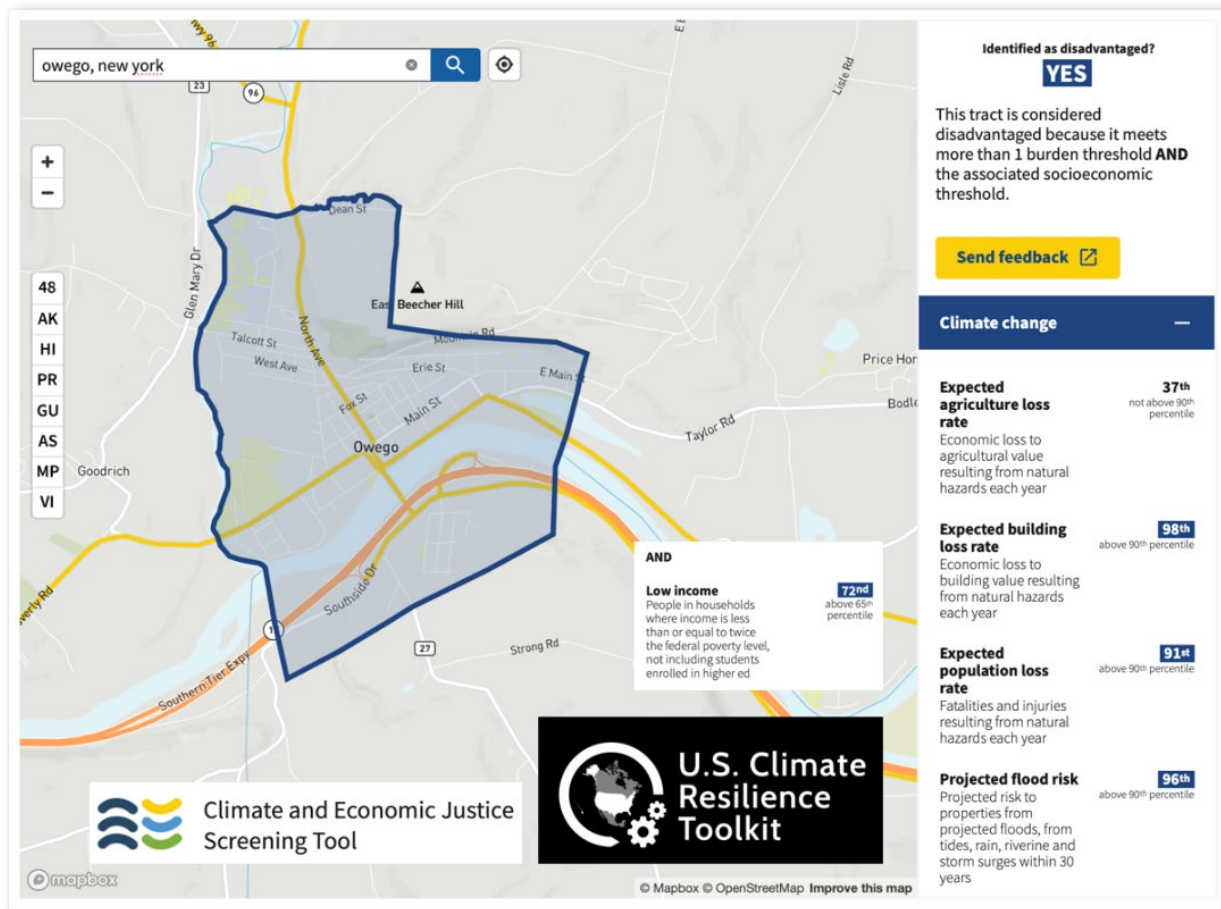
1. Areas burdened by cumulative environmental pollution and other hazards that can lead to negative public health effects;
2. Areas with concentrations of people that are of low income, high unemployment, high rent burden, low levels of home ownership, low levels of educational attainment, or members of groups that have historically experienced discrimination based on race or ethnicity; and
3. Areas vulnerable to the impacts of climate change.



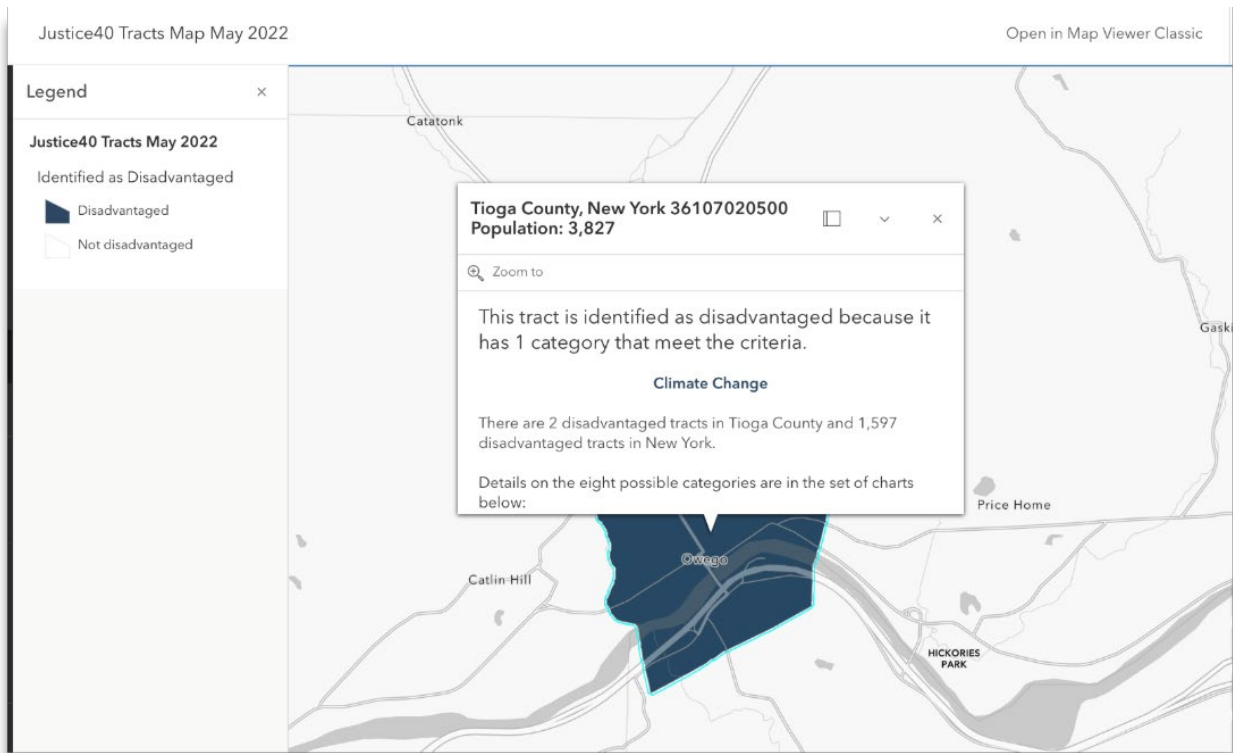
NYS requires that 35%, with a goal of 40%, of the benefits from the State's investments must be directed to DACs and impacts on DACs must be considered in all State decision-making processes.

The entire Village of Owego is a disadvantaged community. This means that the State sees the community as having increased environmental burdens and climate change risk. Additionally, this means that NYS is prioritizing investment in communities like Owego, and this puts the Village in a position to take advantage of the significant funding coming from the federal and state government.

2.6.2 United States Justice 40



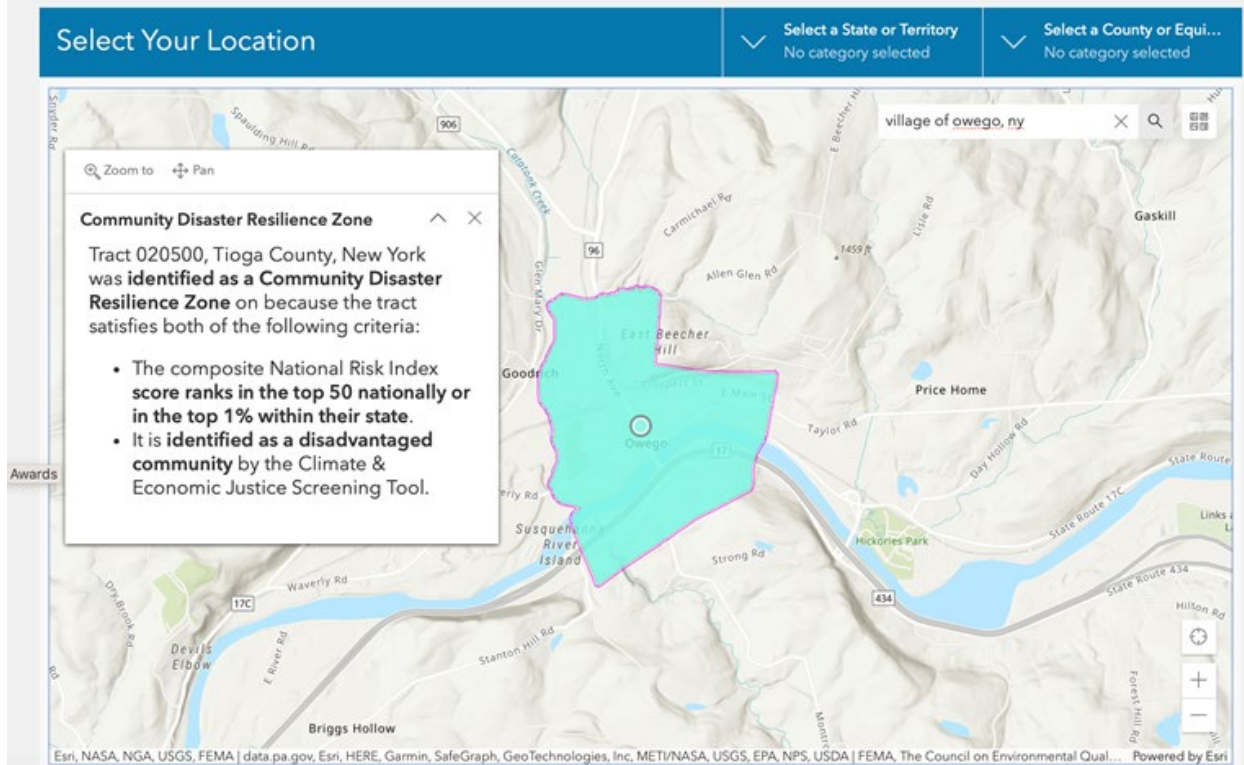
The 2021 Executive Order 14008 directed the Council on Environmental Quality to identify communities that experience burdens in eight categories: climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. The Village of Owego is identified as a Justice 40 community. 40% of overall benefits from federal investments in climate, clean energy, and related areas are targeted for Justice 40 communities.



2.6.3 FEMA Community Disaster Resilience Zone Designation

According to FEMA, “[Community Disaster Resilience Zones](#) aim to build and strengthen community resilience across the nation by driving federal, public, and private resources to the most at-risk and in-need communities. The [Community Disaster Resilience Zones Act](#) uses FEMA’s [National Risk Index](#) to identify the most at-risk and in-need communities to identify resilience zones. Designated zones will be prioritized for targeted federal support, such as increased cost-share for resilience and mitigation projects, lessening the financial burden on communities to perform resilience-related activities.

The Village of Owego was designated as a “Community Disaster Resilience Zone” by FEMA on September 6, 2023. This designation presents an opportunity to implement bigger resilience projects with matching funds waived for some programs and reduced for other programs. Additionally, it may help to create a path from the USACE planning studies to implementation.



For more information, see:

- <https://www.fema.gov/partnerships/community-disaster-resilience-zones>
- <https://www.fema.gov/press-release/20230906/fema-designates-first-communities-receive-targeted-assistance-hazards>
- <https://experience.arcgis.com/experience/3fdfd0639ba0403e9414d05654449d32/page/Home/>

3 DOCUMENT GENERATION STRATEGY

The Village of Owego's Jurisdictional Annex is unique as it incorporates a Climate Adaptation and Resiliency Plan, explained below.

3.1 Background Information

3.1.1 *Adapting to a Changing Climate*

Climate change, which refers to the long-term shift in temperatures and weather patterns, threatens all communities. Since industrialization, the Earth has seen an increase in greenhouse gas emissions which have a significant impact on global temperatures through the greenhouse gas (GHG) effect. The greenhouse gas effect and subsequent rising temperatures can disturb natural weather processes and lead to more intense and frequent extreme weather events, sea level rise, floods, drought, reduction in biodiversity, and an increased risk of disease and epidemics. Tioga County's Hazard Mitigation Plan focuses on four hazards that will all be impacted and likely worsened by climate change: floods, severe storms, drought,

and extreme temperatures. Hazard mitigation and climate adaptation planning are imperative for communities to identify strategies, policies, and actions that a community can take to reduce their risks to the effects and impacts of climate change.

Different communities have different climate risks and varying levels of vulnerability – adaptation recommendations should be tailored to individual communities to account for topography, elevation, age of buildings, soil conditions, elevation, etc. Adaptation planning is paramount to plan for future conditions and enables municipalities to better position themselves to withstand and adapt to climate change.

3.1.2 NYS CLCPA

New York State has been a leader in taking action to reduce emissions. In 2019, the State Legislature adopted the Climate Leadership and Community Protection Act (also known as the Climate Act) which sets ambitious emissions reduction targets, including a goal of reaching net-zero emissions by 2050. Despite current and future efforts to reduce GHG emissions, some of the effects of climate change will be inevitable, due to the elevated level of GHGs currently in the atmosphere. Therefore, it is crucial that climate change mitigation is paired with adaptation measures that help build the capacity for economic, social, and environmental resilience in our communities.

3.1.3 Climate Smart Communities Program

The Climate Smart Communities Program is a New York State run program that assists local communities with saving taxpayer dollars, reducing greenhouse gas emissions and energy use, provides technical assistance, and encourages adapting to a changing climate and fostering a green innovation economy. Participating communities, like the Village of Owego, adopt a ten-point pledge to participate in the program that includes committing to:

1. Build a climate-smart community.
2. Inventory emissions, set goals, and plan for climate action.
3. Decrease energy use.
4. Shift to clean, renewable energy.
5. Use climate-smart materials management.
6. Implement climate-smart land use.
7. Enhance community resilience to climate change.
8. Support a green innovation economy.
9. Inform and inspire the public.
10. Engage in an evolving process of climate action.

The Village of Owego adopted the Climate Smart Communities pledge in July of 2022. The Village has a CSC Task Force that is comprised of residents, municipal officials, climate scientists and hydrologists, and volunteers, that work to identify and complete actions in the CSC program to help the Village become a more sustainable, adaptable, and prepared municipality. The Climate Smart Communities Task Force has been integral to the development of the Village's Hazard Mitigation Plan Annex, the Climate Adaptation and Resiliency Plan (CCARP), analyzing the Village's vulnerabilities and policy gaps, and assisting in becoming part of FEMA's Community Rating System.

3.1.4 Climate Change Adaptation and Resiliency Plan and the Climate Smart Communities Program

A Climate Change Adaptation and Resiliency Plan (CCARP) is a foundational action in the Climate Smart Communities program for adapting to climate change and building resiliency in communities; it strategizes and analyzes current and future climate hazards, identifies vulnerabilities and policy gaps, and creates a participatory vision for the future.

The goal of creating a CCARP or chapter is to address vulnerabilities and planning gaps. The adaptation planning process outlines a vision and set of strategies to improve a community's resilience to climate change based on its local physical, economic, and social vulnerabilities. The goal of the plan is to encourage local leaders to work with their communities to adapt to climate change to build the capacity to evolve with changing conditions and protect resources for generations to come.

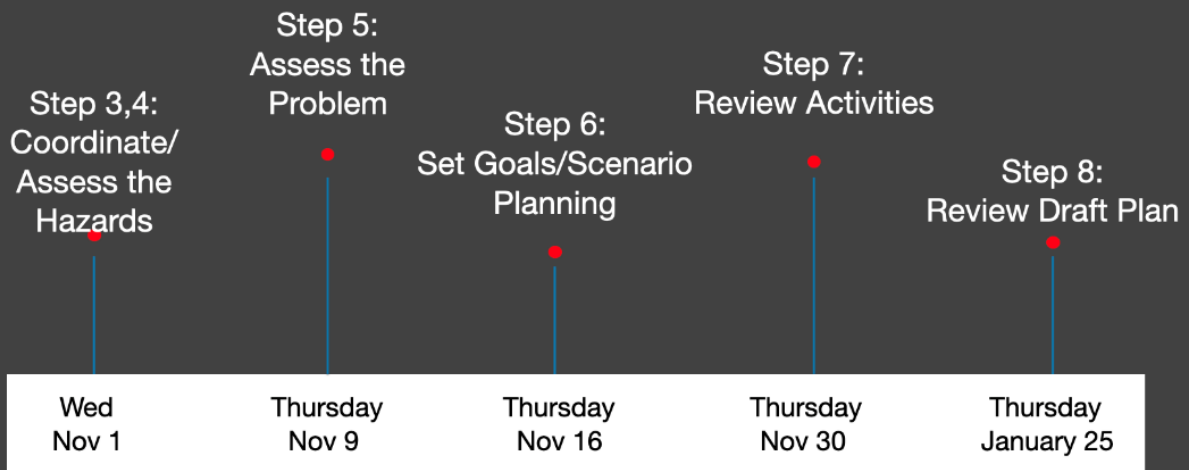
During the planning process, local governments work with residents and local groups to establish a shared vision of a resilient future and define specific local climate adaptation strategies to reduce vulnerabilities and achieve their vision. A climate adaptation planning process should consider diversity, equity, inclusion, and justice (DEIJ) from start to finish.

3.2 Community Rating System (CRS) 510: Floodplain Management Planning

This annex was created following a CRS 510 process for floodplain management planning. The Village Board passed a resolution on October 16, 2023, to authorize updating the Village of Owego multi-hazard mitigation plan annex. Another resolution was passed on the same day that named a municipal planning committee to assist in creation of this annex. The resolution and municipal planning committee are detailed in a CRS Appendix in Section 11 of this document.

Five public meetings were held that also included the municipal planning committee. These meetings were advertised in the Tioga County Courier, the Owego Pennysaver, and posted on the Village of Owego website. Participants were actively engaged via questionnaires, a scenario planning session, and group work in these meetings. This process created a new level of engagement in hazard mitigation planning with Village of Owego residents and promoted awareness of Village efforts to protect residents. This was a very positive and productive process, and it is recommended that it is included in future HMP Updates. The public meeting schedule and topics are shown below. In addition to the local engagement, County, State and Federal agencies were contacted regarding the creation of this document. The sign-in sheets and a table tallying the number of municipal committee members and public attendees of each of the five meetings is also in the appendix in Section 11.

HMP Update - Public Meeting Schedule



Location: Village Office Conference Room on Elm Street
Time: 2:30pm

3.3 Climate Adaptation and Resiliency Planning Engagement

3.3.1 Community Visioning Public Engagement

The Village of Owego's Climate Smart Communities Task Force sought feedback from those who live, work, or play in the Village of Owego to include in the Hazard Mitigation Plan/Climate Adaptation and Resilience Plan. The goal of the survey is to understand current attitudes in the Village and to help the CSC Task Force establish a shared vision of a resilient future. In addition to the survey, the Village Task Force also collected information on what community members saw as the Village's Strengths, Weaknesses, Threats, and Opportunities (SWOT). This survey was generated in collaboration with Southern Tier 8. The SWOT analysis was also prepared in collaboration with Southern Tier 8, and presented to the community at Owego's Annual Strawberry Festival in a booth arranged by Southern Tier 8 and staffed by CSC Task Force members.

Survey Summary

The Village of Owego Community Visioning Survey collected 65 total responses via online and paper surveys. Respondents were asked their primary place of residence to gauge their perspective when answering the following questions. 45% of respondents were residents of the Village of Owego, while 32% reside within Tioga County and the remaining 23% of respondents reside outside of Tioga County. Respondents were then asked a variety of questions such as what brings them to the village, what their stance on flooding is and where they see the village can improve. Through significant review of the submitted surveys, there is

a general appreciation for the small-town atmosphere and historic character the Village has to offer. Although not all respondents live within the village, strong family ties keep people coming back to the community.

When asked about the biggest issues facing the Village in the coming decades, respondents agreed that flooding, the lack of jobs and economic opportunity, and aging infrastructure were the most critical issues facing the Village. Even though lack of jobs and economic opportunity was a top choice for residents outside of the Village, this was not reflected as a top answer for village residents. Similarly, many village residents claimed that crime and drugs are a critical issue which in many cases can be a direct correlation to the health of the local economy. In addition, village residents identified a need to improve the housing within the village. Furthermore, all respondents identified the need to develop flood infrastructure along with creating a sustainable community that can withstand impacts from other natural events in the future.

Respondents were asked a series of questions regarding their perspective and experience with flooding. When asked how they felt about the impacts of future flooding in the Village of Owego, 52% of respondents were somewhat concerned and another 36% were extremely concerned (totaling 88%), with 64% of Village residents having been impacted by flooding in the past. Despite concerns, about three-quarters of respondents expressed they felt prepared or somewhat prepared for a future flooding event.

Respondents then provided suggestions on how the Village of Owego can help ensure preparedness for the future. Those answers fell under a few topics which include making changes to infrastructure and increasing mitigation efforts, offering education or information sessions for before, during and after events, maintaining a pathway for communication during events, and improving administrative preparedness such as updating recovery and emergency plans. Respondents also identified specific locations within the village that raised the most concern if they were to be impacted by flooding. Those locations included the downtown Owego business district and other local businesses, community areas such as the school, the Flats or affordable housing, and village utility and public service facilities were also high concern. As expressed, most respondents felt very strongly in protecting the assets of the village along with supporting those who may not have resources for recovery.

SWOT Analysis Summary

What are the Village of Owego's . . .

Strengths?	Weaknesses?
<ul style="list-style-type: none"> ○ Movie Theater ○ Stores/Unique Shops ○ School ○ Dunkin ○ Hickories Summer Concerts ○ Community(x2) ○ Parks ○ Events (Strawberry Fest/First Friday) ○ Parking ○ Green Space ○ Small Town Community feel ○ Cute, homey, comfy ○ Historic Architecture ○ Canawanna Natural Preserve ○ Restorations 	<ul style="list-style-type: none"> ○ Parking on Paige St. ○ A good daycare center ○ Sidewalks ○ A better movie theater ○ More to do in town ○ Potholes (x3) ○ Jobs/Economy ○ Flooding ○ Roads ○ Lack of general shopping (x2) ○ Stores close too early ○ Insufficient/overburdened administrative staff
Threats?	Opportunities?
<ul style="list-style-type: none"> ○ Susquehanna River Flooding (x5) ○ Increase in Homeless (x3) <ul style="list-style-type: none"> ● not enough resources for the homeless ○ Drug use (x2) ○ Jobs/Economy 	<ul style="list-style-type: none"> ○ Modernizing the Tioga County Fair ○ Jobs ○ Modernize the playgrounds. ○ More free events like the Strawberry Fest ○ Green energy progressiveness ○ More festivals at Hickories ○ Resources for the Homeless ○ Daycare ○ Younger people events geared to ages 18-25

Village of Owego residents value the historic character and strong sense of community along with the elements that come with it. Such elements include the local shops, schools, parks, and family friendly events. Although the strength of the community is high there are a few weaknesses that residents identified. Some of those include regular road maintenance such as filling potholes or maintaining sidewalks and feel more sidewalks should be added. Other weaknesses include adequate access to childcare services, job availability, and high risks of flooding. Given these weaknesses, increased awareness of several threats to the community have surfaced. For instance, given the low availability of jobs and stagnant economy, increases in the number of homeless and drug use have been evident along with the lack of resources for this population. Residents feel the Village of Owego should take the opportunity to address such weaknesses and threats while also including development in green energy, informal community activities like concerts in the parks and events for the young adult population.

Community Visioning Feedback Summary

Overall, respondents envision a sustainable and resilient Village of Owego as having an...

informed and educated populace and municipal staff, an increased investment in resilient infrastructure, and an increased preparedness for future climate hazards.

3.3.2 Climate Change Impacts and Future Scenarios

Climate Smart Resiliency Planning

Climate Smart Resiliency Planning (CSRP) is a procedure for holding a facilitated discussion and completing a questionnaire that is designed to stimulate ideas and collaboration among local government staff and officials. Implementing CSRP is a great early step for local decision makers to make progress on climate change adaptation and creates an opportunity to integrate climate considerations into local government operations. Sometimes slight modifications to existing policies or projects can help a community more effectively prepare for climate change. On September 25th, our regional partner and Climate Smart Communities liaison, Southern Tier 8, prepared for and led the meeting for the CSRP tool.

As part of the Village of Owego's Climate Smart Communities Task Force effort, the CSRP tool was used to evaluate opportunities for the Village to improve its community resilience to climate change. The evaluation was led by Southern Tier 8 Regional Board and reviewed long and short-term climate change preparedness by reviewing village planning documents, management, and activities. The CSC Task Force, volunteers, and municipal staff were engaged throughout the process of continually evaluating operations, and met several times to specifically discuss climate hazards, policy gap, and to complete the CSRP tool. On July 26, 2023, Village of Owego community members and municipal staff gathered to discuss the Village's vulnerabilities and existing policies for the Village's Annex to the County's HMP. On September 25, 2023, village officials, the Climate Smart Communities Task Force, and volunteers gathered to evaluate the current policies in place and gaps that were identified in local plans, policies, and projects as they relate to community vulnerability and climate change. The combined participants from these meetings includes:

- Julie Nucci, Julie Nucci Consulting & Village of Owego CSC Task Force Chair
- Kevin Millar, CSC Task Force Member & Former Village of Owego Mayor
- Laura Spencer, CSC Task Force Member & Village of Owego Trustee
- Gerri Wiley, CSC Task Force Member & Energy Specialist
- Rick Woidt, CSC Task Force Member & Hydrologist
- Wendy Walsh, CSC Task Force Member & Tioga County Soil and Water Conservation District Director
- Colin Parker Evans, CSC Task Force Member & Climate Scientist
- Jeff Winchell, Emergency Manager
- Peter Schaeffer, Village Resident
- Nadine Bigsby, Owego Historic Preservation Commission member
- Sophia Pappas, Southern Tier 8 Regional Board
- Ashley Seyfried, Southern Tier 8 Regional Board
- Mark Trabucco, Zoning board of appeals chair

- Bryan Goodrich, CSC Task Force Member, Tioga Co GIS
- Linda Coe, Planning Board Chair
- Bill Schweizer, Village Resident
- Jim Overhiser, Owego Historic Preservation Commission chair
- Cole Mant
- Elaine Jardine, CSC Task Force member, Tioga Co Planning and Grants
- Wendy Wall, Village Resident
- Josh Marland, Village Resident
- Kim Trahan, Village Resident
- Jayme Breschard, B&L Consultant (County-hired facilitator for the July 26th meeting)
- Dirk Mosher, Acting Director of Utilities (Sewer)
- Alex Marks, Tioga Co Soil & Water
- Richard VanHall, Owego Historic Preservation Commission Commissioner
- Jim Mead, Village Business Owner (Early Owego Antique Center)
- Rusty Fuller, Village Trustee
- Charles Plater, Village Trustee, Deputy Mayor
- Ron Pelton, Planning Board Member

Community Plan Checklist

The community plans assessed for this analysis:

- Municipal Master Plan: 2013 Comprehensive Plan
- Zoning Ordinance
- Subdivision Ordinance
- Multi-Hazard Mitigation Plan
- Flood Damage Prevention Ordinance
- Emergency Response and Short-term Recovery Plan
- Binghamton Metropolitan Transportation Study (BMTS)
- Historic Preservation Plan
- Local Waterfront Revitalization Plan (LWRP)

Recommendations for Community Plans:

1. Update the 2013 Comprehensive Plan
2. Create an Open Space Plan through the CSC program as well as a Natural Resources Inventory (Natural Resource Conservation Plan)
3. Create a Stormwater Management Plan. The United States Army Corps of Engineers (USACE) is actively studying the stormwater system in the Village and expects to develop a more concrete and actionable plan. The committee would like to look into more stormwater regulations and actions that could be implemented to better regulate stormwater in the Village.
4. Develop an Evacuation Plan
5. Local Waterfront Revitalization Plan (LWRP): Tioga County completed but did not adopt a LWRP. The Village is interested in exploring adopting their completed section of the County's unadopted LWRP.

Risk and Vulnerability Assessment

The Village has a comprehensive understanding of climate hazards and their impact on the Village and is working to develop adaptation strategies through this plan.

1. Recommendations for Risk & Vulnerability Assessment:
2. Document and spatially define vulnerabilities and risks. This would include mapping (potentially through a natural resource inventory) the vulnerable populations, buildings, infrastructure, natural resources, and cultural resources in the community.
3. The Village is interested in pursuing training in Cumulative Risk Assessment
4. Train emergency managers within the Village in risk and vulnerability assessments

Public Outreach

The Village would like to create a formalized process for engaging and reaching out to the public on hazards.

1. The Village would like to create a formalized process for engaging the public and providing information. Methods of engagement would include:
 - creating a dedicated website that is regularly updated with information,
 - Publicizing the availability of floodplain information to insurance agents, real estate agents, lenders, property owners, and businesses.
 - Providing information and best practices through newsletters and brochures
 - Publicizing data created from mapping exercises: BFE, risk and vulnerability assessments and findings
 - Take advantage of training opportunities from federal, state and local partners to improve staff and volunteer understanding of tools available to help plan for and respond to flood emergencies.
2. Creating official plans with a formalized process to provide residents with expected inundation areas prior to the threat of a storm as well as information on severe weather shelters. The Village would like to identify places for the location of severe weather shelters and create formal contracts or agreements. The Village would like locations both within and outside of the village with enough resources that will allow for continuity of public safety services and a specific area for Village operations. The Village would also like to identify future emergency operations center as well as off-site places to send people.

Plan Integration

Recommendations for Plan Integration:

1. Update the 2013 Comprehensive Plan to:
 - Review and reference this multi-hazard mitigation plan and any other disaster recovery plan created
 - Explain the support and involvement of emergency managers, floodplain managers and public works officials

- Involve a broad base of the community such as public officials, civic organizations, businesses and citizens
- Utilize expanded participation techniques and explain the techniques used in the development
- Identify resilience within its mission and recommend reducing hazard vulnerability
- Identify flood-prone areas and discourage development in those areas or require strategies to reduce flood damage to buildings
- Encourage using green infrastructure techniques to prevent flooding
- Emphasize non-structural pre-disaster mitigation measures such as acquiring flood-prone lands and adopting No Adverse Impact flood plain regulations

2. Update local community plans to:

- Encourage smarter development to connect people to the river and accommodate water during the floods, update zoning regulations to encourage open space or recreation in the floodway or flood-prone areas, have non-conforming use and structure standards be revised to encourage safer rebuilding in flood-prone areas, and update building codes to promote flood-resistant building, identify safe growth areas and encourage development in these areas
- Encourage development that is compact and walkable and update land use codes and regulations to allow for and encourage this type of development
- Prioritize open space by creating local ordinances that protect wetlands, developing a natural resources management plan or open space plan that is in coordination with the state's open space plan and identifies floodplain management as a priority
- Invest in floodplain management by having a certified floodplain manager on staff and have them be included in the planning process of a comprehensive floodplain management plan and/or stormwater management plan
- Develop a stormwater management plan that encourages green infrastructure and low impact development, identifies runoff and drainage problems, discusses strategies to reduce runoff, coordinates with neighboring municipalities for a watershed-wide approach, describes responsibilities of the municipality for inspection and maintenance,
- Develop a detailed capital improvements plan

Preparedness & Recovery

Recommendations for Preparedness & Recovery:

- Explore becoming a Storm Ready Community
- Further invest in their Emergency Response capabilities by expanding outreach on the general emergency warning system. The Village would like to transition off of code red to the NY-Alert program as it can be run remotely and by multiple people. This system can send out emergency alerts based on cellular locations.
- Include coordination and communication among critical stakeholders such as community-based organizations, local businesses, local health departments, utilities, and local government leaders

- Develop a COAD (Community emergency response team in partnership with Tioga County, as most of the Village is within the flood area
- Implement further pre and post disaster management programs, such as debris removal contract prior to an event or educating the public on debris removal and reporting
- The Village would like to duplicate or scan FEMA elevation certificates outside of the flood-hazard area using CRS software
- Create a long-term recovery plan under the CRS program
- The Village would like to adopt floodplain development limits that prohibit or reduce any new encroachment and fill in river corridors

Hazard Mitigation

Recommendations for Hazard Mitigation:

- The Village of Owego should explore training opportunities on retrofitting flood-prone residential buildings and post-flood stream intervention
- The Village should explore using tools to manage development in hazard-prone areas such as: transfer of development rights or purchase of development rights, conservation overlay districts, zoning for open or recreational space, protective riparian or wetland buffer ordinances, rolling easements, land conservation easements in hazard-prone areas, utilizing impact fees or accommodation taxes, creating a shoreline stabilization plan, prohibiting automatic replacement of hardened structures, encouraging sustainable enhanced methods of shoreline protection, informing property owners of preferred shoreline protection techniques, controlling invasive species, establishing special area ordinances for habitat preservation

3.3.3 *Scenario Planning Engagement*

Scenario Background

Climate change will result in long-term shifts in global temperatures and weather patterns. Climate change impacts are already occurring, and adaptation measures are needed across the world to minimize the current and future-project impacts of climate change.

There are several resources available to estimate the future impacts of climate change to the Village of Owego. New York State Energy Research and Development Authority (NYSERDA) completed an analysis for the entirety of New York State and the regions throughout the state in 2008 with an update completed in 2014. As a basis for the scenario planning exercise, data was shared for the Southern Tier from a combination of sources. For the Southern Tier, researchers project that there will be between a 4.2-11.6 °F increase in temperatures. This would likely lead to extended growing seasons and changes in the flora and fauna that can populate the area. Precipitation is expected to increase by 3-16% with much of the precipitation expected to occur during the winter months. In addition, extreme weather events are expected to increase by the late century. NYSERDA predicts that days over 90 °F will increase from an average of 10 days in the Southern Tier to 28-79 days, varying based on the different scenarios. Heat waves will increase from one occurrence per year to 3-9 and the number of days with over 1" of rainfall will increase from 0-2 days per year.

The Federal Emergency Management Agency (FEMA) also provides data on the National Risk Index Rating for different hazards. The U.S Global Change Research Program uses the FEMA data as well as other inputs to assess vulnerabilities in its Climate Mapping for Resilience and Adaptation Tool. The Global Change Research Program estimates that the Village of Owego will have an increase of 3-5 of total rainfall per year with an additional 1-2 extreme rainfall events per year. Additionally, the Program estimates an increase in snowfall through the mid-21st century decreasing towards the end of the century. There is a slight increased risk of drought with an additional 4-6 days per year with no precipitation. Additionally, 25-54 more days per year with temperatures above 90 degrees with a baseline of 4 days in the early 21st century.

The models estimate that there will be significant climate changes in the region and within the Village of Owego. Based on the estimates, we expect that the Village will see a rainier, stormier climate which increases risks for infrastructure, homes, and residents. The expected increase in extreme heat and longer dry periods will present new risks for infrastructure, the environment, and vulnerable populations. The changing weather conditions will present new challenges for the Village that will be considered in this adaptation plan.

Exercise

In November 2023, a stakeholder group was convened to discuss the future scenario for the Village of Owego that was outlined above. This scenario that the Village of Owego considered was derived from the Climate Mapping for Resilience and Adaptation tool that models the Village to be rainier and stormier with increased precipitation and extreme weather events, as well as increased extreme heat and longer dry periods. Key stakeholders included residents, volunteers, members of the Climate Smart Communities Task Force, Emergency responders, floodplain managers, the former Village Mayor, the Village Historian, and more. The scenario planning workshop walked the stakeholder group through the scenario, discussed possible adaptation actions, and had the group prioritize various potential adaptation actions for the community and present potential projects and recommendations for adaptation planning.

The scenario planning exercise followed the University at Buffalo Regional Institute's (UBRI) approach to scenario planning which relies heavily on the July 2021 McKinsey Sustainability and C40's report "Focused Adaptation – a Strategic Approach to Climate Adaptation in Cities." The report stresses the importance of adaptation, as the risks of climate change are unavoidable. The report covers 15 adaptation actions for developed areas, 11 of which are hazard specific and only target a particular set of physical climate risks, such as drought, wildfires, inland flooding, etc. The remaining 4 adaptation actions aim at building systemic resilience, meaning they strengthen urban areas of all profiles regardless of community profile, such as increasing awareness and optimizing emergency response.

The McKinsey Sustainability and C40 report also stresses that nature-based solutions should first be considered, such as planting trees or using nature-based urban design for drainage, as they are often most impactful for reducing risks and are often most feasible. Additionally, urban areas should invest in systemic resiliency and addressing overall resiliency rather than just one hazard by focusing narrowly.

The stakeholder group was provided with nine adaptation actions relevant to the community with examples of each, relative ease of implementation, and relative cost for each, as shown in the example table below that UBRI used in their scenario planning efforts. The stakeholder group was instructed on each action and then community members ranked their priorities for the Village of Owego's adaptation efforts.

Table 3-1. Results from Adaptation Strategy Ranking Exercise

Climate Adaptation Strategy Exercise		Priority			Results	
Action ID	Item	Low (1)	Medium (2)	High (3)	Weighted Average	Rank (1 is most important)
3	Enhanced Emergency Operations	0	0	10	3	1
1	Climate-Resilient Construction Material	0	2	8	2.8	2
8	Green Infrastructure/Design	0	3	7	2.7	3
2	Dedicated Climate Adaptation Funds	0	3	7	2.7	3
5	Climate Education/Outreach	1	2	7	2.6	4
6	Flood-proofing	2	1	7	2.5	5
7	Improved Grey Stormwater Infrastructure	1	5	4	2.3	6
4	Sustainable Development/Land Conservation	3	3	4	2.1	7
9	Reduce Risks of Invasive Species	4	3	2	1.6	8

The results show:

- Every participant sees enhanced emergency operations as a High Priority and is the top priority for the Village of Owego
- Climate-Resilient Construction Material, Green Infrastructure and Green Design, creating a Dedicated Climate Adaptation Fund, Climate Change Education and Outreach, Flood-proofing, and Improving Grey Stormwater Infrastructure were all nearly equally as important to community members
- Sustainable Development and Land Conservation was ranked as a lower priority for the Village of Owego. This is likely due to the Village already being developed and that there is no development pressure currently on the Village.
- Reducing risks of Invasive Species is the lowest priority for the community

4 CAPABILITIES ASSESSMENT

4.1 Planning Mechanisms and Capabilities

The Village of Owego identified the following planning mechanisms and capabilities that can support the Village 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 4-1 elaborates on existing building codes, land use and development ordinances/regulations, and many other capabilities that can support hazard mitigation.

Limited staffing to write and administer grants for hazard mitigation and the lack of a certified floodplain manager (CFM) in the village result in insufficient floodplain and stormwater management efforts. Additional resources are needed to enable effective hazard mitigation, flood mitigation, drainage system maintenance, and stormwater management programs.

Table 4-1. 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	Vegetation maintenance, mow berm next to floodway once per year. The village checks all clapper belts/back-flow valves (i.e. Brick Pond, Court and Black bridge) annually.
Mitigation Planning Committee	No	
Mutual Aid or Shared Services Agreements	Yes	Fire and Ambulance/Emergency Services, County Mutual Aid, NYS DHSES, County EMAC
Planning Board	Yes	It is a goal to create new procedures for this board to ensure NFIP compliant development in the floodplain.
Zoning Board	Yes	It is a goal to create new procedures for this board to ensure NFIP compliant development in the floodplain.
Owego Historic Preservation Commission (OHPC)	Yes	Chapter 126: Historic Preservation, adopted 2-19-2019 by L.L. No. 3-2019. Certified Local Government (2019) – grant award in 2023 to update the cultural resources survey.
Climate Smart Communities Task Force	Yes	With a goal of CRS entry, this task force is actively working on issues relevant to floodplain management and improvement of floodplain management standards. Joined in 2022.
Other	No	
Development Approvals		

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?)
Building Code	Yes	Building Code of New York State. Village Code includes Chapter 92 - Building Code Administration, Chapter 142 - Mobile Homes, Chapter 28 - Housing Standards Agency, Chapter 109 - Electrical Standards. Chapter 92: Building Code Administration, adopted 3-6-2023 by L.L. No. 2-2023.
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	No	
Fire Department ISO Rating	Yes	4-4Y, (Feb. 2016)
Site Plan Review Requirements	Yes	Article XXII Site Plan Review, updated 2-5-2018 by L.L. No. 1-2018
Other	No	
Funding Resources		
Authority to Levy Taxes	Yes	
Capital Improvement Project Funds	Yes	Village
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	FEMA, USACE (2023)
General Obligation Bonds and/or Special Tax Bonds	Yes	
Impact Fees for New Development	No	
State Funding Programs (i.e., NYSEFC, NYSOGR, NYSDEC, others)	Yes	HMGP, Climate Smart Communities (2022), NYS Parks, Recreation and Historic Preservation grant to update historic survey to update the Inventory of the Owego Central Historic District (2023)
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	Yes	The Village operates a sewer system. Veolia provides direct water service to approx. 5,500 people in the Villages of Owego and Nichols, and limited sections of the Towns of Owego, Nichols, and Tioga.
Other	Yes	Federal historic rehabilitation tax credit (HTC) program (eligible census tract)
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	Yes	April 2012

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?)
NFIP Participant / Floodplain Ordinance	Yes	Joined NFIP on 5/16/1977. Chapter 117: Flood Damage Prevention, updated 3/15/12 by LL #2-2012
Hillside Development Regulations	No	
Open Space Preservation	No	Comprehensive Plan Update (2013), pg. 26-27. Adopted by resolution 3/24/14
Stormwater Management Regulations	No	§ 175-16 Storm Drainage
Streambank Setback Regulations	No	
Subdivision Regulations	Yes	Chapter 175: Subdivision of Land, adopted 2/7/72
Zoning Ordinance	Yes	Chapter 195: Zoning, adopted 12/1/69 (amendments noted where applicable)
Other	Yes	Chapter 190: Vehicles, Junked
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	No	
Other	Yes	Follows Uniform Procedures Act (UPA), Article 70 of the NYS Environmental Conservation Law (ECL) Canawanna Nature Preserve, Brick Pond Owego DRI project, trails by Owego Creek (flood control creek-DEC/USACE)
Plans		
Capital Improvement Plan	No	
Comprehensive Emergency Management Plan	Yes	2013 Comprehensive Emergency Management Plan, Village of Owego Emergency Plan, adopted by the Village Board on 5/16/2022
Comprehensive Plan	Yes	Comprehensive Plan Update (2013)

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?)
Continuity of Operations Plan	Yes	Village of Owego Long Term Community Recovery Strategy (September 2013)
Economic Development Plan	Yes	Tioga County 2020 Strategic Plan
Other	No	Tioga County LWRP for the Susquehanna (completed but not adopted)
Programs/Organizations		
Climate Smart Communities/Southern Tier 8	Yes	Registered in Fall of 2022
Clean Energy Communities/NYSERDA	Yes	Registered in Spring of 2021
Local Emergency Preparedness/Disaster Response Organizations	Yes	Local Emergency Manager, Village would actively participate when the county forms a COAD (Community Organizations Active in Disaster)
Local Environmental Protection Organizations	No	
National Weather Service Storm Ready Certification	No	
Outreach Programs	Yes	Village website, Facebook, Owego Pennysaver Press, IPAWS. The Village of Owego uses Code RED as its emergency notification system.
Partnerships with private entities addressing mitigation or disaster response	Yes	J. Nucci Consulting, LLC, Barton and Loguidice
School Programs or Adult Educational Programs	Yes	School Resource Officers
Other	Yes	Tioga-based Community Organizations Active in Disaster Rural Ministry, Open Door Mission, New Hope Center, Tioga Opportunities
Staff Positions		
Civil Engineer	No	
Code Enforcement Officer	Yes	1 FTE, 1 part-time
Emergency Management Coordinator	Yes	1 part-time
Floodplain Administrator	Yes	Code Enforcement Officer

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?)
Planner/GIS Coordinator	No	Planning & Zoning Administrator
Certified Floodplain Manager	No	
Other	Yes	Chief of Police
Technical Abilities		
Grant Writing	No	
Hazard Information Centers	No	
Hazard Warning Systems	Yes	Code Red
Other	No	

The Village’s HMP update will be incorporated into and referenced by future updates of the plans, policies, ordinances, programs, studies, and reports listed in Table 4-1. In particular, the Village should review Table 4-1 when completing updates to the Comprehensive Plan and amendments to the Zoning Code. As part of this review, the Village 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.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10.3 of the main body of the HMP.

4.2 Integration of Planning Efforts

The Village of Owego understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The Village intends to reference the 2024 Tioga County HMP as part of the process for future updates to the plans, policies, programs, and regulations listed in Table 4-1, above, and for creating new regulations as applicable. This may include adding hazard mitigation as an agenda item at Village 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 Village may use the local laws assessment (included in Section 2 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.

Additionally, as described in the mitigation action section of this plan, the Village of Owego will:

- Incorporate findings from the Flood Mitigation Parcel Inventory into the zoning code
- Include hazard mitigation measures in the forthcoming update of the Village Comprehensive Plan
- Revise Chapter 117: Flood Damage Prevention in the Village code to include measures for compensatory storage and BFE +3
- Adopt an ordinance that prohibits dumping in streams and ditches
- Develop a debris management plan to reduce and address debris from flooding.
- Consider USACE studies of the Upper Susquehanna and the current USACE stormwater study when identifying a path forward to comprehensively study stormwater management in the village. Additionally other private studies conducted on streams that feed into the Owego Creek will be leveraged to get a better understanding of Owego Creek induced flooding.
- Incorporate findings of non-structural USACE analysis of 15 buildings in the Village and extrapolate the results to address mitigation options for other homes, businesses, and village-owned structures.
- Leverage existing studies/reports for addressing runoff in the Evergreen Cemetery that included retention ponds, retaining walls, and drainage ditches.
- Consider studies from Tioga County Soil and Water on open space for tree plantings and riparian buffer assessments.
- Include H&H studies of Huntington Creek, which runs into the Owego Creek. Mitigation options were presented but have yet to be acted upon.
- Consider implementing recommendations from Complete Streets studies of the Village of Owego in future actions. Multiple studies were conducted over the last 10-20 years by BMTS (Binghamton Metropolitan Transportation Study).

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

5 CLIMATE ADAPTATION MODELING DATA

As a result of efforts of Southern Tier 8, in collaboration with the Village of Owego's Climate Smart Communities Task Force, this annex also includes forward looking climate project data.

5.1 Climate Change Impacts and Future Scenarios

Climate change will result in long-term shifts in global temperatures and weather patterns. Climate change impacts are already occurring, and adaptation measures are needed across the world to minimize the current and future-project impacts of climate change.

There are several resources available to estimate the future impacts of climate change to the Village of Owego. New York State Energy Research and Development Authority (NYSERDA) completed an analysis for the entirety of New York State and the regions throughout the state in 2008 with an update completed in 2014. For the Southern Tier, researchers project that there

will be between a 4.2-11.6 °F increase in temperatures. This would likely lead to extended growing seasons and changes in the flora and fauna that can populate the area. Precipitation is expected to increase by 3-16% with much of the precipitation expected to occur during the winter months. In addition, extreme weather events are expected to increase by the late century. NYSERDA predicts that days over 90 °F will increase from an average of 10 days in the Southern Tier to 28-79 days, varying based on the different scenarios. Heat waves will increase from one occurrence per year to 3-9 and the number of days with over 1" of rainfall will increase from 0-2 days per year by late century.

The Federal Emergency Management Agency (FEMA) also provides data on the National Risk Index Rating for different hazards. The U.S Global Change Research Program uses the FEMA data as well as other inputs to assess vulnerabilities in its Climate Mapping for Resilience and Adaptation Tool. The Global Change Research Program estimates that the Village of Owego will have an increase of 3-5 inches of total rainfall per year with an additional 1-2 extreme rainfall events per year. Additionally, the Program estimates an increase in snowfall through the mid-21st century dropping, decreasing towards the end of the century. There is a slight increased risk of drought with an additional 4-6 days per year with no precipitation. Additionally, 25-54 more days per year with temperatures above 90 degrees with a baseline of 4 days in the early 21st century.

The models estimate that there will be significant climate changes in the region and within the Village of Owego. Based on the estimates, we expect that the Village will see a rainier, stormier climate which increases risks for infrastructure, homes, and residents. The expected increase in extreme heat and longer dry periods will present new risks for infrastructure, the environment, and vulnerable populations. The changing weather conditions will present new challenges for the Village that will be considered in this adaptation plan.

Average annual total precipitation

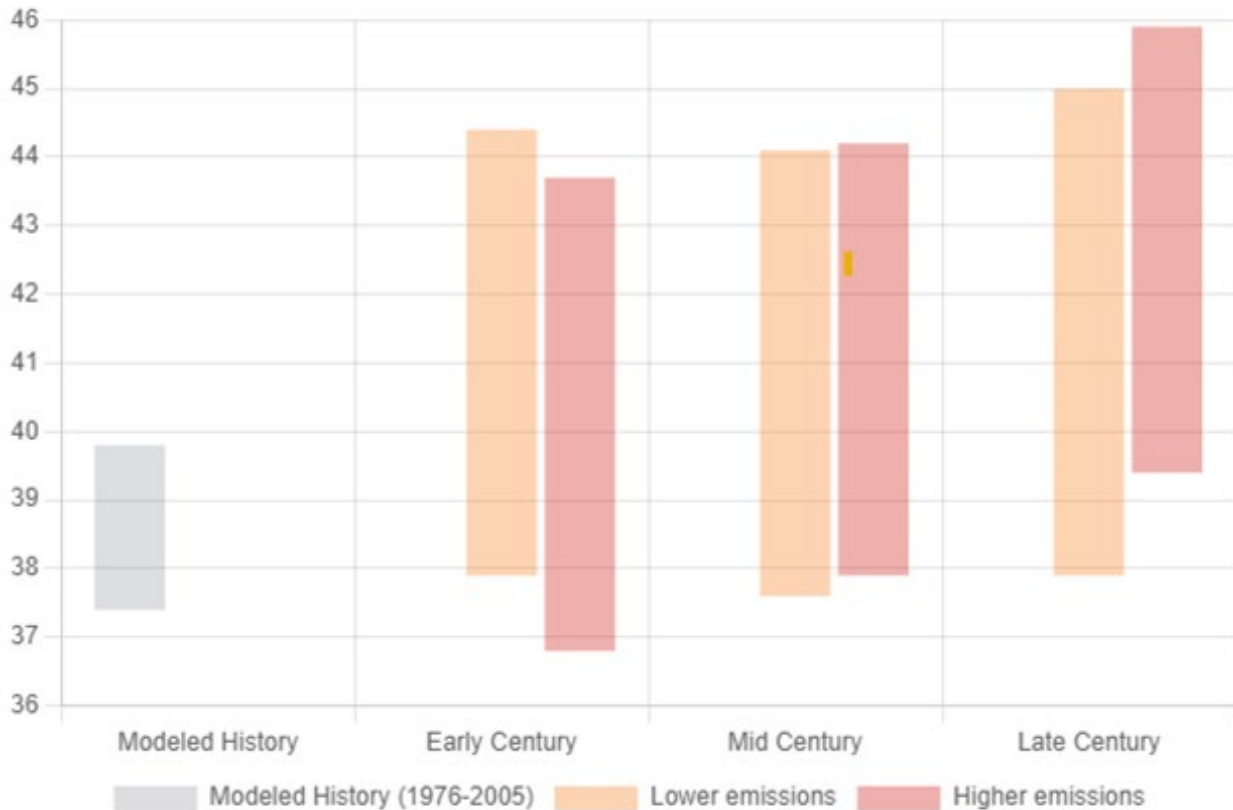


Figure 5-1. FEMA projections of annual total precipitation through the end of the Century.

The FEMA National Risk Index Rating considers the Village of Owego a Relatively High Risk for flooding. Additionally, while current precipitation and conditions for the Village of Owego often result in flooding throughout the Village, future projections show that precipitation and the likelihood of flooding will only increase in the future. The Global Change Research Program estimates that the Village of Owego will have an increase of 3-5 inches of total rainfall per year with an additional 1-2 extreme rainfall events per year.

Extreme temperature in the Village of Owego refers to both extreme heat and extreme cold events, and what constitute an extreme event can vary across different areas of the country depending on what is normal for a given region. These events can have significant impact to business, infrastructure, and human health.

For both extreme cold and extreme heat events, preparing for these events is key to reducing the impacts they can have on the Village's population, business, and infrastructure. Implementing adaptation and mitigation measures, such as providing emergency shelters, winterizing pipes, and expanding warning systems can help mitigate the effects of extreme cold temperatures.

Annual days with maximum temperature > 90°F

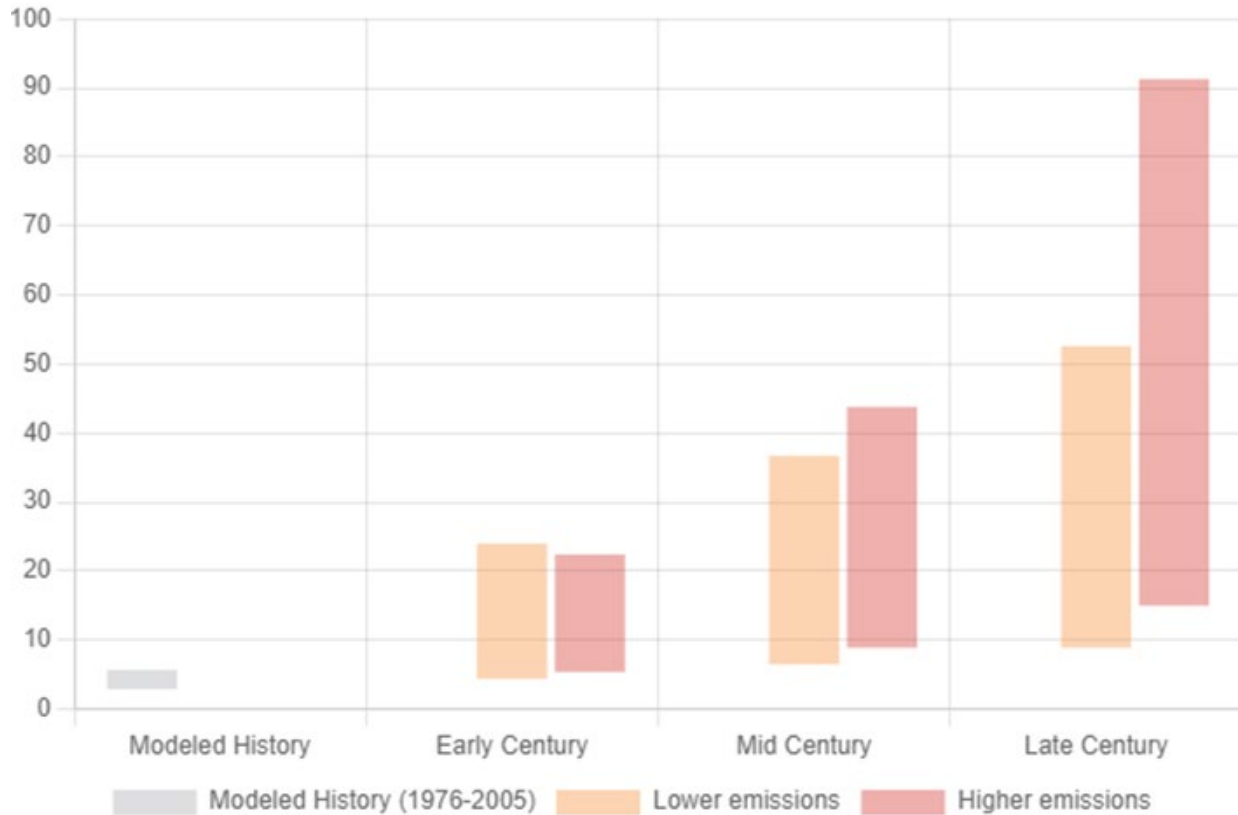


Figure 5-2. FEMA projections of annual days with maximum temperature >90 degrees F through the end of the Century.

While the National Risk Index Rating rates Tioga County as a Relatively Low risk for Extreme Heat and Very Low risk for drought, there is an estimated 25-54 more days per year with temperatures above 90 degrees with a baseline of 4 days in the early 21st century. These increases in extreme heat days could have potential health impacts on the Village's population.

As a disadvantaged community, the Village of Owego is likely to see the impacts of environmental burdens and climate change disproportionately. Populations that are most vulnerable to extreme weather events are those over the age of 65, which accounts for 21% of the Village's population and those under 5 years of age, low income that cannot afford cooling or heating, homeless populations, and those that have difficulty accessing medical care and transportation. The Village has a relatively high number of residents of low income that may have fewer resources to protect against extreme temperatures.

Extreme weather events and rising temperatures due to climate change can also impact the Village's infrastructure. With this increase in the number of hot days, it is projected that the number of days in which air conditioning will be needed will go from 131 (now) to 145 (in 30 years). First Street estimates this will lead to a 23.7% increase in the energy requirements for cooling. Greening the downtown area, the least green part of town, will help reduce the heat

island effect there and make it a healthier environment on hot summer days for merchants and their customers.

That National Risk Index includes a cold wave as the second highest risk factor behind flooding, noting that there has been approximately one cold wave each year for the past 17 years. The frequency of historical cold waves and projections for heat waves, reinforces an increasing need for heating/cooling centers where vulnerable residents can go in times of temperature extremes.

The expected increase in temperatures will likely result in an increase demand in energy for cooling that can tax the energy grid. Additionally, there may be an increase in power outages during summer heat waves that could impact critical infrastructure or those that rely on power to withstand the extreme temperatures, causing temporary brown-outs. Older housing stock, which most of the Village residencies are, as well as manufactured homes are also less capable of withstanding extreme temperatures. Extreme cold events can result in infrastructure damage through freeze/thaw cycles and can damage pipes.

Extreme temperatures can exacerbate the risk and hazard for droughts and also increase the risk of wildfire. Prolonged extreme heat events may lead to drought conditions that could eventually affect the drinking water supply for village residents.

6 HAZARD IDENTIFICATION AND RISK ASSESSMENT

6.1 Profiled Hazards

In this HMP Update, the County reviewed multiple natural hazards, and determined to profile four natural hazards: flooding, severe storm, extreme temperatures, and drought. Descriptions of each of these hazards are included in Section 5 of the main body of the HMP. The Village of Owego has chosen to profile the same hazards as the County. No hazards were omitted and there were no additional hazards identified as unique and specific to the Village of Owego.

The hazard analysis criteria used to evaluate the Village's vulnerability to each natural hazard are summarized in Table 6-1, and the results are presented in Table 6-2.

Table 6-1. 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

Table 6-2. 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 (Coastal Flooding, Riverine Flooding, Ice Jam)	3	3	3	2	11	1	N/A
Drought	1	1	3	3	8	2	N/A
Severe Storm (Hail, Ice Storm, Lightening, Strong Wind, Winter Weather, Tornado, Hurricane/ Tropical Storm)	2	3	3	3	11	1	N/A
Extreme Temperatures (Cold Wave, Heat Wave)	3	2	3	3	11	1	N/A

6.2 Hazard Event History

A complete history of natural hazard events within the County – based on NOAA’s Severe Storm Database – is included in Section 5 of the main body of the HMP. The following is a subset of events that occurred specifically within the Village. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Village.

Much of the village is in the 1% floodplain, as shown in the FEMA floodmap in Section 8.1. While flooding happens throughout the village, the areas in the Village of Owego which experience the most common flooding and repetitive loss damage are "Turtletown" (east section of the Village) which is flooded by river flooding; and "The Flats" (northwest section of the Village) which is flooded by the Owego Creek. Flood damage mitigation in both areas will be guided by the results of an upcoming USACE flood and stormwater study and input from the residents in those areas.

Repetitive Loss areas:

- Turtletown: bounded by East Front Street, Division Street, East Main Street and Fulton Street.
- The Flats: Adeline Street, Delphine Street, George Street, Talcott Street, West Avenue.

Table 6-3. Hazard Event Records, 2018-2022

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Thunderstorm Wind	5/3/2018	50	\$25,000.00	-
Flash Flood	8/14/2018		\$10,000.00	-
Thunderstorm Wind	6/29/2019	50	\$5,000.00	-
Flood	4/30/2020		\$5,000.00	-
Thunderstorm Wind	7/23/2020	50	\$5,000.00	-
Thunderstorm Wind	8/27/2020	50	\$5,000.00	-
Flash Flood	12/24/2020		\$5,000.00	-
Thunderstorm Wind	7/7/2021	50	\$4,500.00	-
Thunderstorm Wind	7/13/2021	50	\$3,400.00	-
Thunderstorm Wind	8/24/2022	50	\$5,000.00	-
Total			\$72,900.00	None Reported

6.3 Floodplain Statistics

Key waterways in the Village are described in Section 2.1. 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 1,765 acres in the Village, approximately 47.65% are located within the 1% annual chance flood event area and approximately 8.50% are located within 0.2% annual chance flood event area (

Table 6-4). The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 6-5. 995 parcels in the Village are located within the 1% annual chance flood event area, with an estimated total structure value of \$126,379,401. 615 parcels in the Village are located within the 0.2% annual chance flood event area, with an estimated total structure value of \$108,461,422.

Table 6-4. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	100-Year Floodplain	500-Year Floodplain
1,765	47.65%	8.50%

Table 6-5. Estimated Number and Structure Value of Parcels within Floodplains

Property Class	Number of Parcels in 100-Year Floodplain	Approx. Structure Value in 100-Year Floodplain	Number of Parcels in 500-Year Floodplain	Approx. Structure Value in 500-Year Floodplain
Agricultural	1	0	1	0
Commercial	136	14,570,150	168	17,189,500
Community Services	25	49,755,800	26	44,738,500
Industrial	5	656,400	1	43,800
Parks and Open Space	5	110,600	2	0
Public Services	19	29,357,397	16	28,662,594
Residential	600	30,216,354	324	16,642,528
Vacant	194	98,800	69	73,100
Recreation	10	1,613,900	8	1,111,400
Total	995	126,379,401	615	108,461,422

Note: The structural value for each tax parcel was calculated by subtracting its assessed land value from its total assessed value.

6.4 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 insured structure incurs damage costs that are over 50% of its market value, the owner must comply with the local floodplain regulations 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.

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 Village of Owego currently participates in the NFIP (community ID 360840), and its current FIRM(s) became effective on 4/12/2012. FIRMs are available via FEMA's Flood Map Service Center (<https://msc.fema.gov/portal/home>). Digital FIRM data is also available for Tioga County via FEMA's National Flood Hazard Layer Viewer, which was referenced during the development of this annex. The Village joined the NFIP on 5/16/77. The Village's local law governing floodplain development and NFIP compliance is located in Chapter 117 of the Village code. The village is bringing a 2019 CAV to a close and the final floodplain violation is currently being corrected. The Village will continue to strive 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 4-1 of this annex.

According to NFIP claims data provided by FEMA, there are 163 repetitive loss properties in the Village of Owego. Such properties have had at least two paid flood losses of more than \$1,000 each in any 10-year period since 1978.

6.5 Property Protection Activities

Since the 2011 flood, the Village acted to protect property. There are 41 "removed and forever green" properties in the Village because of FEMA buyouts. Nine homes were elevated via NY Rising and FEMA HMGP funding. Two HMGP applications submitted in 2022 are currently in progress: 1) elevation of an 1802 Greek Revival home and 2) purchase and installation of two back-up generators, one for a water pumping station and one for the wastewater treatment plant.

Chapter 117, the Village's floodplain damage prevention law, will be systematically reviewed in the coming 5-year period. Proposed changes will include increasing freeboard from BFE+2 to BFE+3 and adding a compensatory storage provision.

The two USACE studies currently underway regarding the stormwater system and increasing resilience of village buildings will inform next steps. The results from the non-structural analysis of 15 village buildings for flood resiliency will be used in planning a public outreach program to better inform Owego residents and business owners about floodplain resiliency measures and public safety.

This will be implemented via our Climate Smart Communities Task Force.

The Village is submitting a BRIC DTA proposal in 2024 that includes a request for expert assistance to: 1) critical infrastructure evaluation to the 0.2% flood event per a DHSES recommendation for the 32 critical facilities identified in our 2024 community-informed Village Annex to the County HMP Update, 2) expansion of the USACE Upper Susquehanna study to include studying natural and beneficial mitigation measures for upstream watersheds that impact village flooding, 3) education services for municipal officials and the general public regarding flood risk and resilience.

6.6 Considerations for Future Hazards

The effects of climate change and other factors on future hazard events in Tioga County are covered in Section 5 of the main body of the HMP as well as in Section 5 of this Village of Owego annex.

The two areas of the Village most likely to be flooded, “The Flats” and Turtletown are defined in Section 6.2. These areas are likely to be impacted from future flooding due their aging and socially vulnerable population, development and filling in of the floodplain upstream, run-off from higher elevations outside the village, and the expectation of greatly increased intense rainfalls due to climate change.

7 ASSETS AND VULNERABILITIES

7.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response or that requires a special emergency response in the event of hazardous incidents as identified by the Village of Owego. These 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 and Village 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 7-1 denotes the name, type, and location of the critical facilities within the Village of Owego, and any vulnerabilities of note. More information about hazard vulnerability, including a tool for understanding the vulnerability of community assets to events of varying magnitudes, is included in Section 6 of the main body of the HMP. Additional vulnerabilities by location are assessed in the HAZUS analysis, included in the appendices of the HMP. This critical facilities list was generated during the combined public/municipal meetings for the CRS 510 process and considers input from many officials and village residents.

Table 7-1. Critical Facilities

[Table redacted due to sensitive content]

Per 2022 NYS Hazard Mitigation Planning Standards, jurisdictions must identify all 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 7-1*, it is unknown whether several of the Village'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 Village has included an action in Section 10.2 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.

7.2 High Hazard Potential Dams

The Village of Owego does not have any high-hazard potential dams located within the municipal boundaries.

7.3 Vulnerable Facilities

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. As for the critical facilities, the vulnerable facilities were extensively discussed in CRS 510 meetings with municipal and public participants. The results of those discussions are in *Table 7-2*. Examples of 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)

Table 7-2. Vulnerable Facilities in the floodplain

#	Facility Name	Facility Type	Address	In floodplain?	Parcel Tax ID
1	Sunoco (Mirabito Holdings Inc)	Hazardous Material Locations (Underground tank improved 1989)	118-120 North Avenue	1%	128.08-3-94.1

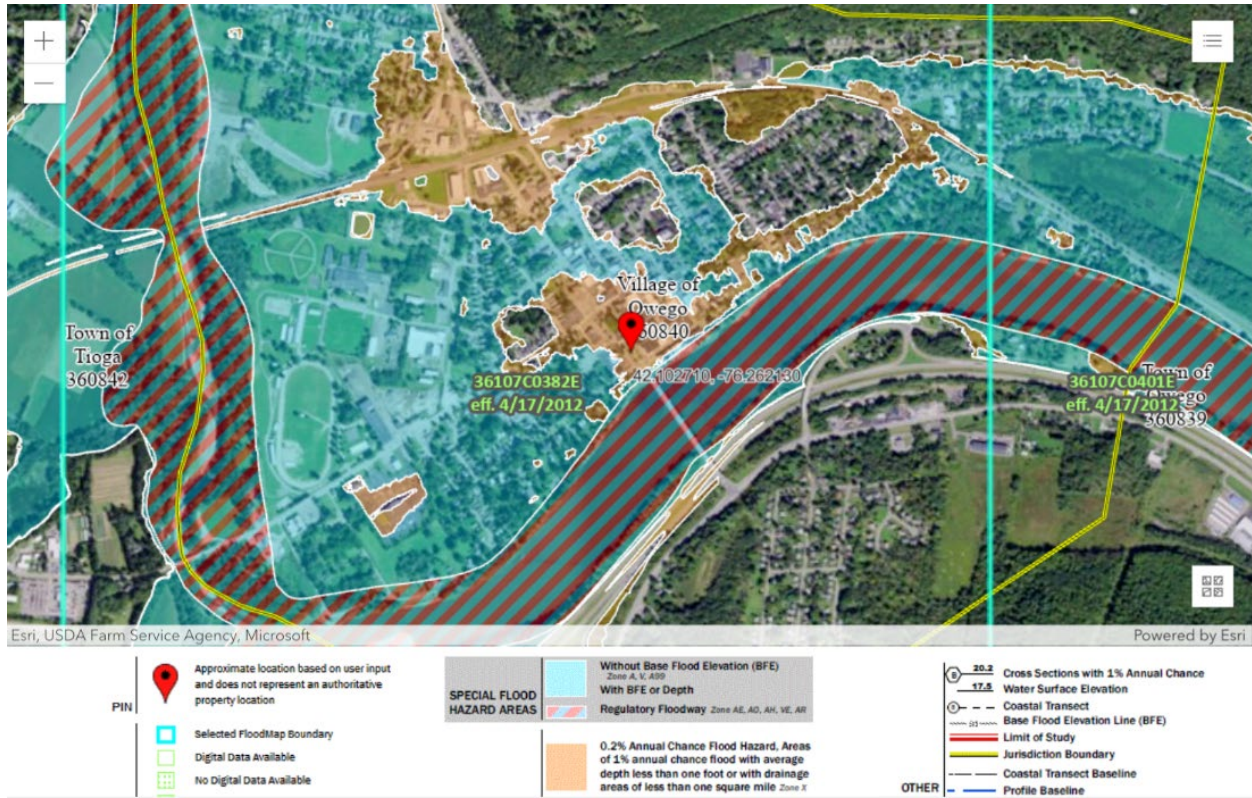
#	Facility Name	Facility Type	Address	In floodplain?	Parcel Tax ID
2	Citgo (Singh & Brothers Corp.)	Hazardous Material Locations (Underground tank improved 1990)	2 West Main Street	1%	128.12-2-1
3	Scott Smith & Sons	Hazardous Material Locations (Underground tank improved 2023)	8 Delphine St	0.2%	128.07-1-16.2
4	Natural gas line near the village	Hazardous Material Locations	Brick pond/Turtle Town	1%	
5	Weitsman, Ben & Son (Upstate Shredding)	Hazardous Material Locations Junkyard	15 W Main Street	1%	128.11-1-7
6	Applied Technology Manufacturing Corp (ATMC)	Hazardous Material Locations	71 Temple Street	1%	128.08-7-42.1
7	Agway	Hazardous Material Locations	38 West Ave	0.2%	117.20-1-23
8	Ward and Van Scoy, Inc.	Hazardous Material Locations	162 North Avenue	Portion is in 0.2%	117.20-2-31
9	Auto Zone	Hazardous Material Locations	23 Church Street	0.2%	128.08-6-16
10	Foundry brownfield	Hazardous Material Locations	McMaster St W Elm St	0.2%	128.07-2-7 128.07-2-16
11	NAPA	Hazardous Material Locations	87-89 Fox Street	1% and 0.2%	128.08-2-37
12	Home Central	Hazardous Material Locations	151 Central Ave	0.2%	128.08-2-1
13	WEBO	Communications	60 North Avenue	1%	128.08-4-67
14	Owego Pennysaver	Communications	181-183 Front St	0.2%	128.08-6-67
15	Tioga County Courier	Communications	59 Church St	1% 128.08-4-53	128.08-4-53

#	Facility Name	Facility Type	Address	In floodplain?	Parcel Tax ID
16	Tioga Opportunities and Countryside Community Center	Social Services	9 Sheldon Guile Blvd	0.2%	
17	Family Planning and WIC	Social Services	110-112 Central Ave	1%	128.08-7-45
18	New Hope Center	Social Services	20 Church St	1%	128.08-5-36
19	Rehabilitation Support Services (RSS)	Social Services	255 Front St 173-175 Main St	1% 0.2%	128.08-5-22 128.08-7-31
20	Open Door Mission	Social Services	425 North Ave	No	117.15-2-7
21	John's Fine Foods	Grocery Stores	88 North Ave	1%	128.08-4-1
22	The Community Shop	Grocery Stores	106 North Ave	1%, and 0.2% annual chance	128.08-3-60
23	Price Chopper	Grocery Stores	42 W Main St	Mostly 0.2%, 1% and becomes island	128.12-1-36.1
24	First Baptist	Church	228 Main St	1% annual chance	128.08-5-2
25	Owego United Methodist	Church	257-261 Main St	1% annual chance	128.08-4-28
26	St Patrick's Catholic	Church	302 Main St	No (becomes an island)	129.05-2-3
27	St Paul's Episcopal	Church	117 Main St	Slight portion in 0.2% No (becomes an island)	128.08-1-22

#	Facility Name	Facility Type	Address	In floodplain?	Parcel Tax ID
28	First Presbyterian Union	Church	90 North Ave	Slight portion of Temple St entrance in 0.2% No (becomes an island)	128.08-3-56
29	Elks	Community Organization	223 Front St	0.2% annual chance Emporium is in 1%	128.08-5-35
30	American Legion	Community Organization	263 Front St	0.2% annual chance	128.08-5-21
31	VPW	Community Organization	207 Main St	1% and 0.2% annual chance	128.08-4-56
32	Riverwalk	Village Infrastructure	Susquehanna River North bank along Front St	Floodway/1% chance	
33	Post Office	Public Infrastructure/Historic Resource	6 Lake St	0.2%	128.08-6-20
34	Historic district structures	Historic resources	various	128 in the 0.2%, 114 in the 1%	various
35	Evergreen Cemetery	Historic resources		No	
36	Tioga County Courthouse and Annex County Clerk	Historic resources /County facility	Court Street, 16 Court Street, 20 Court Street	0.2%	128.08-6-78 128.08-6-75
37	Coburn Free Library	Historic resources	275 Main Street	1%	128.08-4-27
38	Draper Park, Ahwaga Park Marvin Park,	Public Parks/County Fairground	Front St/Court St intersection, Front St/Church St intersection, Main St across from Price Chopper	1%/0.2%	

8 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

8.1 Flood



The Village of Owego has ranked its overall vulnerability to a flood event as high, as indicated in Table 6-2. Flood events occur regularly in the jurisdiction and affect the entire jurisdiction, causing major damage. The jurisdiction is moderately prepared for flood events.

Flooding is the primary vulnerability for the Village of Owego, as Owego is located at the confluence of the Susquehanna River and the Owego Creek. Other streams also feed into the creek. It is this combination of waterways that leads to flooding. Out of the 1,765 acres in the Village, approximately 47.65% are located within the 1% annual chance flood event area and an additional approximately 8.50% are located within 0.2% annual chance flood event area. This extreme flood vulnerability visually depicted in the FEMA flood map below (<https://msc.fema.gov/portal/search?AddressQuery=owego%2C%20ny>). The aqua region is the 1% floodplain and the peach region is the 0.2% floodplain.

The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 6-5. 995 parcels in the Village are located within the 1% annual chance flood event area, with an estimated total structure value of \$126,379,401. 615 parcels in the Village are located within the 0.2% annual chance flood event area, with an estimated total structure value of \$108,461,422.

Under flooding conditions velocity poses minimal risk in the Village of Owego. BFE is 812 - 813 in much of the village. In the 500-year flood of 2011, the river crested at 815.4 per the NOAA river gauge on the Susquehanna at Owego. Major flooding begins at 809.1 feet. Crests were recorded at 810.1, 811.1, and 812.2 per this same NOAA website.

(<https://water.weather.gov/ahps2/inundation/index.php?gage=owgn6>). The lowest parts of the Village are at about 804 feet, so the flooding depth is substantial. Warning time on the 500-year flood in Owego in 2011 was less than 24 hours. Given the lack of velocity issues, there was no loss of life during this flooding event, but people were trapped in homes and had to be rescued by boat. There are no dams or levees within the village, here is not a risk of catastrophic failure that could cause risk to village inhabitants.

The figure below is from First Street Foundation's risk factor that shows that today there are 876 properties at risk in the Village of Owego out of a total of 1781 buildings.

https://riskfactor.com/city/owego-ny/3655882_fsid/flood

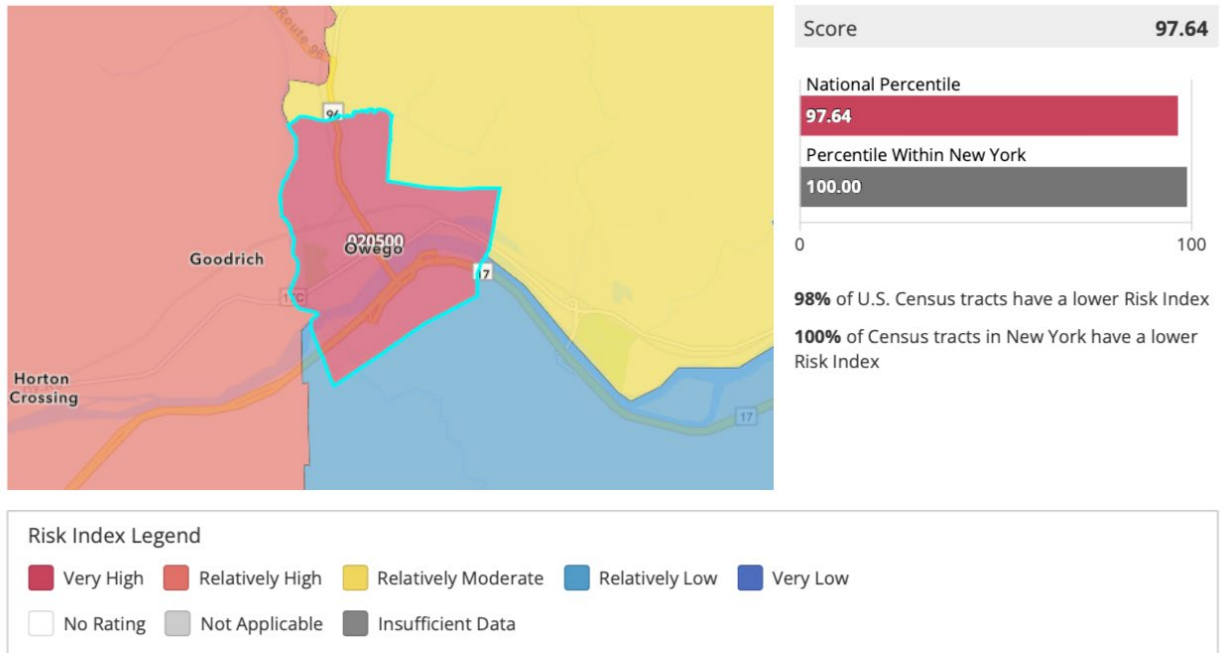


The National Risk Index also shows this extreme vulnerability. A summary report for the Village of Owego is found here:

(<https://hazards.fema.gov/nri/report/viewer?dataLOD=Census%20tracts&dataIDs=T3610702050>). The figure below is an overall risk to natural hazards. In the expected annual loss figure below, \$3,828,604 of the total of \$3,981,547.56 is from flood.

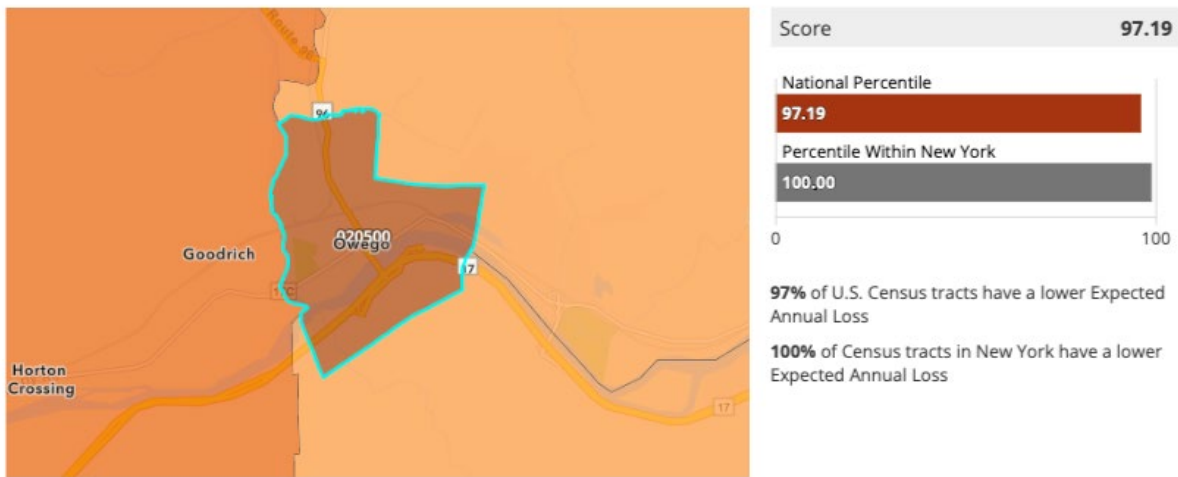
Risk Index

The Risk Index rating is **Very High** for **Census tract 36107020500** when compared to the rest of the U.S.



Expected Annual Loss

In **Census tract 36107020500**, expected loss each year due to natural hazards is **Very High** when compared to the rest of the U.S.



Expected Annual Loss Legend

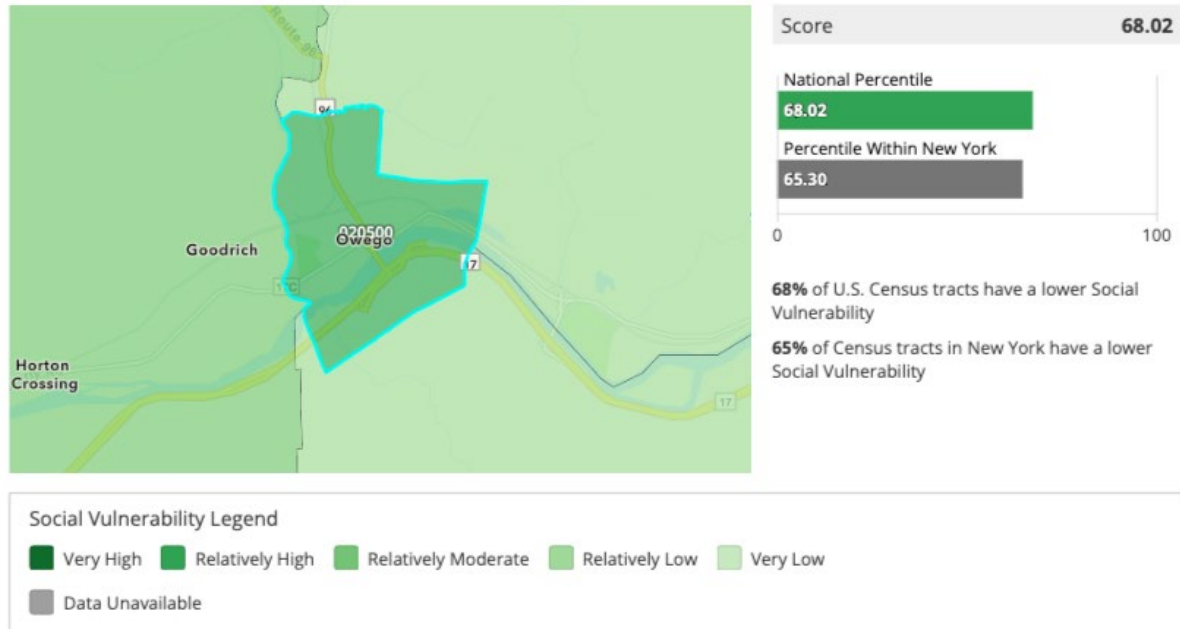
- Very High
- Relatively High
- Relatively Moderate
- Relatively Low
- Very Low
- No Expected Annual Losses
- Not Applicable
- Insufficient Data

Composite Expected Annual Loss	\$3,981,547.56		
Composite Expected Annual Loss Rate National Percentile	97.4		
Building EAL	\$3,575,276.28	Population EAL	0.04 fatalities
Building EAL Rate	\$1 per \$236.01 of building value	Population EAL Rate	1 per 104.22K people
Agriculture EAL	\$127.56	Population Equivalence EAL	\$406,143.72
Agriculture EAL Rate	\$1 per \$213.49 of agriculture value		

The National Risk Index also shows that the social vulnerability in the village is relatively high and is consistent with our disadvantaged declaration by DEC and CDRZ designation by FEMA.

Social Vulnerability

Social groups in **Census tract 36107020500** have a **Relatively High** susceptibility to the adverse impacts of natural hazards when compared to the rest of the U.S.



Flood events occur regularly in the jurisdiction and affect the entire jurisdiction, causing major damage. There were significant flooding events in 2005, 2006 and 2011, with 2011 being a 500-year flood that inundated most of the Village. Village infrastructure, road networks, houses, schools, and much more were decimated by recent floods. The Village received a Long-Term Recovery grant in 2013 from the New York State Department of State to help the Village plan and recover from recent flooding events. A complete history of natural hazard events within the County, based on NOAA's Severe Storm Database, is included in Section 5 of the main body of the HMP. Since those major flood events, the Village has attempted to make changes to become more resilient, but more needs to be done to improve its preparedness for flood events.

Table 6-4 and Table 6-5 on the amount of the village area and number of parcels in the floodplain, as well as the repetitive loss information in Section 6.4 of this document illustrate the severe impact of flooding on critical facilities and other structures. Future vulnerability to flood events will increase, as outlined in Section 5 on climate adaptation modeling data.

There are several different causes of flooding for the Village of Owego. Riverine, Flash, and Stormwater Flooding are the primary drivers of flooding that the Village experiences. Riverine flooding occurs naturally when water levels rise over the top of riverbanks due to excessive rain caused by strong storms with heavy rainfall and can be combined with a snowmelt event or ice jam (National Severe Storms Laboratory, 2020). water levels rise over the top of riverbanks due to excessive rain from tropical systems making landfall, strong thunderstorms

that bring heavy rainfall, combined rainfall and snowmelt event, or an ice jam (National Severe Storms Laboratory [NSSL] 2020). Inland flooding occurs when moderate precipitation accumulates over several days, intense rainfall over a short period of time, or a river overflows due to an ice or debris jam or dam failure (NSSL 2020). Stormwater flooding is a common occurrence in the Village of Owego due to a combination of urban development, inadequate drainage systems without the capacity to convey stormwater to reduce flooding on streets and the urbanized area, and run-off from the higher elevations surrounding the village. Stormwater flooding is much more common in areas with flat gradients without adequate channels that can accommodate the given flow. According to First Street Foundation, the extreme risk of 943 of 1153 homes leads to the same 82% value for the percentage of properties at extreme risk of flooding. While climate change will increase the 3-second wind gust speed by ~20% over the next 5 years, this poses only a minor risk to Village of Owego life and property, as evidenced by the fact that it is in the lowest wind speed increment modeled.

8.2 Severe Storm

The Village of Owego has ranked its overall vulnerability to a severe storm event as high, as indicated in Table 6-2. Severe storms occur regularly in the jurisdiction and affect the entire jurisdiction, causing moderate damage. The jurisdiction is not prepared for severe storm events.

Records of severe storm events of the last five years are described in Table 6-3. A complete history of natural hazard events within the County, based on NOAA's Severe Storm Database, is included in Section 5 of the main body of the HMP. Impacts to the Village 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 damage 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. Damage to the Village's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damage would primarily impact the more populated portions of the Village. The Village completes tree maintenance within Village road right-of-ways to minimize potential damages to overhead utility lines. Private utility right-of-ways are generally maintained by individual utility companies.

Flash flooding is an increasing problem in the village given inadequate dry wells and insufficient stormwater system. A USACE stormwater study underway will inform actions needed to upgrade our stormwater system to be more robust against heavy rainfall. Future vulnerability to severe storms will increase, as outlined in Section 5 on climate adaptation modeling data. The Huntington Creek study will also inform future actions regarding flooding from the Owego Creek.

Although the village is accustomed to dealing with winter weather, heavy snowfall or blizzards can exceed the normal capacity of the public works department and emergency crews. Accumulated winter precipitation causes hazardous traffic conditions and disrupts transportation routes. This can leave travelers and residents stranded and stop the flow of supplies. Heavy snow accumulation can collapse buildings and knock down trees and power lines. Shoveling snow can cause heart attacks. During a blizzard, snow and strong winds combine to produce a blinding snow (near zero visibility,) deep drifts, and life-threatening wind chill. The reduced visibility can lead to extreme transportation problems and fatalities due to

exposure. Additional hazards that can be triggered by severe weather include: transportation accidents, power failure, fuel shortage, structural collapse, and flooding (if heavy snowfall is followed by rapid melting). Normal emergency operations, such as police, fire and ambulance service can be impeded. Since the storm conditions may occur over a large area, aid from neighboring jurisdictions may not be available.

8.3 Drought

The Village of Owego has ranked its overall vulnerability to a drought event as moderate, as indicated in Table 6-2. Drought events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is not prepared for drought events.

The Village of Owego is served by a private water supply from Veolia. This water supply, and certain critical facilities (e.g. Water Wells and Pumps #1, #2, and #3, Owego Village Wastewater Pump Station #1-#9, and Owego Village Wastewater Treatment Plant) 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. Additionally, any residents who rely on private wells would also be susceptible to the impacts of a drought due to low water yields.

Future vulnerability to drought events is lower than susceptibility to flooding or severe storm events. It may be affected by climate change, land use, and population changes, as described in Section 6.1 of this annex and in Section 6 of the main body of the HMP.

8.4 Extreme Temperatures

The Village of Owego has ranked their overall vulnerability to an extreme temperature event as high, as indicated in Table 6-2. Extreme temperature events occur infrequently in the jurisdiction and affect the entire jurisdiction, causing major damage. The jurisdiction is not 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 9% of the population in the Village is under 5 years old, and 21% of the population is over 65 years old. Approximately 17% of the residents of the Village 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 18% of the Village's population is below the poverty level. Many residents within these populations are at a higher risk of being impacted by extreme temperature events.

Future vulnerability to extreme temperature events remains high and may be affected by climate change, land use, and population changes, as described in Section 6.1 of this annex and in Section 6 of the main body of the HMP.

8.5 Jurisdictional Priorities

Considering 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 Village.

Overall top concerns about hazard mitigation in the Village included:

- Assessing, protecting, inspecting, and maintaining aging critical village infrastructure
- Maintain essential services and emergency operations during a utility failure
- Establishing emergency management locations outside the floodplain at times of flood
- Establishing administrative and communication plans-of-action in anticipation of hazards
- Reviewing/changing village code/regulations to promote a more sustainable and safer future.
- Reducing known risks, especially those disproportionately borne by disadvantaged populations
- Raise public awareness about flood and stormwater hazards, flood safety, and flood damage protection measures
- Historic resources and historic preservation. The Village has properties listed on a local historic district and State/National Register of Historic Places. The Village is a Certified Local Government. However, the Village's historic resources are put at risk by flooding. Per a 2023 survey of the historic district, it includes 72 buildings not in the floodplain, 128 buildings in the 100-year floodplain, and 114 buildings in the 500-year floodplain.
- Flash flooding, creek flooding, and riverine flooding from the Susquehanna all pose risks to the Village.

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

- The homeless population
- Low-lying areas (i.e., Turtletown, The Flats)
- Disadvantaged areas. The Village is a state/federally designated disadvantaged community and a FEMA CRDZ community. Specific examples of disadvantaged areas include Turtletown, The Flats, Long Meadow Apartments, RiverView Rehabilitation and Nursing Center, Belva Lockwood Lane, and other areas experiencing sheet flow.
- The 100% funded USACE study of representative structures in the Village underway at the time of this document preparation will inform actions to mitigate vulnerable village structures.

The plan was revised to reflect the top concerns and changes in community priorities since the 2018 HMP Update for mitigating flood hazard and managing stormwater:

- Protect new and existing development from flooding hazards and streambank erosion.
- Ensure that runoff from new construction and land use changes do not contribute to increased flood risks.
- Develop and implement a strategy for maintaining and enhancing the natural hydrologic functions of stream/river channels, floodways, floodplains, and wetlands.
- Purchase vehicles/equipment needed to maintain roads/streambeds for stormwater management.
- Provide timely and reliable warning of floods and flash floods.
- Promote floodproofing measures, NFIP participation, and CRS entry

- Place an increased emphasis on stormwater management. Leverage a 100% federally funded USACE stormwater system study underway at the time of this document preparation to define a path forward.
- Upgrade/repair the North Avenue railway underpass
- Create a plan for riverine and flash flooding (including communication strategies) so that critical village operations are not physically cut off when roads flood.
- Proactively look ahead using rainfall data to anticipate future conditions.

The plan was revised to reflect the top concerns and changes in community priorities since the 2018 HMP Update for critical infrastructure:

- Assess/address vulnerabilities in our critical infrastructure, develop emergency plans, and improve public awareness/engagement.
- Identify heating/cooling centers and establish MOU's to prepare for times of need
- Maintain trees appropriately in areas where broken branches can severely impact infrastructure and other development.
- Bury utility cables, where feasible, so they are not susceptible to damage by wind and ice.

A full list of actions of past and proposed actions is detailed in Section 10.

9 GOALS

9.1 Village Goals

Through the CRS 510 public meetings that included the municipal planning committee, the following set of goals were created. These goals are intended to address the Village's vulnerabilities to flood, drought, severe storm, and extreme temperatures, while providing additional benefits to the Village such as protecting natural resources. Goals are broad, long-term policy and vision statements that explain what the mitigation strategy aims to achieve.

1. Protect life and property
2. Communicate risks/increase public awareness and preparedness
3. Strengthen village floodplain damage prevention laws
4. Enhance emergency management preparedness, response, and recovery
5. Comprehensively study village flooding and stormwater management
6. Develop an action plan/funding strategy
7. Foster connections with state and federal funding agencies
8. Promote resilience of our historic structures and resources.

10 MITIGATION AND ADAPTATION STRATEGY AND IMPLEMENTATION

10.1 Past, Completed, and Ongoing Initiatives

The Village proposed 14 mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized in Table 10-1, below.

Table 10-1. Status of 2018 Mitigation Actions

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)	Notes
Floodproof basement of the Police Department Headquarters/EOC	The most feasible solution is to harden the basement to avoid future flooding. The first phase of the project would include conducting an engineering study to identify the amount of water entering the structure and the best ways to address same. The project would include elevating utilities and identifying ways to safely store items there or elsewhere.	Flood, Severe Storm	Village of Owego Police Department, Mayor	In Progress	Yes	Floodproof basement, locker room, evidence/records room and utilities in the Police Station. Explore moving EOC to a location outside of the floodplain or creation of a mobile EOC.

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)	Notes
Village of Owego Central Fire Station	For everyday purposes, equipment and operations can remain in place with the addition of floodproof doors to protect the structure. Build flood doors to contain water intrusion. No other fire station outside the floodplain. 2 cannot accommodate more equipment. Floodproof exterior wall that's compatible with historic preservation standards	Flood, Severe Storm	Village Fire Department	No Progress	Yes	Need to protect basement/first floor against water intrusion.
Emergency Weather Alert and Warning System	Together with the Town and Village of Nichols, install a series of emergency weather alert and warning systems. The project includes the purchase and installation of siren/alarm systems for the Town of Nichols, the Village of Nichols, and the Village of Owego. Each siren will have an adequate range to notify all residents of impending storms.	All Hazards	Village Board working together with the Town and Village of Nichols	No Progress	Yes	Exploring other options for an alert system that automatically alerts all residents (no sign up needed)

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)	Notes
Emergency Preparedness and Notification Plan	Implement an Emergency Preparedness and Notification Plan in the Village of Owego to increase voluntary enrollment in the County's Hyper-reach and NYS Alerts programs, establish a Block Emergency Preparedness Program, conduct emergency testing/flood drills, develop a Comprehensive Information System to raise awareness of flood hazards, and create a Pet Evacuation Plan System	All	Village Board	In progress	Yes	Utilize and promote Code Red Update materials as needed and increase community awareness
Critical Facilities – Day Care	The Village FPA will notify the owners / operators that their facility is located in the floodplain. If the facility is not mitigated, the village will provide mitigation options for the owner / operator to consider.	Flood	Village Floodplain Administrator and facility owner/operator	No Progress	Yes	See county statement on assessment of critical infrastructure in the floodplain.

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)	Notes
DPW and Codes Office Relocation	Create a new shared services campus located outside of the 100-year floodplain at the Town Hall Campus located at 2354 NY State Route 434, in the Town of Owego. A new 12,000 SF facility will be constructed that will house the Village's highway equipment, DPW and Codes office in one building. The facility will be on the shared services campus with the Town's new DPW building, a similar structure designed to house the Town highway equipment.	Flood, Severe Storm	Village Public Works with support from Village Board and Town of Owego	In Progress	Yes	Shared plan with town was abandoned. Town verbally agreed to store Village equipment and vehicles at new Town facility out of the floodplain in emergencies. In the new Village Hall, all records are elevated above the floodplain. DPW and code offices are located in the new village hall. Identify a new location for DPW trucks out of the floodplain.
Critical Facilities – Medical Facilities	The Village FPA will notify the owners/operators that their facility is located in the floodplain. If the facility is not mitigated, the village will provide mitigation options for the owner/operator to consider.	Flood	Village Floodplain Administrator and facility owner/operator	No Progress	Yes	See county statement on assessment of critical infrastructure in the floodplain.

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)	Notes
Critical Facilities – Water Pumps	The Village FPA will notify the owners/operators that their facility is located in the floodplain. If the facility is not mitigated, the village will provide mitigation options for the owner/operator to consider.	Flood	Village Floodplain Administrator and facility owner/operator	No Progress	Yes	See county statement on assessment of critical infrastructure in the floodplain.
Critical Facilities – Schools	The Village FPA will notify the owners/operators that their facility is located in the floodplain. If the facility is not mitigated, the village will provide mitigation options for the owner/operator to consider.	Flood	Village Floodplain Administrator and facility owner/operator	No Progress	Yes	See county statement on assessment of critical infrastructure in the floodplain.
Critical Facilities – Wastewater Pump Stations 1, 2, 3, and 4	The Village FPA will notify the owners/operators that their facility is located in the floodplain. If the facility is not mitigated, the village will provide mitigation options for the owner/operator to consider.	Flood	Village Floodplain Administrator and facility owner/operator	No Progress	Yes	See county statement on assessment of critical infrastructure in the floodplain.

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)	Notes
Stormwater Management Plan and Improvements	Develop a Comprehensive Stormwater Management Plan and construct stormwater improvements in the Village of Owego.	Severe Storm, Flood	Village Public Works with support from Tioga County	In Progress	Yes	USACE developed a Floodproofing Study and a Stormwater Analysis study for the Village of Owego. Leverage results in the next 5 year period to improve resilience.
Regional Incubator Node	Regional Incubator Node, Village of Owego. Partner with Binghamton University, Cornell, and Corning Inc. to establish a regional incubator node in the Village of Owego, which will encourage future economic growth and allow entrepreneurs to thrive in the post storm economy.	Severe Storm, Flood	Village Board with support from Binghamton University, Cornell, and Corning Inc.	No Progress	No	

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)	Notes
Resiliency Tools Update	Current zoning ordinance is inconsistent and contains outdated definitions; current site plan review does not review flood-related information; it is unknown if the special permit review article is compliant with the flood damage prevention local law	All	Village Board, Code Enforcement	In progress	Yes	Site Plan Review updated in 2018. Updates needed in Planning Board and Zoning Board procedures w.r.t. floodplain development permits. Educate on awareness/need for floodplain management documentation procedures. Recommend the village purchase software systems (such as Forerunner and Tetra Tech) for floodplain and municipal management. Add DPW and Planning and Zoning Boards as lead agencies.
Critical Facilities – Fire Stations	The village will contact the facilities' owners to discuss options for protecting the facilities to the 500-year flood event.	Flood	Floodplain Administrator	No Progress	Yes	See county statement on assessment of critical infrastructure in the floodplain.

10.2 New Mitigation and Adaptation Actions

In addition to the actions carried over from the 2018 HMP, the Village of Owego identified 39 new mitigation and adaptation actions for inclusion in the 2024 HMP Update. 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 Village could expand and improve the identified capabilities to achieve mitigation, as described in Section 4.14 of this annex. Then, a more comprehensive range of actions were evaluated as described in Section 7.2 of the main body of the HMP. Finally, actions that tied in most closely with the vulnerabilities identified by the Village were proposed in the first county draft of the Village of Owego Annex. The county list was used a starting point for the CRS 510 Public Meetings held in the Village. The following list of 38 actions was generated after considering the combined input of the county HM update team and Village of Owego public meetings.

Table 10-2. New Mitigation and Adaptation Actions

Project #	Project Name	Category	Goal/Objective being Met (County)	Goal/Objective being Met (Village)	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
V Owego D1	Drought Emergency Plan	Other	G1, G3, G5, G6	1, 2, 4, 6	Drought	Drought occurs rarely in the Village of Owego, causing minor damages on a Village-wide basis.	Create a Drought Emergency Plan to identify actions that can be taken in the case of drought. This may include agreements for secondary water sources that may be used during drought conditions, a distribution plan for emergency water supplies, a drought communication plan, and water-saving actions that may be triggered when a drought is deemed likely to occur. The municipality may take into account EPA guidance on establishing a backup water supply, found at: https://www.epa.gov/sites/default/files/2015-03/documents/planning_for_an_emergency_drinking_water_supply.pdf	No	No	1-3 years	County Highway Department	\$\$	Having a drought emergency plan will reduce the risk that the area faces from drought, because it will ensure that residents still have access to safe drinking water and water for other uses.	US CDBG-MIT, US HMGP, NYS HM RLF	Low
V Owego D2	Assessment and Upgrades of Water Delivery Systems	Critical Municipal	G1, G3	1,3	Drought	Drought occurs rarely in the Village of Owego, causing minor damages on a Village-wide basis.	Assess water delivery systems for any existing breaks and leaks. If necessary, upgrade water delivery systems or develop new systems to eliminate breaks and leaks.	Yes	No	3-5 years	Veolia, Johnson's Pools and Spas as a water source	\$\$	Eliminating breaks and leaks in water delivery systems will reduce the severity of drought.	NYS Water Infrastructure Improvement; NYS Drinking Water State Revolving Fund	Low
V Owego ET1	Cooling and Warming Centers	Other	G1, G5, G6	1, 4, 6	Extreme Temperatures	Extreme heat and extreme cold can be dangerous for Village residents who are homeless and for residents who do not have adequate heating and cooling in their homes.	Evaluate the suitability of the three existing cooling centers in the Village, as listed on https://apps.health.ny.gov/statistics/environmental/public_health_tracking/tracker/#/CCMap . Determine whether these cooling centers are appropriate or whether the locations should be changed, and establish a new cooling center or centers if necessary. Additionally, evaluate whether there is a need and an appropriate location for a warming center in the Village, and establish one or multiple if necessary and feasible. Once cooling and warming centers are confirmed and/or established, ensure that the staff are properly trained to respond to extreme heat, and publicize the centers. This can be done by mailings to residents, flyers, social media posts, or other methods that educate residents on the existence of these cooling centers, their hours, and when they can be utilized as a relief from extreme heat and extreme cold. Additional outreach will be conducted to the homeless population and other vulnerable populations, by working with organizations that serve these populations in order to get the word out.	No	No	1-3 years	EMS Department	\$	Updating and publicizing cooling and warming centers will ensure that vulnerable residents have a safe and comfortable place to go during extreme temperatures. This will reduce the risks to these residents' health and safety.	BRIC, HMGP, NYS Climate Smart Communities	High
V Owego ET2	Tree Planting Program and Tree Inventory	Nature Based	G1, G4, G5	1,5, 7	Extreme Temperatures	Areas that have less tree canopy experience hotter temperatures in the summer, contributing to the impact of heat waves.	Work with the SWCD to implement and promote a tree planting program through the SWCD's Tree and Shrub Sale. A tree inventory should be conducted as a precursor to this action to know where trees are needed.	No	Yes	6 months – 2 years	SWCD	\$	Planting additional trees in the Village will reduce the impacts of extreme temperatures, particularly heat waves.	US BRIC, SWCD	Medium
V Owego F8	Watershed Assessments for Flood Mitigation	Nature Based	G1, G4, G5	1, 5,7	Flood	Flooding regularly occurs in the Village, causing major damages. However, watershed assessments remain incomplete, resulting in limited research and knowledge that can be referenced to assist with flood mitigation activities.	Complete a watershed study/creek assessment for watersheds and water bodies in the Village and upstream of the Village to better understand hydrologic and hydraulic conditions and flood risk zones. Utilize the findings to develop strategies for improving drainage patterns and reducing the risk of flooding, such as stormwater retention activities. Pursue funding sources for these activities. Leverage the Upper Susquehanna USACE study to ensure that this study is complementary. Work with USACE to coordinate with findings from stormwater study, which also is assessing runoff into the village from the town.	No	No	3-5 years	SWCD	\$\$	Flood mitigation activities in the Village by the SWCD and other organizations will be better informed through the research provided through watershed assessments of the Village's watersheds and water bodies.	US HUD CDBG-MIT, FEMA HMGP, FEMA BRIC, NRCS WFPO	High
V Owego F9	Vulnerability Assessments of Critical Facilities	Critical Municipal	G1, G3, G6	1,3,5	Flood	It is currently undetermined whether or not several of the Village's critical facilities are protected against a 0.2% chance flood event or previous worst case flood event, leaving these facilities vulnerable to flood events.	Village staff currently does not have the capacity to conduct vulnerability assessments to the critical facilities identified in the Village'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). The Village recognizes the DHSES mandate for this action and proposes seeking BRIC DTA funding to complete this action. This will serve as a first step toward protecting the facilities, if future funding becomes available. There are no local resources available at this time to conduct engineering design and retrofitting on these structures. Future efforts towards protecting these structures to an 0.2% chance flood event (or previous worst case flood event, if applicable) will be considered if funding becomes available. These may include engineering design, building retrofits, or other measures.	Yes	Maybe	3-5 Years	Department of Public Works	\$	Assessing the Village's critical facilities for their level of protection against a 0.2% chance flood event (or previous worst case flood event, if applicable), is a first step to ensuring that these facilities remain operable during and after flooding events, reducing the overall risk to people and infrastructure.	US HMGP, US BRIC, US Flood Mitigation Assistance, US HUD CDBG-MIT, NYS HM RLF	High

Project #	Project Name	Category	Goal/Objective being Met (County)	Goal/Objective being Met (Village)	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
V Owego F10	NYSEG Power substation on Main Street	Critical Municipal	G1	1,4	Flood	Power station is located in the 100-year floodplain and floodway	Work with NYSEG to understand vulnerability of this facility. Develop an off-grid energy security plan for critical infrastructure.	Yes	No	unknown	NYSEG	unknown	No loss of power during a flooding event or extreme storm	NYSEG, NYSERDA	Low
V Owego F11	Community values regarding Historic Properties and Cultural Resources	Historic	G1, G2	1, 4, 6, 8	Flood	With such a large fraction of the historic district in the SFHA, prioritization is needed to understand community values.	Conduct a community values survey to determine the community Value for Historic Property and Cultural Resource Assets	Yes	Yes	2-3 year	Owego Historic Preservation Commission or consultant	\$	Prioritizes contributing structures	CSC, SHPO, Preservation League of NYS, National Parks Service	Medium
V Owego F12	Citizen education and community reporting on hazardous issues	Community Outreach	G1, G2	1, 2, 4, 6	Flood	Plugged storm drains and fallen debris can exacerbate local flooding	Have a public outreach campaign and ability for community to report to Village officials on hazardous issues that may affect the stormwater system - plugged catch basins, fallen items in conveyance systems so the Village officials can take action before extreme weather events. Types of actions could include the ability to report issues on the Village website or call DPW (specific link or interactive map).	No	No	1-3 years	EM, DPW	\$	fewer issues impacting flood conveyance	CSC	Medium
V Owego F13	General citizen outreach on natural hazards	Community Outreach	G2	1, 2, 4, 6	Flood	Keeping citizens informed on flooding/severe weather/hazardous emergency situations best practices and impacts can lead to a more informed and prepared population	Have a public outreach campaign for general flooding/severe weather/hazardous emergency situations awareness. Topics should include information about flood-prone areas (including known locations of high-water table), property owner responsibilities for streams, overall flooding risk, flood-proofing measures, flood insurance, and flood safety measures. Periodically disseminate disaster education information with guidance about how to obtain severe weather information, how to respond to severe weather conditions, how to shelter at home if that is necessary. Disseminate info prepared by the State Emergency Management Office for severe weather awareness week, and winter weather awareness week. Support maintenance and expansion of the early warning capabilities of the National Weather Service. Encourage greater utilization of NOAA Weather Radios by residents, businesses, and institutions to improve dissemination of severe weather watches, warnings, and advisories. Use radio/newspaper/social media/village website to regularly communicate information village wide and raise awareness. Enlist service clubs, Rotary, Kiwanas, WEBO, Elks, Moose, VFW, American Legion, etc. in this effort.	No	No	1-3 years	EM	\$	less risk and more informed populace	CSC	High
V Owego F14	Community Rating System Participation	Policy	G1, G2, G3, G5, G6	1,2,6	Flood	The Village of Owego does not currently participate in the Community Rating System.	Participate in the Community Rating System (CRS) and maximize points in the CRS through the HMP Update process and through other complementary programs such as Climate Smart Communities. Seek funding for a full-time CFM, whose position would include managing the CRS program for the village.	No	No	1-3 years	Climate Smart Communities Task Force	\$	Participating in the Community Rating System will be an impetus for the Village to take additional actions to reduce flood risk while also receiving discounted flood insurance rates.	BRIC, FMA, HMGP	High
V Owego F1	Protecting the Tioga County Historical Society Museum	Historic	G1, G2,	1, 4, 6, 8, 10	Flood	Flooding regularly causes major, Village-wide damages in the Village of Owego. The Tioga County Historical Society contains many historically significant artifacts and documents that are at risk of being lost due to flooding.	Implement property and resource protection measures for the Tioga County Historical Society (critical facility). This may include: - Installing door dams on all ground level doors - Storing all historically significant artifacts and documents on the second floor, or off site	Yes	Yes	1-3 years	Owego Historic Preservation Commission	\$\$	Protecting resources in the Tioga County Historical Society will reduce the risk that these assets face to flooding and help preserve an important community resource.	BRIC, FMA, HMGP, National Park Service	High

Project #	Project Name	Category	Goal/Objective being Met (County)	Goal/Objective being Met (Village)	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
V Owego F2	Flood Damage Prevention Code Revisions and Policy Review	Policy	G1, G3	1, 2, 3, 6, 8	Flood	Flooding regularly causes major, Village-wide damages in the Village of Owego. The Flood Damage Prevention code does not currently account for these damages in a satisfactory way. Without an Open Space Inventory, protection of open space isn't possible.	Evaluate the need to enact local floodplain development standards that are more stringent than the National Floodplain Insurance Program requirements. Conduct a thorough review of Chapter 117: Flood Damage Prevention in the Village code. This may include the following components: - A requirement that new construction within the floodplain and flood fringe offset any loss of flood storage capacity that will result from the construction. This loss should be offset at sites that are hydrologically equivalent to the construction site. - A requirement that new structures within the floodplain are elevated to 3 feet above the Base Flood Elevation. - Other similar requirements, including those resulting from the CRS Community Self Assessment in the NFIP CRS Coordinator's Manual An open space inventory is needed to plan for protecting open space and allowing for natural floodplain function.	No	No	6 months to 1 year	Planning/Zoning Board	\$	Updating the Flood Damage Prevention section of the Village code to include compensatory storage and a requirement for elevation 3 feet above the Base Flood Elevation will reduce the damage that new and existing structures face from flooding.	BRIC, FMA, HMGP, NYS DOS Smart Growth	High
V Owego F3	Debris Management Plan	Other	G1, G2, G4	1	Flood	During floods, debris can become sources of pollution, overwhelm landfills, and even can become dangerous if large items start to float. Debris can also hinder the provision of medical care, transportation of victims or relief teams, fire fighting, and provision of shelter, food, and water to disaster survivors. Hazardous debris can be dangerous to public health.	Develop a debris management plan. The plan will include a list of types of debris that become hazardous or sources of pollution during a flood. Based on this list, the plan will outline programs to reduce these debris in advance of floods, such as an electronics recycling program, junk car takeback program with monetary incentives, and/or toy donation program. The plan will also outline resources necessary to implement these programs, such as funding for staff time or a new staff position, funding for the creation of donation centers, funding for monetary incentives that can be used for takeback programs, and/or other resources. Funding is needed for debris removal. The plan will also include a preapproved list of contractors that are ready to take debris away during and after a flood. The Village will create contracts with these contractors before a flood occurs, so that debris can be disposed of quickly during and after a flood and lead to the least damage to people, property, and the environment. The plan may also include other components as outlined by FEMA, found here: https://emilms.fema.gov/is_0633/groups/48.html	No	Yes	1 year	Planning/Zoning Board/Village Board, DPW for debris removal	\$	Creating a debris management plan will help reduce the debris that exist in the village, which mitigates the damage that these debris cause during floods. For debris that are left, having a debris management plan will also facilitate the swift removal of debris during and after floods. This will reduce property damage, environmental damage, and the likelihood of injuries. The lasting contracts and codifying the plan will make these benefits long-term.	BRIC, FMA, HMGP	High
V Owego F4	Basement Flood Mitigation Program	Community Outreach	G1, G2, G3, G6	1, 2, 4, 6	Flood	Flooding regularly occurs in the Village, causing major damages. Many homeowners and renters experience heavy impacts when their basements flood.	Conduct outreach to homeowners regarding measures they can take to mitigate flood risk on their property. For example, encourage homeowners to install sump pumps, install backwater valves, seal their basements, elevate building utilities, install a french drain, install a gutter system and keep gutters clean, use downspout extensions for gutters, slope yards away from homes, trim branches near basements or move landscaping away from homes, and/or other similar measures. Use https://www.fema.gov/sites/default/files/2020-07/fema_P1037_reducing_flood_risk_residential_buildings_cannot_be_elevated_2015.pdf as a resource.	No	Yes	1-3 years	Fire Department, County Sustainability	\$\$	The Village can reduce residents' vulnerability to flooding by providing homeowners with education about measures they can take to protect their homes.	BRIC, FMA, NYS HM RLF, EPA EJSG, USDA HPG, EDA Disaster Recovery	High

Project #	Project Name	Category	Goal/Objective being Met (County)	Goal/Objective being Met (Village)	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
V Owego F5	Flood Mitigation Parcel Inventory	Other	G1, G3, G5	1, 4, 6, 7	Flood	Flooding regularly causes major, Village-wide damages in the Village of Owego. There are many structures within the floodplain that are vulnerable to these damages, including several critical facilities.	Identify parcels within the floodplain where conservation and structural demolition could occur. Identify parcels outside the floodplain where relocation could occur, in order to promote flood mitigation. This may include the following components: - Conduct a Natural Resources Inventory using a GIS desktop assessment to identify critical environmental areas and other natural resources. - Complete a vacant property inventory to identify structures within the floodplain that could be demolished and used for conservation or green infrastructure, and to identify parcels outside the floodplain where critical facilities and other structures could be relocated. - Based on the results of these inventories, prioritize parcels for conservation and flood mitigation within the floodplain. This may include an assessment of where green infrastructure can be built among these parcels. - Identify critical facilities and other structures within the floodplain that should be relocated outside the floodplain. - Identify areas for new construction outside the floodplain where critical facilities and other structures may be relocated. - Incorporate the findings into the zoning code. This may include regulations to discourage and regulate developments in locations vulnerable to flooding and in locations that are prioritized for conservation and/or green infrastructure, and regulations to set aside areas outside the floodplain for the siting of critical facilities. - As resources permit, begin relocations, demolitions, new constructions, and conservation measures consistent with the results of the exercises above.	Yes	Yes	5+ years	DPW, County GIS, Climate Smart Communities Task Force, Village Board, Planning and Zoning Boards	\$\$	Identifying and prioritizing sites for conservation, flood mitigation, and relocation will put the Village in a position to undertake conservation, demolition, and construction projects for the purposes of flood mitigation. These projects will reduce the damage that flooding causes to structures within the floodplain, including critical facilities. Creating a cohesive strategy first, before undertaking such projects, will increase the success that these projects have in reducing long-term risks from flooding.	BRIC, FMA, HMGP, NYS DOS Smart Growth, NYS Climate Smart Communities, NRCS WFPO	Medium
V Owego F6	Dumping Ordinance	Other	G1, G2, G4	1, 3, 4	Flood	Flooding regularly causes major, Village-wide damages in the Village of Owego. The dumping of materials in streams and ditches exacerbates the impacts of flooding.	Adopt an ordinance that prohibits dumping in streams and ditches. This will be incorporated into the Village Code and enforced by the Village of Owego Police Department. The Village may choose to implement a progressive penalty system for violators of the ordinance. The Department of Public Works will work together with the Police Department to maintain a database of where dumping has occurred and repeat violators, and will train staff on recording and enforcing the dumping ordinance, including regular updates at meetings.	No	Yes	6 months to 1 year	Planning/Zoning Board with support from Department of Public Works and Police Department	\$	Prohibiting dumping in streams and ditches, tracking where dumping has occurred, and enforcing this prohibition will result in clearer streams and ditches that allow floodwaters to pass through freely. This will decrease the severity of flooding and the damage it causes.	BRIC, FMA, HMGP	Medium
V Owego F7	Valuation and Loss Estimates for Historic Properties and Cultural Resources	Historic	G1, G2, G3	1, 4, 6, 8	Flood	Flooding damages historic properties and culture resources. However, without an estimation of the value of these resources and losses they have sustained, it is difficult to come up with appropriate mitigation actions to protect these resources. Many properties are listed on a local historic district and State/National Register of Historic Places, and having these resources boosts tourism in the village.	Estimate Total Losses for Historic Properties and Cultural Resources to show their value to the community Create a plan for using this information to determine hazard mitigation actions to take in order to protect these resources.	Yes	Yes	1-3 years	Owego Historic Preservation Commission	\$\$	Understanding what historic properties exist in the village, along with their value and losses they have sustained, is the first step towards understanding what mitigation actions to take in order to protect these resources (whether that involves elevating the resources, building floodwalls, or other measures). Ultimately, this will lead to mitigation actions that are appropriate to protect these important resources.	BRIC, FMA, HMGP, National Park Service	Medium

Project #	Project Name	Category	Goal/Objective being Met (County)	Goal/Objective being Met (Village)	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	
V Owego MH15	Infrastructure Assessment and Repairs/Replacements	Critical Municipal	G1, G3, G6	1,3,4,5	Flood, Severe Storms	Flooding regularly occurs in the Village, causing major damages. There may be infrastructure that is in need of repairs and replacements due to concerns about flooding. The steel culvert to the WWTP has been issued Yellow Flag 9C236SW026, this tunnel structure is the only access route for trucks to the public utility and is underneath NY17/US86.	Assess roads, bridges, and culverts, for adequacy of floodwater conveyance, extent to which flooding occurs, and necessity of replacements or repairs. Some of this work is currently being addressed at the planning level in the USACE study.	Yes	No	1-3 years	DPW, Village Board	\$\$	By assessing the need for additional repairs and/or replacements to infrastructure and pursuing them as necessary, the Village will keep on top of these repairs. This will reduce the vulnerability of travelers to flooding, reduce road closures, and reduce damage to surrounding properties due to flooding.	FEMA BRIC, US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	High	
V Owego MH1	Comprehensive Plan Update	Policy	G1, G2, G3, G4, G5, G6	1, 2, 6, 7, 8	All Hazards (Flood, Drought, Extreme Temperatures, Severe Storms)	Hazards such as flooding, drought, extreme temperatures, and severe storms all affect the Village of Owego, yet hazard mitigation measures are not currently a part of the Village of Owego's comprehensive plan. This can signify, incorrectly, to the public and local lawmakers that hazard mitigation is not a priority, and provide an obstacle to a comprehensive hazard mitigation program.	Update Village Comprehensive Plan (dated 2013) and include the hazard mitigation measures as identified in this HMP. This will facilitate the process of updating local land use controls to include hazard mitigation measures, because the Comprehensive Plan provides a framework for the future of the Village and Village laws. All hazards profiled in this HMP (flood, drought, extreme temperatures, and severe storms) should be included in the Comprehensive Plan. Update plan to include East Beecher Hill and Evergreen Cemetery in regulations.	No	No			\$	Including the mitigation measures outlined in this HMP in the Village Comprehensive Plan will establish hazard mitigation as a priority for the village and facilitate the process of updating local land use controls to include hazard mitigation measures. It will also provide a roadmap towards hazard mitigation in the long term, and signify to the public and lawmakers that hazard mitigation is a priority. Ultimately, this will lead to more hazard mitigation measures being implemented.	BRIC, FMA, HMGP, NYS DOS Smart Growth, NYS Climate Smart Communities	High	
V Owego MH8	temporary housing	Critical Municipal	G1, G6	1,4	Flood, Severe Storm	In times of flood, vulnerable displaced people may not have the means/ability to find temporary shelter.	Establish locations outside of the floodplain that can house vulnerable populations, such as seniors and homeless individuals, in the case of a severe storm or flood. Ensure that this location has backup power. Prioritize green power sources, if feasible.	Yes	No	3-5 years						Medium?
V Owego MH9	Create various programs to encourage adaptation actions in the community	Community Outreach	G2	1, 2, 4, 6	All Hazards (Flood, Drought, Extreme Temperatures, Severe Storms)	Village residents are at risk to various different hazards and currently participation in adaptation actions is low	Create various special interest programs that village residents can participate in to reduce risk and adapt to climate change, such as encouraging rain barrel usage, installing rain gardens on community property, increasing the amount of green space on property, or implementing a climate adaptation funding program. Present information about elevating homes and buyouts of property in the floodplain, where appropriate. Provide information about each action in the form of an informational brochure with local contacts for each action, technical public workshops, or other methods. Consider partnering with landscaping companies, contractors, hardware stores, or other companies to fund the outreach and offer discounts on their products. Pursue additional sources of funding for goods and services that homeowners might use to take these measures.	No	No	1-5 years	EM	\$	less risk and more informed populace			High
V Owego MH10	Natural resources inventory	Nature Based	G4, G5	2,4,6,7	All Hazards (Flood, Drought, Extreme Temperatures, Severe Storms)	The Village does not have a complete natural resources inventory	Create a natural resources inventory in line with the Climate Smart Communities program and work with community organizations to expand or preserve open space	No	Yes	1-3 years	EM, County GIS, TCSWCD	\$	Understanding where current natural resources are will help the community identify important areas for protection, key populations that are vulnerable			Medium

Project #	Project Name	Category	Goal/Objective being Met (County)	Goal/Objective being Met (Village)	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
V Owego MH11	Overcoming Staffing Challenges	Other	G5, G6		All Hazards	The village is understaffed and lacks the required expertise/training to deal with all phases of the hazard mitigation cycle	Explore ways to increase staff/competence in emergency and floodplain management. This could include searching for funding to hire more staff, funding training for the current code enforcement officer to become a CFM, hiring a certified floodplain manager onto the DPW staff or hiring a CFM consultant, and hiring interns. Make sure all grant activities are fully documented to ensure reimbursement. The preferred option is a full-time CFM to manage tasks related to hazard mitigation, emergency preparedness, stormwater management, public outreach, the National Flood Insurance Program, and the Community Rating System. Ensure that Code Enforcement Officers receive periodic training and political support to effectively enforce existing floodplain development regulations. Provide emergency response training for municipal officials, first responders, and school administrators. Provide NOAA Weather Radios to public facilities.	No	No	3-5 years	DPW - Code Enforcement	\$ - \$\$\$	This is critical for the village to pursuing and maintaining increased flood management standards and CRS.		High
V Owego MH12	CERT Team	Other	G6		All Hazards	The village is understaffed to deal with all phases of the hazard mitigation cycle	Train and Equip a Village/County Volunteer team - Community Emergency Response Team (CERT) to assist at the time of an emergency and aid in EOC operations. This team will augment first responders at the time of disaster. Explore funding/implementation for a CERT training program.	No	No	1-2 years	EM/Police	\$	Disaster response time and quality will improve in the village if we have this team.		High
V Owego MH13	Critical Environmental Areas (CEA)	Nature Based	G1, G4, G5	1,4,5,6,8	All Hazards	The village has several potential critical environmental areas that are insufficiently documented and are not registered with DEC.	Conduct an inventory of potential CEAs and register with NYSDEC.	No	Yes	1-4 years	Planning Board	\$	Increases protection for CEAs	NYSDEC	High
MH14	Evacuation Plan	Policy	G1, G2, G6	1,2,4,6	Flood, Severe Storm	Village roads become impassable during flooding. People are unaware of safe egress routes out of the village.	Create a village evacuation plan.	No	No	2-4 years	Emergency Services, Planning Board	\$	Emergency preparedness/egress is critical to residents at times of flood.	County Emergency Management	High
V Owego MH2	Vulnerable Resident Contact List and Buddy Cards	Community Outreach	G1, G2, G5	1, 2, 4, 6	Extreme Temperatures, Severe Storm, Flooding	The Village of Owego is designated as a disadvantaged community in New York State, and harbors several vulnerable populations such as homeless individuals and populations in specific areas of the Village listed elsewhere in the annex. Flooding, severe storms, and extreme temperatures all pose risks to these populations.	The Village of Owego will encourage residents to engage who would like to be contacted during storms, floods, and hot/cold days, to check on their well-being. Gathering this list may involve sending out a mailing, going door-to-door to contact residents, and/or working with EMS, nonprofit organizations, faith-based organizations, and others to identify residents who are vulnerable to disasters and the best contact methods for each. The Village will then work with these organizations to develop a method of which organizations will contact which residents in the event of a flood, storm, or extreme temperature hazard. As part of this action, the Village may also consider developing "buddy cards" where residents can write their name, contact information, important medical information, and any specific concerns and needs associated with these hazards. Residents will then be encouraged to give a buddy card to a buddy who will contact them during a hazard, in addition to being contacted by an organization such as the ones listed above.	No	No	1 year	EMS Department, HHS, NYSEG for a list of people who depend on electricity for medical needs	\$	Having a list of vulnerable residents who would like to be contacted during hazards will reduce their vulnerability, by making sure someone is ensuring their well-being. Having buddy cards will enhance these efforts further by increasing the likelihood that vulnerable residents are contacted in a timely manner.	BRIC, FMA, HMGP, NYS Climate Smart Communities	High

Project #	Project Name	Category	Goal/Objective being Met (County)	Goal/Objective being Met (Village)	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
V Owego MH3	Code Red Outreach Strategy	Community Outreach	G1, G2, G6	1, 2, 4, 6	All Hazards (Flood, Drought, Extreme Temperatures, Severe Storms)	Not all residents receive adequate warnings of floods, extreme temperatures, severe storms, and drought, which increases their vulnerability to these hazards	Develop an outreach/communications strategy related to Code Red, the emergency notification system that provides warnings about flooding, extreme temperatures, severe storms, and drought. Through the strategy, the Village will educate residents about Code Red, encourage individuals to sign-up for Code Red, and provide assistance for sign-ups. The outreach strategy will prioritize outreach to vulnerable populations, such as disadvantaged areas of town (e.g. Turtletown, The Flats, Long Meadow apartments, RiverView Rehabilitation and Nursing Center, Belva Lockwood Lane, other areas experiencing sheet flow, and any other populations) and the homeless population by creating a database to track those individuals at high risk and prioritizing these individuals for sign-up. The Village may also attend events or host pop-up tables in these disadvantaged areas. Furthermore, the Village will educate residents about additional steps they can take before and during hazards (floods, extreme temperatures, severe storms, and drought) to remain safe. This will be done through any events or pop-ups that are held regarding Code Red. Rave software.	No	No	1-3 years	EM/Police	\$	Educating people about Code Red and encouraging sign-ups will reduce residents' vulnerability to disasters, because they will have more adequate warning and have more time to engage in activities like getting to a safe location (storms), moving property out of harm's way (floods), go to a cooling center (extreme temperatures), or conserve water in their homes (drought). This will reduce the impacts that these hazards have on people's safety and well-being, and may reduce the severity of hazards such as droughts.	BRIC, FMA, HMGP, NYS Climate Smart Communities	High
V Owego MH4	Review and Update Municipal Regulations	Policy	G1, G3, G4	1, 2, 3, 4, 6, 8	All Hazards (Flood, Drought, Extreme Temperatures, Severe Storms)	Flooding, severe storms, drought, and extreme temperatures all pose risks to the municipality. Despite the risks, not all relevant municipal laws and ordinances incorporate hazard mitigation.	Review municipal laws and ordinances and update as necessary to incorporate hazard mitigation. This may include review of the zoning code, development regulations, subdivision regulations, building codes, and other regulations to ensure that new and existing developments are protected against a 500-year flood event and against other hazards. Examples that may be considered include, but are not limited to: - Requiring the submittal of a Stormwater Pollution Prevention Plan with subdivision applications, site plan applications, and applications for a special use permit, variance, or zoning change (flooding) - creating new processes for the zoning and planning boards to ensure that floodplain development permit are issued when required, - Encouraging tree plantings and green roofs in building codes to mitigate extreme heat (extreme temperatures) - Updating or creating site design review standards to include natural environmental features such as wind buffers, requiring regular maintenance of trees in high-wind areas, and/or require wind-resistant building techniques such as structural bracing in the building codes for high-wind areas (severe storms) - Updating or creating laws about the water system so that they include a plan for obtaining for secondary water sources that may be used during drought conditions (drought) - encourage the use of climate resilient construction materials with new construction, such as white paint or light paint on buildings or pavement projects to reduce the heat island effect, or encourage permeable pavement	No	No	1-3 years	Planning/Zoning Board	\$	Updated municipal regulations will help ensure that new and existing developments are protected against flooding and other hazards, by incorporating hazard mitigation directly into planning processes. This will reduce the risk that is posed to people and property from the affected hazards.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, EPA EFC Grant Program, NYS CDBG Program, NYS DOS Smart Growth	High
V Owego SS1	Solar Power for waste water treatment plant (WWTP)	Critical Municipal	G1, G3	1,4	Severe Storms and Energy Conservation	The WWTP is not only vulnerable in a time of flood from a power needs standpoint, it is also a major consumer of power in the village. By installing solar it would be protected during a storm and provide savings/reduced greenhouse gas emissions at all other times.	Explore alternative energy options for powering the WWTP. Install solar panels and batteries at the WWTP for primary energy generation.	Yes	No	1-3 years	Village Board / Department of Public Works	\$\$\$	There are currently incentives for doing this via other NYS programs we can take advantage of.		High
V Owego MH5	Snow removal	Critical Municipal	G1, G6	1,4	Flood, Severe Storm	DPW does not have the capacity/equipment to handle snow and debris removal to make the streets passable under severe storm events	Explore a contract and plan for snow removal and debris removal to reduce the cost of emergency snow removal. Upgrade/increase DPW's fleet/equipment to better and more quickly maintain roads during snowy conditions. Ensure DPW monitor weather conditions and forecasts to enable timely response to snow, ice, and high water conditions. Ensure DPW periodically review and revise plowing schedules and hazardous weather response procedures to minimize the time required to restore safe roadways.	Yes	No	1 year	DPW	\$	Need this to ensure that streets are passable after an event as soon as possible.		Medium

Project #	Project Name	Category	Goal/Objective being Met (County)	Goal/Objective being Met (Village)	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
V Owego MH6	Next steps after USACE stormwater study & recommendations	Critical Municipal	G1, G4	1,4,6,7	Flood, Severe Storm	The village stormwater systems is antiquated and insufficient. Stormwater runoff from East Beecher Hill, Mountain Road, East Avenue (roads in the Town of Owego) becomes a significant stormwater management problem in the Village.	USACE study to assess the stormwater system to be completed in 2024. This action involves taking the next steps from the USACE recommendations towards actionable drawings and ultimately new stormwater system implementation by evaluating, designing, and constructing stormwater infrastructure improvements to reduce stormwater flooding in the Village of Owego. Preliminary recommendations to reduce the risks of stormwater flooding on critical roadways include: 1) Separate the sanitary and storm sewer systems, 2) Develop/design a connected stormwater system throughout the Village to facilitate the subsurface conveyance of stormwater, 3) Prioritize yearly maintenance to keep inlets free of sediment and trash, 4) Locate open greenspace areas for potential BMPs to be constructed within the network of the stormwater system (quantity and quality BMPs), and 5) Install pump stations where necessary (potentially the flats, the railroad underpass, etc).	Yes	No	5-10 years	USACE, DPW, Village Board, TCSW	\$\$\$	Much better drainage will save roads, prevent traffic issues, etc.		High
V Owego MH7	MOU's for heating/cooling centers	Critical Municipal	G1, G6	1,4	Flood, Severe Storm	In times of extreme temperatures, floods, or power outages people may not have a place to go to stay warm or cool.	Possible locations include the Boy's and Girl's Club and the McMaster Training Facility. The Boys and Girl's Club is one of the few facilities in the village that is accessible during a flood. Make sure these buildings have back-up power. Prioritize green power sources, if feasible. Explore grants to fund the back-up power, with a focus on solar/battery storage.	Yes	No	1-2 years	Emergency Services	\$ or \$\$	Better care of village residents in times of extreme temperatures or power outages (assuming locations have back-up power).		High?
V Owego MH6	Interim Plan for Critical Services	Critical Municipal	G1, G6	1,4,6	Flood, Severe Storm	The Village of Owego regularly experiences severe storms which cause moderate damages throughout the Village. These storms have the potential to cause power outages, which can affect critical services that the Village provides, including vulnerable populations. Many critical facilities are located in the floodplain; although the Village of Owego is evaluating relocation of these facilities to locations outside the floodplain, these services need to be provided in the interim.	Establish an interim plan for providing critical services in the case of a severe storm, flood, or power outage that affects critical facilities that are located in the floodplain. This plan may later be modified when progress is made in relocating critical facilities outside of the floodplain. The interim plan might include: - Ensuring that critical facilities that require emergency power sources are equipped with backup generators. Encourage additional facilities that house vulnerable populations to purchase backup generators, and provide guidance on how to do so. Prioritize generators that are portable or can be easily relocated if the critical facility is moved at a later date to a location outside the floodplain.	Yes	No	1-3 years	Emergency Management Board	\$\$	The Village can reduce personal injury and property damage by establishing an interim plan to provide critical services, including the provision of power at critical facilities during severe storms.	US CDBG-MIT, US HMGP, NYS HM RLF	High
V Owego MH7	Backup Generators	Critical Municipal	G1, G6	1,4	Flood, Severe Storm	The Village Owego regularly experiences storms, which cause moderate damages throughout the Village.	Ensure that critical facilities that require emergency power sources are equipped with backup generators. Encourage additional facilities that house vulnerable populations to purchase backup generators, and provide guidance on how to do so.	Yes	No	1-3 years	WWTP and DPW	\$\$	The Village can reduce personal injury and property damage by ensuring that critical facilities have backup generators and do not lose power during a severe storm.	US CDBG-MIT, US HMGP, NYS HM RLF	High
V Owego MH8	Solar Panels for Backup Power Generation and Battery Storage	Critical Municipal	G1, G4, G6	1,4	Flood, Severe Storm	Village-wide power outages from severe storms can impact people, property, and the economy.	Install solar panels in the village that are linked to backup power generation. Solar and battery installations on historic properties must consider OHPC local guidelines based on the Secretary of the Interior's guidelines for historic properties.	Yes	No	3-5 years	Village Board / Department of Public Works	\$\$\$	The Village can reduce power outages' damage to people, property, and the economy, if they install solar panels linked to backup power generation.	FEMA BRIC, FEMA HMGP, NYS CSC, FEMA EMPG, EPA Greening America's Communities, CDBG Public Infrastructure and Community Planning, EFC Green Innovation Grant Program, NYS HM RLF, DOS Smart Growth Comprehensive Planning Grant Program, EPA Smart Growth Support	High

Project #	Project Name	Category	Goal/Objective being Met (County)	Goal/Objective being Met (Village)	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
V Owego S2	Evergreen Cemetery	Historic	G1, G4	1, 4, 5, 6, 8	Severe Storm	Runoff during severe storms causes damage in the historic cemetery	Revisit two previous environmental studies of the Evergreen Cemetery (one from the Soil and Water Conservation District and another from the Village of Owego Evergreen Cemetery Committee) and proposed actions for mitigation of severe storm damage from 2015. The current USACE study will also include the area of the Evergreen Cemetery. Create a plan of action and seek funding based on these studies. Funding is needed to protect the cemetery. Create a climate-smart plan based on these studies to reduce and restore the roadways (where feasible) with permeable pavement, groundcovers, ornamental tree planting, runoff mitigation, and public recreational enhancement.	No	Yes	3-5 years	DPW	\$\$\$	Protection of a historic resource	FEMA HMGP, NYS CSC, FEMA EMPG, EPA Greening America's Communities, CDBG Public Infrastructure and Community Planning, National Park Service	Medium
V Owego S4	Nature Based Stormwater Management	Nature Based	G1, G4	1,5,7	Severe Storm	In times of severe storm, flash flooding is a problem in the village. DPW needs to upgrade old equipment/vehicles and add new equipment/vehicles to clear culverts/ditches for storm water drainage and to keep streambeds clear of obstacles to flow. DPW is also staff limited to complete the above tasks.	Nature based solutions will be part of the comprehensive stormwater management study of USACE. If viable bioretention areas in the village are identified, explore implementing/funding these options. Seek funding for DPW equipment and staffing to provide the capacity needed to maintain streambeds and the municipal stormwater drainage system. Inspect and maintain natural channels annually, after complaints, and after each major storm. DPW also must remove debris after each inspection and keep a record of these inspection and maintenance procedures.	No	Yes	3-5 years	USACE, DPW, SWCD	\$\$\$	Stormwater management is a problem in the village and all possibilities need to be explored.	FEMA HMGP, EPA Greening America's Communities, CDBG Public Infrastructure and Community Planning	High
V Owego MH19	State/Federal Program Participation/Policy Crosswalk	Policy	G5		Flood, Severe Storm	The village is under-resourced and under-funded and needs stronger policies to promote climate adaptation and resilience measures.	A village strategy to increase funding for climate adaption/resilience measures involves leveraging benefits across state and federal incentive-based programs. The Village participates in the Clean Energy Communities (CEC) and Climate Smart Communities (CSC) programs. It seeks entry into the Community Rating System (CRS) program. Crosswalking these programs to maximize benefits of most use to the village is a strategy for securing funding and improving resilience. Examples of policy actions the village board should pursue that convey benefits across programs include a complete streets policy resolution, a source water protection plan resolution, and a unified solar permit resolution. Other such measures should be identified and pursued as a result of the program crosswalk.	No	No	1-3 years	Village Board, CSC Task Force, Binghamton Metropolitan Transportation Study, NY Rural Water Association (NYRWA), Veolia	None required - policy actions and free technical support for plan development from agencies listed	More robust electrical service to critical infrastructure, increased funding opportunities, safer water, better traffic flow.	None needed	High
V Owego MH20	Floodproofing/elevations of vulnerable village buildings - follow up of USACE floodproofing study	Other, Historic	G1, G3, G6	1, 4, 5, 6, 8	Flood, Severe Storm	The majority of village buildings are in the SFHA and prone to flooding.	Evaluate, design and implement building elevations and floodproofing measures in the Village of Owego to reduce the flood risk to individual buildings. A USACE floodproofing study currently underway on 15 representative buildings is the start of this effort. This USACE study includes residences, historic structures and non-profit organization buildings integral to the community. Build on these results to address other buildings in the community and implement floodproofing actions. Seek funding to conduct BCAs, elevation certificates, and mitigation actions.	No	No	5 years	USACE, DPW, DHSES, CSC Task Force, CEC, NYSERDA	\$\$\$	Floodproofing buildings will keep people and property safe, keep buildings on the tax rolls, reduce NFIP claims, and maintain the community.	FEMA BRIC, FEMA HMGP, FEMA FMA, Silver Jackets, National Park Service	Medium
V Owego MH21	Hazardous Tree Inspection and Management		G1, G4		Severe Storm, Flood	During severe storm events, trees and tree limbs fall on roads, power lines, and creek beds. This results in road closures and electricity outages, contributes to the severity of flooding by blocking the flow of water in creeks and streams, and pose a public safety risk.	Incorporate the regular inspection and management of hazardous trees into the Village's existing procedures for drainage system and infrastructure maintenance. Additionally, clear trees out of creeks and establish a schedule for doing so regularly.	No	Maybe - location-based action	6 months - 1 year	Highway Department	\$\$	By regularly inspecting and maintaining hazardous trees, the Village will reduce the impacts of severe storms and floods on infrastructure and public safety.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	High
V Owego F15	Inspection/Resizing of Culverts		G1, G4		Flood	Inappropriately sized culverts result in increased flood risk.	Assess the condition, size, and effectiveness of culverts within the Village. Create a list of culverts that need attention, and work with the County SWCD to replace with new right-sized piping, where deemed necessary. Culverts should be up to applicable design standards, and should take into account flood risk, ecological impacts, and other factors.	No	Potentially	1-3 years	Highway Dept with assistance from SWCD	\$\$	Appropriately resizing culverts will allow for more efficient flow of water during flood events, reducing the extent of flooding and the risk of damage to and closure of bridges, roadways, and other infrastructure.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium

10.3 Mitigation and Adaptation Action Prioritization Table

Each of the Village’s proposed mitigation and adaptation actions were evaluated and prioritized according to the criteria listed in Section 7.2.4 of the main body of the HMP. This includes a cost-benefit review of the proposed actions. The results are included in Table 10-3.

Table 10-3. New Mitigation and Adaptation Action Prioritization

Project #	Project Name	Ability to Increase Resilience	Economic Feasibility	Low Environmental Impact	Ability to Implement	Total Score	Priority
V Oweg o D1	Drought Emergency Plan	2	2	3	3	10	Low
V Oweg o D2	Assessment and Upgrades of Water Delivery Systems	1	1	3	1	6	Low
V Oweg o ET1	Cooling and Warming Centers	2	3	3	2	10	High
V Oweg o ET2	Tree Planting Program and Tree Inventory	1	3	3	3	10	Medium
V Oweg o F8	Watershed Assessments for Flood Mitigation	3	2	3	1	9	High
V Oweg o F9	Vulnerability Assessments of Critical Facilities	2	3	1	2	8	High
V Oweg o F10	NYSEG Power substation on Main Street	1	2	3	2	8	Low
V Oweg o F11	Community values regarding Historic Properties and Cultural Resources	1	3	3	2	9	Medium
V Oweg o F12	Citizen education and community reporting on hazardous issues	1	3	3	2	9	Medium
V Oweg o F13	General citizen outreach on natural hazards	2	3	3	2	10	High
V Oweg o F14	Community Rating System Participation	3	3	3	3	12	High

Project #	Project Name	Ability to Increase Resilience	Economic Feasibility	Low Environmental Impact	Ability to Implement	Total Score	Priority
V Owego F1	Protecting the Tioga County Historical Society Museum	3	2	3	3	11	High
V Owego F2	Flood Damage Prevention Code Revisions	2	3	2	3	10	High
V Owego F3	Debris Management Plan	2	3	3	2	10	High
V Owego F4	Basement Flood Mitigation Program	3	2	2	3	10	High
V Owego F5	Flood Mitigation Parcel Inventory	3	2	2	2	9	Medium
V Owego F6	Dumping Ordinance	1	3	3	2	9	Medium
V Owego F7	Valuation and Loss Estimates for Historic Properties and Cultural Resources	2	2	3	2	9	Medium
V Owego MH15	Infrastructure Assessment and Repairs/Replacements	3	2	3	2	10	High
V Owego MH1	Comprehensive Plan Update	2	3	3	3	11	High
V Owego MH8	temporary housing	3	2	2	1	8	Medium
V Owego MH9	Create various programs to encourage adaptation actions in the community	3	2	3	2	10	High
V Owego MH10	Natural resources inventory	1	3	3	2	9	Medium

Project #	Project Name	Ability to Increase Resilience	Economic Feasibility	Low Environmental Impact	Ability to Implement	Total Score	Priority
V Owego MH11	Overcoming Staffing Challenges	3	2	3	2	10	High
V Owego MH12	CERT Team	3	3	3	2	11	High
V Owego MH13	CEA Inventory	3	2	3	3	11	High
V Owego MH14	Evacuation Plan	3	3	3	2	11	High
V Owego MH2	Vulnerable Resident Contact List and Buddy Cards	3	3	3	2	11	High
V Owego MH3	Code Red Outreach Strategy	2	3	3	2	10	High
V Owego MH4	Review and Update Municipal Regulations	3	3	3	2	11	High
V Owego S1	Solar Power for waste water treatment plant (WWTP)	3	2	3	2	10	High
V Owego MH5	Snow removal	2	2	2	3	9	Medium
V Owego MH6	Next steps after USACE stormwater study & recommendations	3	1	3	1	8	High
V Owego MH7	MOU's for heating/cooling centers	3	3	2	2	10	High
V Owego MH16	Interim Plan for Critical Services	3	2	3	3	11	High

Project #	Project Name	Ability to Increase Resilience	Economic Feasibility	Low Environmental Impact	Ability to Implement	Total Score	Priority
V Owego MH17	Backup Generators	3	2	2	3	10	High
V Owego MH18	Solar Panels for Backup Power Generation and Battery Storage	2	3	3	2	10	High
V Owego S2	Evergreen Cemetery	2	1	2	2	7	Medium
V Owego S3	nature based stormwater management	3	1	3	2	9	High
V Owego MH19	State/Federal Program Participation/Policy Crosswalk	2	3	3	3	11	High
V Owego MH20	Floodproofing/elevations of vulnerable village buildings – follow up of USACE floodproofing study	3	1	3	2	9	Medium
V Owego MH21	Hazardous Tree Inspection and Management	2	2	3	3	10	High
V Owego F15	Inspection/Resizing of Culverts	3	2	2	2	9	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

10.4 Mitigation and Adaptation Action Implementation and Administration

The Village’s new mitigation and adaptation actions will be implemented and administered as described in Section 7 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

10.5 Narrative Review of Village Plans

This plan has addressed village preventative activities, such as planning/zoning and other codes elsewhere in this document and this will serve as a review linking them to their role in flood risk and damage mitigation.

The Village of Owego has a Comprehensive Plan that was adopted in 2013. It does refer to flood related issues and it recommended amending the site plan review and zoning laws to refer to the village flood damage prevention law (Chapter 117). The Comprehensive Plan is over ten years old needs revision. A revision should more vigorously address flooding issues, flood risk and damage mitigation, and incorporate recent science and predictions of the effects of climate change. The comprehensive plan addresses the need for maintaining and protecting open spaces, including natural floodplain functions and wetlands.

The village has a building code (Chapter 92) based on the New York State Uniform Fire Presentation and Building Code as well as the State Energy Conservation Code. The village is considering increasing the elevation to get a building permit to three feet above base flood elevation, which would decrease flood damage to buildings and residences.

The village has a zoning law (Chapter 195) adopted in 2006. The zoning law addresses areas subject to flooding and requires a special use permit obtained from the Zoning Board of Appeals subject to flood to minimize risk and damage to the building and surrounding structures. A floodplain development permit issued by the code officer is also required for building in the special flood hazard area.

The village has a floodplain damage prevention law (Chapter 117) adopted in 2012. It is based on a floodplain law recommended by NYSDEC. The floodplain law needs to be reviewed in light of Risk Rating 2.0, the updated federal flood insurance program, and climate change induced increased risk of flooding.

The village utilizes multi-modality alerts. It uses Code Red, through which residents enroll in a voicemail and text alert system. The village also has an official Facebook page to inform residents of potential and expected flood conditions based on National Weather Service predictions and USGS river level data.

There are no levees, dams, or reservoirs in the Village of Owego.

The village is planning to greatly increase the quantity and quality of outreach to the public and local officials about the need for proactive assessments of flood mitigation activities, mailings to residents that have experienced flood damage one or more times, and periodic educational campaigns to encourage procurement and retention of flood insurance policies.

11 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. In addition to the county-led effort, this Village of Owego Annex was generated with extensive public involvement, as detailed in Section 3 of this annex, which reviews the Climate Smart Communities Climate Adaptation Plan and Community Rating System Floodplain Management Planning engagement. The Village of Owego 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 Village Board meetings and by offering opportunities for members of the public to participate in the implementation of relevant mitigation actions. The Village will also post the plan on the Village website and solicit comments on it.

11.1 CRS 510 Appendix

Below is the language of the resolution passed on 2 October 2023 by the Village of Owego in support of the HMP:

A RESOLUTION AUTHORIZING THE UPDATE OF THE VILLAGE OF OWEGO MULTI-HAZARD MITIGATION PLAN ANNEX

WHEREAS, the Village of Owego is preparing a MultiHazard Mitigation Plan (the "Plan") to be approved by the NYS Division of Homeland Security and Emergency Services (DHSES) and the Federal Emergency Management Agency (FEMA) in accordance with State and Federal laws and regulations;

WHEREAS, the adoption and maintenance of the Plan is mandated in order to preserve the Village of Owego's eligibility for Federal assistance for pre- and post-disaster events and incidents;

WHEREAS, FEMA requires the Plan be fully reassessed and updated by the Village every five (5) years;

WHEREAS, the County applied for and received grant funds for the purpose of preparing an update to its Plan, including the Village annex;

WHEREAS, the National Hazard Mitigation Association (NHMA) has agreed to provide technical expertise and assistance at no cost to the Village.

WHEREAS, the Plan must be completed, submitted to DHSES and to FEMA for approval, and then formally adopted by the Village of Owego no later than December 31, 2024.

WHEREAS, the Village recognizes the importance of producing a comprehensive Annex to access funding for flood mitigation projects.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND VILLAGE BOARD OF THE VILLAGE OF OWEGO:

Section 1. That the following activities and actions to develop the Village of Owego annex to the Tioga County Multi-Hazard Mitigation Plan are hereby adopted:

1. That the Village of Owego will immediately begin the planning process to achieve an updated Multi-Hazard Mitigation Plan to further improve the safety and well-being of its citizens and the community by recommending activities and measures that will reduce deaths, injuries, property damage, environmental and other losses from natural hazards and disasters.
2. That members of Climate Smart Communities Task Force shall act as the Planning Committee for the purposes set forth herein, and shall provide such oversight as may be necessary to accomplish the following:
 - Observe all requirements of FEMA and DHSES as to the planning process, the Plan's contents and associated documentation, and all conclusions and recommendations;
 - Collect data on the natural hazards and their impact on public safety, health and property;
 - Review all mitigation activities and measures currently being implemented through public and private efforts and identify those that could be initiated;
 - Engage the citizens of Village of Owego in the planning process, and ensure the public is informed of its findings, deliberations and recommendations;
 - Work closely with Barton and Loguidice, the county contactor for the HMP, to prepare a comprehensive update to the Village of Owego Annex that recommends action to improve, as necessary, existing mitigation measures and incorporate, as appropriate, new mitigation measures based upon its findings;
3. That residents, businesses, associations, and other organizations are encouraged to:
 - Attend public meetings to review the Village planning activities, findings, and recommendations and
 - Assist the Advisory Committee by providing data on their experiences with natural hazards and contribute ideas, suggestions and recommendations that will help produce the most effective and appropriate mitigation measures for the hazards that threaten our community.
4. This Planning committee is recommended and also suggested to include a representative of the DPW, the Village Clerk's Office, Emergency Services, the Planning Board, the Village Board, and the Zoning Board. Two community representatives for this committee will be Kevin Millar and Julie. The committee members will select a

chairperson. Committee meetings will occur during regular work hours at the village boardroom.

Section 2. This resolution shall take effect immediately upon its adoption and approval.

A second resolution was passed the same day (Oct 2 2023):

Resolution to appoint municipal officials and advisory board members to the Planning Committee.

1. Laura Spencer (Village Board)
2. Kevin Millar (CSC task force)
3. Julie Nucci (CSC task force chair, Planning)
4. Rick Woidt (CSC task force, CFM)
5. Mark Trabucco (ZBA)
6. Ashley Seyfried (Southern Tier 8)
7. Jeff Winchell (OPD and Emergency Management)
8. Mic Knapp (Public Works)
9. Fred Ulrich (Public Works)
10. Dirk Mosher (Sewer department)

For the purposes of CRS 510, the advisory board members are considered members of the public.

Municipal committee members:

1. Laura Spencer (Village Board) - municipal
2. Julie Nucci (CSC task force chair, Planning)
3. Mark Trabucco (ZBA)
4. Jeff Winchell (OPD and Emergency Management)
5. Mic Knapp (Public Works)
6. Fred Ulrich (Public Works)
7. Dirk Mosher (Sewer department)

Advisory board members:

1. Kevin Millar (former mayor)
2. Rick Woidt (CFM)
3. Ashley Seyfried (Southern Tier 8)

The public meeting schedule was advertised in the Tioga County Courier, the Owego Pennysaver, and the Village of Owego website (https://www.villageofowego.com/boards__committees/hazard_mitigation_plan_update/index.php). The December 7th meeting was canceled and rescheduled for January 25th. The Village website was updated and the new schedule was sent to the two newspapers, but it has not yet been printed.

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Town Clerk, Rog-
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Town of Owego,
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Town of Tioga District
1 — Loyal Order of Moose
#1595, 3 Goodrich Rd.,
Owego
Town of Tioga District
2 — Tioga Town Hall, 54
Fifth Ave., Barton.
The polls will be open
from 6 a.m. to 9 p.m.,
according to the Tioga
County Board of Elec-
tions website at www.tiogacounty.com/departments/board-of-elections/.
(Wendy Post contributed
to this report)

Village of Owego embarks on community-informed update of its Hazard Mitigation Plan

**CONTRIBUTED BY
JULIE NUCCI**
Climate Smart Communities
Task Force chair

Tioga County and the Village of Owego are currently conducting their five-year updates to their Hazard Mitigation Plans. In this update, severe storms, extreme temperatures, drought and flood will be addressed.

In a press release Nucci wrote, "Creating a thorough and well-informed plan for these hazards is crucial since only after the hazard mitigation plan and mitigation actions are adopted by the Village Board of Trustees, are these actions eligible for FEMA grant funding."

A planning committee comprised of village officials, community members, and advisory board members will oversee the plan development. The Village is embarking upon a

community-informed planning process in which five public meetings will be held from 2:30-3:30 p.m. in the conference room of the Village Office, located at 22 Elm St. in Owego. Meeting dates are Nov. 1, 9, 16, 30, and Dec. 7. The public is encouraged to attend.

To remotely attend from your computer, tablet or

smartphone, visit <https://global.gotomeeting.com/join/154755341>, or you can dial in using your phone at +1 (872) 240-3311 with the access code: 154-755-341.

For more information about the hazard mitigation plan update, visit the Village of Owego website at www.villageofowego.com.

AUCTIONS

**FARM CONSIGNMENT AUCTION
TRACTORS - EQUIPMENT -
CONSTRUCTION
SATURDAY NOVEMBER 11TH @ 9:00 AM**

On location at Visscher Farm 1400 So Main St (Rte. 282 south) Nichols NY 13812 use Exit 62 off I-86 OUR 56TH YEAR AT VISSCHER FARM
Give us a call so we will be able to give you items FULL newspaper and internet coverage.
Items that have been brought into our yard: Tractors; Balers; Rakes; Harv equip.; tillage tools; gravity wagons; skid steer attachments; tools and other farm related items.
WATCH FUTURE PAPERS FOR UP DATES OR WEB SITES
**HOWARD W VISSCHER
SALES MANAGER AND AUCTIONEER
NICHOLS, NY 607-699-7250
AU00959L**

AUCTIONS

**Palletized Stone Live-Virtual Online Bidding Only Auction
(200) Pallets Of Pattern / Treads & Landscape Stone Of All Types (200)**
PLUS: New Mini Excavators, New Mini Tracked Skid loaders, New Storage Containers, Yamaha Golf Carts; New SSL Attach's, Lawn Tractors, Gates, Fencing & Work Benches, Etc.
**Live Virtual ONLINE BIDDING Auction @ Manasse Auction Yard, 12 Henry St, Whitney Point, NY
Friday November 3, 2023 5:00PM**
Auction To Be Held @ Manasse Auction Yard, 12 Henry St, Whitney Point NY 13862.
Take I-81 to Exit 8, to Rt. 26, to 12 Henry St. Just off North Bound Exit Ramp
(200) Pallets Of Bluestone, Pattern, Treads, Pavers, Landscape Stone, Etc. (200)
Plus: New Mini Excavator, New Mini Tracked SSL, (4) Yamaha Lifted Golf Carts & JD I Lawn Tractors, New Storage Containers, New SSL Attach's, New Iron Fence, Work Benches, Etc
Live - Virtual Bidding Only Auction w/ Live Online Interactive Bidding & Pre-Bidding
Stone Including: All Types Of Blue Stone & Decorative Stone, Something For Everyone!! Fancy, Thermoalred Cur Steps, Natural Edge Steps; Thermoalred Pavers & Thermoalred Treads, 1 1/2" & 2"; Many Assz. Sizes - Full Color; Qty of Thermoalred Bluestone Patio Kix, 1 1/2" & 2"; Tumbled Pavers; Tumbled Garden Paths, Teat Bluestone Cutting Stock; Treads / Silks; Landscape Boulders; Palletized Fieldstone, Nursery Steps; Gauged Colonial Wall Stone- Regular, Deco; Many Other Assz. Types Of Stone - See Pic On Website;
Palletized Stone: To Be Sold By The Pallet Or By Square Ft. And Take The Pallet Full. Alike Pallets & Types Will Be Offered By The Pallet And Buyer Can Take Multiple Pallets. Selling Arrangements Will Depend On Types, Varieties And Way Stone Is Palletized. Types, Sizes, Selling Terms & Other Pertinent Info Will Be In Detailed Catalog, Which Will Be Posted On Proxibid - October 27, 2023
Man Selling Equipment, Mini Excavator, New Mini Tracked Skid Steer Loaders, New Storage Containers, Yamaha Gas Golf Carts & New SSL Attach's: New AGT Mini Excavator, Gas Eng; (2) New Digit Tracked Skid Steer Loaders, Gas Eng; (4) Yamaha Gas Golf Carts, Lifted Some With Rear Seats, New 40' Container w/ Skid Steer Loaders, Gas Eng; (2) New 20'x30' Galvanized Carports; (2) New Digit Forestry Side Dbl. Doors; (4) New 12' Storage Containers; (2) New 20'x30' Misting Machines; New Post Hole Auger Attachment; Set of SSL Forks; Bathroom Buildings; (2) JD Lawn Tractors; New Rolls Of Fence Wire; Many Other Items;
Live Virtual Online Bidding Only Auction, No ONSITE Bidding.
Lots Of Detailed Pictures Of Auction Products Already Posted On Our Website!!
Preview of Stone & Items: Tuesday, Oct 31 - Friday, Nov. 3, From 9AM-5PM, Items In Our Rear Auction Yard.
Loading Of Stone: Stone Will Be Loaded For Buyers, Free Of Charge For 1 Week Following Auction, On Friday Nov. 4, From 9AM-1PM, Monday Nov. 6-Wednesday Nov. 8 From 9AM-4PM Or Thurs Nov. 9 & Friday Nov. 10, By Appointment.
Terms & Conditions: 15% Buyers Premium Will Be Charged. Payment In Full Day Of Auction In Cash, Good Check or Major Credit Card, 3% Additional Buyers premium for Credit/Debit Card Payments; Nothing Removed Until Settled For.
Auctioners Note: Nice Stone Of All Types, Plus, Nice Assz. Of New Mini Excavators, Mini Tracked SSL's, Containers & SSL Items. Plan To Attend, Something For Everyone
Auction Order: Stone & Equipment Items Will Be Mixed In throughout The Auction. Catalog Posted Approx. 1 Week Ahead.
**Live Online-Interactive Bidding Available Through www.Proxibid.com/manasse
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The table below summarizes the participation of the planning committee/public at the five public meetings held to discuss the Village of Owego Annex.

Table 11-1 Summary of Topics and Attendance at CRS 510 Public Meetings

Meeting Number	Meeting Topic	# Municipal Committee/Municipal Official Attendees	# of public attendees
1	Coordinate/Assess Hazard	7	10
2	Assess Problem	7	10
3	Set Goals/CSC Scenario Planning	4	9
4	Review Mitigation Actions	7	11
5	Review Draft Plan	3	14

Village Officials not on the municipal committee who attended some of these meetings include:

1. Rod Marchewka, Clerk
2. Rusty Fuller, Village Board
3. Fran VanHusen, Village Board
4. Charles Plater, Village Board

Given the size of the Village and the traditional lack of involvement of the public in floodplain management issues, these meets, with approximately 10 public participants, were very successful and the feeling of ownership of village residents was palpable. The enthusiasm among this group to form a CERT team is an example of that interest.

The sign-in sheets for the meetings are shown here.

Owego HMP Update Sign in Sheet
Meeting date: 1 Nov 2023

In person

1. Kevin Millan
2. Mark Trabucco
3. Nadine Bigsby
4. Peter Schaeffer
5. Ros Marchewka
6. Bill Schweitzer
7. Frank Venturone
8. Joshua Marland
9. Rick Wooldt
10. Laura Spencer
11. Ashley Seyfried
12. MIC KNAPP
13. Julie Nue.
14. Rusty Tuller

Via Zoom

- Aiden Mead
- Marianne Knoy
- Colin Evans
- _____
- _____
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- _____
- _____
- _____
- _____

Village of Owego Annex to the Tioga County Hazard Mitigation Plan
Meeting Topic: Assess the Problem
Meeting 2 date: 9 Nov 2023

In person

Via Zoom

1. Dirk L Mosher

Colin Evans

2. Charles Plater

Marianne

3. JEFF Winchell

Sophia Pappas

4. Mark Tinbucco

Ashley Seyfried

5. Peter Schaeffer

Aiden Head

6. Nadine Bigsley

Rick Wordt

7. Kevin Miller

8. WURT SPENCER

9. BILL SCHWEIZER

10. RUSTY FULLER

11. Julie Nucci

12. _____

Attendance

- Sophia Pappas
- Fred Ulrich
- Kevin Miller
- Peter Schaeffer
- Mark Trabucco
- Laura Spencer
- Bill Schweizer

Virtual

- Julie Nucci
- Marianne Knoy
- Colin Evans
- Ashley Seyfried
- Aiden Mead
- Rick Woidt

Village of Owego Annex to the
Tioga County HMP

Meeting # 3

16 Nov 2023

Village of Owego Annex to the Tioga County Hazard Mitigation Plan

Meeting Topic: Review Actions

Meeting # date: 30 Nov 2023

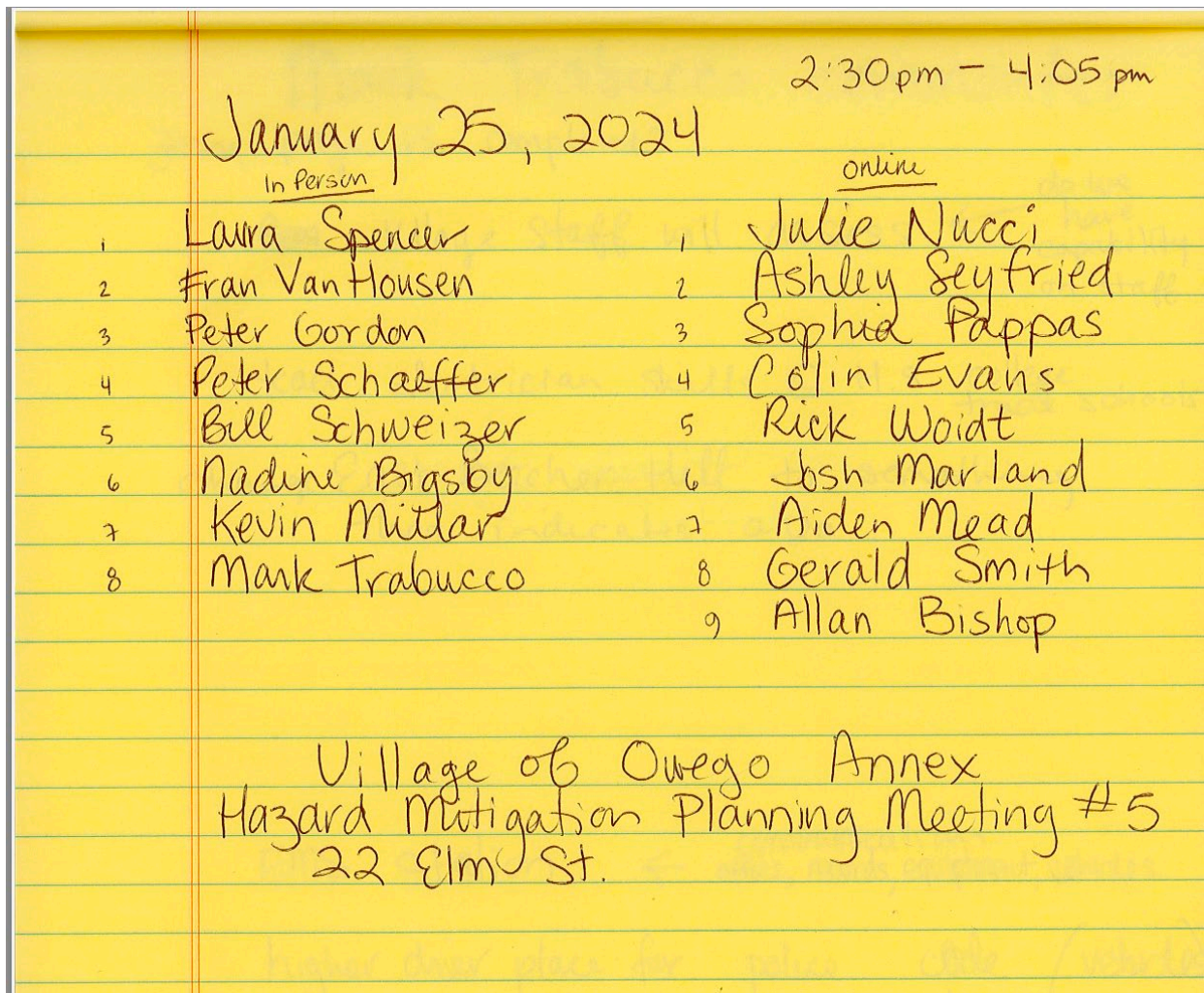
4

In person

Via Zoom

1. Dirk L. Mosher
2. Kevin Miller
3. Fran VanHousen
4. JEFF Wincell
5. Josh Marland
6. Peter Schaeffer
7. Nadine Biepley
8. Mark Trabucco
9. MIC KNAPP
10. FRED Ulrich
11. Laura Spencer
12. Bill Schweizer
13. Peter Gordon
14. Rich Woidt
15. Julie Nucci

- Aiden Mead
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Organizations involved in creation of this Village of Owego Annex:

1. A task of the **Climate Smart Communities** grant is to assist in the creation of this Village of Owego Annex to the Tioga County HMP. Many **CSC Task Force** meetings/interactions were dedicated to this annex in 2023.
2. Thomas Flynn from the **Upper Susquehanna Coalition** presented a riparian buffer assessment on the 4/13/2023 to CSC task force meeting.
3. Professor Pam Mischen of **Binghamton University** presented to the CSC Task Force on 10/3/2023 about the Binghamton 2 Degrees project and future climate conditions in the Village of Owego. The intention of this agenda item was to inform the Village Annex.
4. Jack Heide, **FEMA**, Resilience Branch Chief presenting on funding options to consider for the HMP Update at the 11/27/2023 Climate Smart Communities Task Force meeting.
5. Ashley Seyfried and Sophia Pappas of **Southern Tier 8** presented at this same 11/27/2023 meeting and many other task force meetings to plan the Climate Adaptation Plan and scenario planning exercise integrated into this document. They are both

members of the Climate Smart Communities task force and engage with the village on a regular basis.

6. Mike Brown from **Clean Energy Communities** presented to the CSC Task Force at the 3/27/2023 and to the Village Board on 1/16/2024.
7. Ed Benish from **USACE** led the kick-off meeting to the USACE Stormwater and Non-structural Analysis for the Village in July. Much of that information is relevant to this document. Many emails were exchanged between J. Nucci and Ed Benish regarding this document.
8. Annie Vest, then **National Hazard Mitigation Association (NHMA)** President presented about the CRS 510 process at the Village Board meeting on 9/18/2023.
9. The village is in regular communication with Brienna Wirley and Kelli-Higgins Roche (meetings and emails) from **DEC** regarding floodplain compliance issues.
10. Phone calls/emails were exchanged between Gina Agosta, **NYS CRS Coordinator**, and J. Nucci regarding the generation of this document.
11. Wendy Walsh, District Manager of the **Tioga County Soil and Water Conservation District**, is an active member of the CSC Task Force and regularly attends meetings. The overlap of the CSC Task goal of creating this annex has led to regular participation of her office in this document.
12. Specialist MJ (M. Theresa Julien) from the **New York Rural Water Association (NYRWA)** presented at the CSC task force meeting and provided us with the Source Water Protection. She offers free assistance to rural communities seeking this action.

Village of Spencer

This section presents the jurisdictional annex for the Village of Spencer for the 2024 Tioga 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 the Village of Spencer regarding this Jurisdictional Annex are identified as follows:

- Primary: Gilbert Knapp, Mayor
 - (607)589-4310
 - mayor@villageofspencer.com
- Alternate: Erika Brown, Clerk-Treasurer
 - (607)589-4310
 - clerk@villageofspencer.com

Village of Spencer Website: <https://villageofspencer.com/>

2 COMMUNITY SNAPSHOT

2.1 Demographics

The 2020 Census estimated that 719 people live in the Village of Spencer. The Village's population has decreased by 5% since the 2010 Census (759). The median age in the Village is 34.8 years, and 19% of the population is over the age of 65. The median household income in the Village is \$53,417.

2.2 Location & Land Characteristics

The Village of Spencer is located in the Town of Spencer in Tioga County. The Village covers approximately 1.0 square miles. The properties within the Village have a total assessed value of approximately \$51,008,596 which is distributed across a variety of property classes.

Major transportation corridors in the Village include New York State Route 34 and New York State Route 96, as described in Section 2.8 of the main body of the HMP. Key water features within the Village include Catatonk Creek, which flows past the Village, and Nichols Park, which is in the center of the Village and provides recreational facilities for the community.

2.3 Governing Body

The Village of Spencer is governed by a Village Board consisting of a Mayor and four Trustees.

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 Village. The proposals that the Village received are summarized in Table 2-1 below, at least one of the proposals for the Village is specified as being located in the Special Flood Hazard Area (1% annual chance flood event area), and none of the proposals for the Village are specified as being located in the Moderate Flood Hazard Area (0.2% annual chance flood event area). These developments may affect the Village's vulnerability to the hazards identified in this HMP.

Table 2-1. Developments from 2018 to March 2023

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
2/8/2018	Approval with Conditions Noted	8 West Tioga Street	Site Plan Review	N/A	The applicant is requesting Site Plan review approval to re-construct the 4,500-square-foot convenience store on this existing 0.6-acre gas station site.	Unspecified
7/5/2018	Approval of Site Plan Review with Condition Noted	91 West Tioga Street	Site Plan Review	N/A	The applicant is requesting Site Plan review approval to relocate the general retail store from its current location in the commercial plaza off of NYS Route 34 nearby to this location at 91 West Tioga Street, which is on the south side of NYS Route 34.	No
11/19/2018	Approval of Site Plan Review with Condition Noted	63 N Main St	Site Plan Review	N/A	The applicant is requesting Site Plan approval to establish and operate a real estate office at the stated residence.	Unspecified
4/9/2021	Approval of Site Plan Review with Condition Noted	140 North Main Street (State Routes 34 & 96)	Site Plan Review	N/A	The applicant is requesting Site Plan review approval to convert and utilize the existing one-story commercial structure at the corner of Main and Brook Streets into a veterinary hospital.	Unspecified
4/9/2021	Approval of Site Plan Review with Condition Noted	208-210 North Main Street (State Routes 34 & 96)	Site Plan Review	N/A	The applicant is requesting Site Plan review approval to expand his current storage facility by two 48'x132' units.	1% annual chance special flood hazard area

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The Village of Spencer identified the following planning mechanisms and capabilities that can support the Village 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 that 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	No	
Mitigation Planning Committee	Yes	This Committee has not been very active recently
Mutual Aid or Shared Services Agreements	Yes	Tioga County Fire
Planning Board	Yes	
Zoning Board	No	
Other	Yes	Fire Department Board
Development Approvals		
Building Code	Yes	NYS Building Code
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	No	
Fire Department ISO Rating	Unspecified	
Site Plan Review Requirements	Yes	Review for construction includes a review for FEMA regulations and compliance
Other	No	
Funding Resources		
Authority to Levy Taxes	No	
Capital Improvement Project Funds	Yes	The Village has a budget/fund that covers the fire department's capital investments (trucks, equipment, fire station)
Federal Funding Programs (i.e., USDA, FEMA, others)	No	
General Obligation Bonds and/or Special Tax Bonds	No	
Impact Fees for New Development	No	

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?)
State Funding Programs (i.e., NYSEFC, NYSOCR, NYSDEC, others)	No	
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	No	The Village does not have municipal water or sewer
Other	Yes	The Village recently upgraded the path around the Village pond to be ADA-compliant through grant funding and donations
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	Yes	The revision of the floodplain maps has resulted in more of the Village being considered within a flood area
NFIP Participant / Floodplain Ordinance	Yes	Chapter 81 of the Village Code. The law was #1 of 1987, updated in 2012.
Hillside Development Regulations	No	
Open Space Preservation	No	
Stormwater Management Regulations	No	
Streambank Setback Regulations	No	
Subdivision Regulations	No	
Zoning Ordinance	No	
Other	No	The Planning Board ensures compliance with the building code
Natural Resources		
Forest/Vegetation Management	No	
Stream Corridor Management	No	The two streams within the Village are managed to follow state regulations
Stream Dumping Regulations		State laws apply
Urban Forestry and Landscape Management	No	
Watershed Management	No	
Wetland Regulations	No	
Other	No	The Village follows the Uniform Procedures Act (UPA), Article 70 of the NYS Environmental Conservation Law (ECL)
Plans		
Capital Improvement Plan	No	
Comprehensive Emergency Management Plan	Yes	The Village has an Emergency Response Plan (2022), which identifies where people can evacuate in the case of a flood event
Comprehensive Plan	Yes	Village of Spencer Comprehensive Plan (This Plan was first developed as Joint Comprehensive Plan with the Town, but has since been separated)
Continuity of Operations Plan	Yes	Emergency Response Plan (see above)

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?)
Economic Development Plan	Yes	Tioga County 2020 Strategic Plan
Other	Yes	The Village has a Complete Streets Plan, which is a NYS Requirement in order to apply for County grants and will be reviewed on an annual basis
Programs/Organizations		
Climate Smart Community	No	
Local Emergency Preparedness/Disaster Response Organizations	Yes	The Town, Village, and County developed the Emergency Response Plan (2022) together
Local Environmental Protection Organizations	No	
National Weather Service StormReady Certification	Yes	County Level
Outreach Programs		
Partnerships with private entities addressing mitigation or disaster response	No	
School Programs or Adult Educational Programs	No	However, when the Emergency Response Plan was created, the school district was engaged in the process
Other	No	
Staff Positions		
Civil Engineer	No	Hire a consultant, as needed, for engineering services
Code Enforcement Officer	Yes	
Emergency Manager	Yes	Mayor
Floodplain Administrator	Yes	Code Enforcement Officer
Planner/GIS Coordinator	No	Village staff and officials fulfill this role
Other	No	
Technical Abilities		
Grant Writing	Yes	Village Mayor and County Economic Development & Planning Department
Hazard Information Centers	No	
Hazard Warning Systems	No	The Village has a fire siren, which is in the process of being repaired
Other	No	

The Village'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 Village should review Table 3-1 during future updates to the Comprehensive Plan, as well as in the event that the Village establishes a Zoning Code. As part of this review, the Village 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 the creation of a 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.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10.3 of the main body of the HMP.

3.2 Integration of Planning Efforts

The Village of Spencer understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The Village intends to reference the 2024 Tioga 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 Village 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 Village of Spencer may use the local laws assessment (included in Section 2 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.

4 HAZARD IDENTIFICATION AND RISK ASSESSMENT

4.1 Profiled Hazards

In this HMP Update, the County reviewed multiple natural hazards, and determined to profile four natural hazards: flooding, severe storm, extreme temperatures, and drought. Descriptions of each of these hazards are included in Section 5 of the main body of the HMP. The Village of Spencer has chosen to profile the same hazards as the County. No hazards were omitted and there were no additional hazards identified as unique and specific to the Village of Spencer.

The hazard analysis criteria used to evaluate the Village's vulnerability to each natural hazard are summarized in *Table 4-1*, and the results are presented in *Table 4-2*.

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

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 (Coastal Flooding, Riverine Flooding, Ice Jam)	2	2	1	2	7 – Moderate	2	N/A
Drought	1	1	3	3	8 – Moderate	1	N/A
Severe Storm (Hail, Ice Storm, Lightening, Strong Wind, Winter Weather, Tornado, Hurricane/ Tropical Storm)	1	3	1	2	7 – Moderate	2	N/A
Extreme Temperatures (Cold Wave, Heat Wave)	1	1	3	2	7 – Moderate	2	N/A

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 5 of the main body of the HMP. The following is a subset of events that occurred specifically within the Village. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Village.

Table 4-3. Hazard Event Records, 2018-2022

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Thunderstorm Wind	5/28/2018	50	\$5,000.00	-
Flash Flood	9/18/2018	-	\$20,000	-
Thunderstorm Wind	8/8/2019	50	\$5,000.00	-
Hail	8/18/2019	1	-	-
Thunderstorm Wind	8/18/2019	50	\$10,000.00	-
Thunderstorm Wind	8/18/2019	50	\$5,000.00	-
Total			\$25,000.00	None Reported

4.3 Floodplain Statistics

Key waterways in the Village are described in Section 2.2. 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 672 acres in the Village, approximately 41.67% are located within the 1% annual chance flood event area and approximately 0.00% are located within 0.2% annual chance flood event area. The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-5. 209 parcels in the Village are located within the 1% annual chance flood event area, with an estimated total structure value of \$27,872,900. No parcels in the Village are located within the 0.2% annual chance flood event area.

Table 4-4. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	1% Annual Chance Flood Event Area	0.2% Annual Chance Flood Event Area
672	41.67%	0.00%

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

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Agricultural	6	N/A	0	N/A
Commercial	26	\$4,677,100	0	N/A
Community Services	8	\$8,889,700	0	N/A
Industrial	2	\$1,656,200	0	N/A
Parks and Open Space	0	N/A	0	N/A
Public Services	2	N/A	0	N/A
Residential	124	\$12,131,500	0	N/A
Vacant	37	\$31,000	0	N/A
Recreation	4	\$487,400	0	N/A
Total	209	\$27,872,900	0	N/A

* Structure Value estimated by subtracting parcel Land Assessed Value from Total Assessed Value

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 insured structure incurs damage costs that are over 50% of its market value, the owner must comply with the local floodplain regulations 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.

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 Village of Spencer currently participates in the NFIP (community ID 361471), and its current FIRM(s) became effective on 4/17/12. The Village joined the NFIP on 05/15/85. The Village's local law governing floodplain development and NFIP compliance is located in Local Law 1 of 2012. There were no compliance issues identified in this hazard mitigation planning process. The Village 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 two repetitive loss properties in the Village of Spencer. Such properties 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 Village also considered future changes in hazards due to climate change, population changes, land use, and other factors. They identified the following concern:

- Storms are becoming more violent and leaving communities without power; there is an increasing need for standby generators.

These concerns were taken into consideration when developing the mitigation strategy. The effects of climate change and other factors on future hazard events in Tioga County are covered in more detail in Section 5 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response or that requires a special emergency response in the event of hazardous incidents as identified by the Village of Spencer. These 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 and Village 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 Village of Spencer, and any particular vulnerabilities of note. More information about hazard vulnerability, including a tool for understanding the vulnerability of community assets to events of varying magnitudes, is included in Section 6 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 Village'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 Village has included an action in Section 7.2 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

The Village of Spencer does not have any high hazard potential dams located within the municipal boundaries.

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 Village of Spencer has identified the following additional assets for consideration in hazard mitigation planning:

Table 5-2. Additional Assets

Important Assets	Description
Van Etten High School	Located at 16 Dartts Cross Rd, Spencer, NY 14883
Van Etten Elementary School	Located in the Town of Van Etten in Chemung County
Senior Living Facility	Owego St Ext (located in the Village)

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

6.1 Flood

The Village of Spencer has ranked its overall vulnerability to a flood event as moderate, as indicated in Table 4-2. Flood events occur infrequently in the jurisdiction and affect one or two problem areas within the jurisdiction, causing moderate damage. The jurisdiction is moderately prepared for flood events.

Information on flood event records (Section 1.1), high hazard potential dams (Section 5.2), floodplain statistics (Section 4.3), and participation in the NFIP (Section 0) 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 Village'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 Village of Spencer has ranked its overall vulnerability to a severe storm event as moderate, as indicated in Table 4-2. Severe storms occur regularly in the jurisdiction and affect one or two problem areas within the jurisdiction, causing minor damage. The jurisdiction is moderately prepared for severe storm events.

Records of severe storm events are described in Section 1.1. Impacts to the Village 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 damage 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. Damage to the Village's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damage would primarily impact the more populated portions of the Village. The Village completes tree maintenance within Village Road right of ways to minimize potential damages to overhead utility lines. Private utility rights-of-way are generally maintained by individual utility companies.

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 Village is vulnerable to, likely making the Village 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 Village of Spencer has ranked its overall vulnerability to a drought event as moderate, as indicated in Table 4-2. Drought events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is not prepared for drought events.

Properties served by private wells would experience the most significant impacts from drought. The Village of Spencer is not served by a municipal water or wastewater system. Residents rely on private wells which may be susceptible to low water yields during a drought.

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 Village'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 Village of Spencer has ranked its overall vulnerability to an extreme temperature event as moderate, as indicated in Table 4-2. Extreme temperature events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is 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 Village is under 5 years old, and 19% of the population is over 65 years old. Approximately 12% of the residents of the Village 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 8% of the Village's population is below the poverty level. Many residents within these populations are at a higher risk of being impacted by extreme temperature events.

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 Village'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 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 Village.

Top concerns about hazard mitigation in the Village included:

- Flooding (in particular, spot flooding)
- Two state highways traverse the Village, and it is unclear what materials are being transported by the trucks
- Severe storm

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

- Senior population (there is one senior living facility in the Village)

The plan was revised to reflect the following changes in community priorities since the 2018 HMP Update:

- In the past five years, severe storms have become an increasing concern.

Additional concerns that the Village would like addressed in the plan include:

- None identified

6.6 Additional Impacts

Additional impacts of the hazards are summarized in the problem descriptions in the Village'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 Village proposed six mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized in Table 7-1, 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 2024 HMP Update? (Yes/No)
Floodproofing Village of Spencer Municipal Building	The Village is in the process of constructing a new Fire Station out of the floodplain, however, it is not feasible to relocate the municipal building and library. Several mitigation related solutions were considered, the best solution recommended is to floodproofing the existing Municipal Building and library. The project would involve elevating utilities and water tighten of exterior of structures to the 500-year flood event level.	Flood	Village Fire Department, Village Board	In progress While the process of constructing a new fire station is underway, the floodproofing of the municipal building and library has not begun.	Yes
Catatonk Creek Drainage Improvement	Removal of the debris to increase creek holding capacity. The Village will partner with the Soil and Water and participate in their annual spring stream clean-up program. The program is designed to work with communities and other group to clean and remove debris from the creeks.	Flood, Severe Storm	Village Maintenance Department	In progress <i>The Village has removed large trees and debris from the creek and will continue the voluntary spring stream clean-up program with the SWCD.</i>	Yes

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Monitoring and cleaning of overflow ponds parallel to Main Street	Monitor the berms and water control structure to ensure proper function of overflow ponds parallel to Main Street near the creek. Additionally, develop a maintenance program to remove silt and debris from ponds to keep them working properly.	Flood, Severe Storm	Village Maintenance Department Note: Lead agency changed to SWCD in 2024.	In progress The SWCD supported a wetland program for private landowners, resulting in the establishment of wildlife ponds that provide flood mitigation benefits. The ponds continue to be monitored for functionality, however, cannot be further modified due to private ownership.	Yes
Mutual Aid Agreements	Work with existing mutual aid agreements and update/enhance accordingly. Identify other communities where the village can create new agreements.	All	Village Board	In progress The Village has a mutual aid agreement with the Fire Department and also works with the school district.	Yes
Participation in programs to develop improved structure and facility inventories	Working with federal, state and county agencies, the Village will support the performance of enhanced risk and vulnerability assessments for hazards of concern; support the update of the County's CEMP and HMP; and update their infrastructure inventories to incorporate flood and wind parameters.	All	Village Board	In progress This was facilitated as part of the Emergency Response Plan update in 2022 and is currently being facilitated as part of this 2024 HMP Update.	Yes
Critical Facility Outreach	The Village of Spencer will notify the Town of Spencer that the highway garage and town hall are located in the 1% annual chance flood area. The Village will provide mitigation options to the Town.	Flood	Village Floodplain Administrator	In progress This was discussed as part of the Emergency Response Plan update in 2022.	Yes

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the Village of Spencer identified new mitigation actions for inclusion in the 2024 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 Village of Spencer could expand and improve the identified capabilities to achieve mitigation, as described in Section 1 of this annex. Then, a more comprehensive range of actions was evaluated as described in Section 7.2 of the main body of the HMP. Finally, actions that tied in most closely with the vulnerabilities identified by the Village were selected for inclusion in the HMP.

The Village proposed 17 new mitigation actions to be included in the 2024 HMP update. These actions are included in Table 7-2 below.

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
V Spence r F1	Elevation of Railroad Crossing	G1, G3	Flood	The railroad bridge over Seelytown Creek insufficiently elevated above the creek crossing. For example, in the winter of 2021, an ice jam formed under Seelytown Creek, causing flooding. The Village and Town have cleaned out the areas around the railroad, but more significant structural upgrades are needed.	Coordinate with Norfolk Southern Railroad to establish an approach for elevating the railroad crossing over Seelytown Creek. Pursue grant funding to support Norfolk Southern Railroad in this effort.	No	Potentially	3-5 years	Village Board in coordination with Norfolk Southern Railroad	\$\$\$	Elevating the railroad bridge over Seelytown Creek will reduce the chance of an ice jam or debris forming a blockage in the creek and causing flooding.	FEMA BRIC, US Flood Mitigation Assistance, HMGP, US CDBG-MIT, NYS HM RLF, US Federal Railroad Administration	Medium
V Spence r MH1	Expansion of Tree Maintenance Program	G1, G3, G4	Severe storm, flood	The Village currently has a tree maintenance program to assess and remove hazardous trees (i.e. diseased, dying) within the street right-of-ways on a yearly basis. However, this program does not include trees along the two creeks' streambank, leaving the Village susceptible to dying and dead trees falling into the creeks, causing blockages, and exacerbating flooding events.	Expand the Village's tree maintenance program to include streambank trees.	No	Potentially	6 months - 1 year	Village Maintenance Dept with support from SWCD	\$\$	By regularly inspecting and maintaining hazardous trees, particularly those along the streambanks that are not included in the Village's current tree maintenance program, the Village will reduce the impacts of severe storms and floods on infrastructure and public safety.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	High
V Spence r ET1	Establishment of a Cooling Center	G1, G5, G6	Extreme temperatures	While the Middle School may serve as a heating center, it does not have air conditioning to allow for the use of the building as a cooling center. Currently, there is no facility officially designated as a cooling center within the Village.	Establish an official cooling center for use by community members during extreme heat events. In particular, consider the use of the Municipal Building and/or the new Fire Station that is currently under development for such purpose. Facilitate community outreach to inform the public about the new cooling center as a resource for extreme heat events. Publicity strategies may include social media posts, partnering with Tioga County Social Services and nonprofits like Tioga Opportunities to spread the word to vulnerable residents, signage on buildings that are designated as heating/cooling centers, flyers in buildings frequented by senior citizens and other vulnerable residents in the County, press releases to media outlets before heat waves and cold waves, inclusion on the Department of Health Cooling Centers map (https://apps.health.ny.gov/statistics/environmental/public_health_tracking/tracker/#/CCMap), and/or other strategies.	Yes	No	1-3 years	Village Maintenance Dept	\$	Designating an official cooling center and publicizing heating and cooling centers would help residents be aware of existing options they have to remain safe during extreme heat and extreme cold, thereby reducing their vulnerability to these extreme temperatures.	FEMA HMGP, FEMA BRIC, NYS HM RLF, FEMA Emergency Management Performance Grant (EMPG), NYS Climate Smart Communities, CDBG-MIT	High
V Spence r D1	Drought Mitigation & Emergency Plan	G2, G5, G6	Drought	All residents and businesses within the Village rely on private wells as a drinking water source. During drought events, the residents and business owners are at risk of their wells running dry and losing access to drinking water.	Create a Drought Emergency Plan to identify actions that can be taken in the case of drought. This may include agreements for secondary water sources that may be used during drought conditions, a distribution plan for emergency water supplies, a drought communication plan, and water-saving actions that may be triggered when a drought is deemed likely to occur. The municipality may take into account EPA guidance on establishing a backup water supply, found at: https://www.epa.gov/sites/default/files/2015-03/documents/planning_for_an_emergency_drinking_water_supply.pdf	No	No	1-3 years	Village Maintenance Dept	\$	Having a drought emergency plan will reduce the risk that the area faces from drought, because it will ensure that residents still have access to safe drinking water and water for other uses.	US CDBG-MIT, US HMGP, NYS HM RLF, FEMA EMPG, NRCS EWP Program	High
V Spence r D2	Identification of an Alternative Fire Department Water Source	G2, G6	Drought	The Fire Department's water is currently supplied by a well on the nearby pond. This arrangement poses a risk of the Fire Department having limited access to water during an instance of severe drought.	Explore opportunities to supplement the Fire Department's existing water source with an alternative, reliable source, and implement the preferred approach.	Yes	Potentially	3-5 years	Village Fire Dept	\$\$	Establishing an alternative water source for the Fire Department will ensure that this critical facility maintains adequate water supply during drought events.	NYS Water Infrastructure Improvement, NYS Drinking Water State Revolving Fund	Medium
V Spence r MH2	Re-Establishment of Mitigation Planning Committee	G2, G3, G6	All	The Village has a Mitigation Planning Committee that has been largely inactive as of recent, resulting in limited oversight and planning for ongoing and future hazard mitigation efforts.	Re-establishing the Mitigation Planning Committee, with an added goal of review the HMP every six months to assess the progress of proposed hazard mitigation actions and to determine next steps.	No	No	6 months - 1 year	Village Board	\$	Re-establishment of the Mitigation Planning Committee will promote effective planning and implementation of natural hazard mitigation strategies, reducing risk to all residents.	Local funds (if needed)	High
V Spence r MH3	Fire Station Relocation	G1, G3, G6	All	The existing Fire Station is not large enough for standard-sized fire trucks and does not meet some fire department requirements (e.g. showers, laundry facilities). A new location for the Fire Station has been identified, but the necessary renovations to complete the relocation have yet to occur.	Relocate the Fire Station so that the Fire Department can more effectively assist during floods, severe storms, droughts, extreme temperatures, and other hazards. Pursue funding opportunities for the necessary renovations at the new location, and complete such renovations.	Yes	Potentially	3-5 years	Village Fire Dept	\$\$\$	By relocating the Fire Station, the Village can assure that this critical facility is adequate to assist in the event of a flood, severe storm, drought, or extreme temperatures, including being able to fit existing trucks and provide shelter as needed. Having a fully equipped and operable facility will reduce the impact of these hazard events on the Village.	FEMA BRIC, HMGP, US CDBG-MIT, NYS DOS Smart Growth, NYS HM RLF	Medium
V Spence r MH4	Public Sewer System Study & Installation	G1, G3, G6	All	The Village currently does not have a public sewer system in place, limiting the Village's ability to not only effectively collect and treat wastewater from houses and businesses, but also limiting the Village's capacity to manage stormwater runoff and flooding during heavy rain events.	Explore the feasibility of implementing a public sewer system, and if feasible, implement such system. Prioritize system design that considers best practices for resiliency to natural hazard events, such as the use of flexible piping, separation of sanitary and storm sewer lines, fitting of sewer manholes with inflow guards, and the installation of back-up generators and monitoring equipment at pumping and lift stations.	No	Potentially	3-5 years	Village Maintenance Dept	\$\$\$	Implementing a well-studied and resiliency-focused public sewer system will allow for the Village to more effectively manage stormwater runoff, therefore reducing the impact of flood events.	NYSEFC Clean Water State Revolving Fund, NYSEFC WIA, CDBG, USDA Rural Development, NYSDEC WQIP, EPA Congressional Earmark Funds, Bipartisan Infrastructure Law Funding	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
V Spence r MH5	Vulnerable Resident Contact List	G1, G2, G6	All	Flooding, severe storms, extreme temperatures, and drought all pose particularly high risks to vulnerable populations in the municipality.	Gather a list of residents who would like to receive information on how to mitigate the impact of floods, severe storms, extreme temperatures, droughts, focusing particularly on vulnerable populations, such as older adults, households without a car, and individuals with a disability. This list may also be utilized to contact and check-in on vulnerable individuals and families in advance of and during natural hazard events. Outreach to individuals on this list may include hard-copy mail, email blasts, door-to-door outreach, and/or working with EMS, nonprofit organizations, faith-based organizations, and other community groups to reach vulnerable residents in an effective and efficient manner.	No	No	6 months - 1 year	Village Emergency Squad	\$	Having a list of vulnerable residents who would like to be informed of hazard mitigation techniques and resources, as well as be contacted before and during hazard events, will reduce the risks they face from natural hazards.	FEMA HMA	High
V Spence r F2	Vulnerability Assessments of Critical Facilities	G1, G3, G6	Flood	It is currently undetermined whether or not several of the Village's critical facilities are protected against a 0.2% chance flood event or previous worst case flood event, leaving these facilities vulnerable to flood events.	Village staff will conduct vulnerability assessments to the critical facilities identified in the Village'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). This will serve as a first step toward protecting the facilities, if future funding becomes available. There are no local resources available at this time to conduct engineering design and retrofitting on these structures. Future efforts towards protecting these structures to an 0.2% chance flood event (or previous worst case flood event, if applicable) will be considered if funding becomes available. These may include engineering design, building retrofits, or other measures.	Yes	Maybe	3-5 Years	Department of Public Works	\$	Assessing the Village's critical facilities for their level of protection against a 0.2% chance flood event (or previous worst case flood event, if applicable), is a first step to ensuring that these facilities remain operable during and after flooding events, reducing the overall risk to people and infrastructure.	US HMGP, US BRIC, US Flood Mitigation Assistance, US HUD CDBG-MIT, NYS HM RLF	Medium
V Spence r MH6	Review and Update Municipal Regulations	G1, G3, G4	All Hazards	Flooding, severe storms, drought, and extreme temperatures all pose risks to the municipality. Despite the risks, not all relevant municipal laws and ordinances incorporate hazard mitigation.	Review municipal laws and ordinances and update as necessary to incorporate hazard mitigation. This may include review of the zoning code, development regulations, subdivision regulations, building codes, and other regulations to ensure that new and existing developments are protected against a 500-year flood event and against other hazards. Examples that may be considered include, but are not limited to: - Requiring the submittal of a Stormwater Pollution Prevention Plan with subdivision applications and site plan applications - Updating the building code to ensure that new developments are protected against a 500-year flood event and against other hazards (flooding and other hazards) - Encouraging tree plantings and green roofs in building codes to mitigate extreme heat (extreme temperatures) - Updating or creating site design review standards to include natural environmental features such as wind buffers, requiring regular maintenance of trees in high-wind areas, and/or require wind-resistant building techniques such as structural bracing in the building codes for high-wind areas (severe storms) - Updating or creating laws about the water system so that they include a plan for obtaining for secondary water sources that may be used during drought conditions (drought)	No	No	1-3 years	Village Board	\$	Updated municipal regulations will help ensure that new and existing developments are protected against flooding and other hazards, by incorporating hazard mitigation directly into planning processes. This will reduce the risk that is posed to people and property from the affected hazards.	BRIC, FMA, HMGP, EPA's Greening America's Communities program, EPA EFC Grant Program, NYS CDBG Program, NYS DOS Smart Growth program	Medium
V Spence r D3	Drought Monitoring Plan	G1, G3, G5, G6	Drought	Drought occurs rarely in the Village, causing minor damages on a Village-wide basis. All residents and businesses within the Village rely on private wells as a drinking water source. During drought events, the residents and business owners are at risk of their wells running dry and losing access to drinking water.	Establish a regular schedule to monitor and report indicators of drought on a monthly basis, and perhaps on a more frequent basis during the summer. Examples of indicators include precipitation, temperature, surface water levels, groundwater levels, soil moisture, etc. Additionally, if feasible, partner with the SWCD, Town of Spencer, and/or local property owners to monitor water quality at a sampling of locations in the Village. Establish a system to issue warnings to Village residents when drought conditions are deemed likely to occur or when water supply or quality is low, and tell them about actions that they can take to reduce their vulnerability to drought (such as water-saving techniques, drinking water safety tips, etc.).	No	No	1-3 years	Village Maintenance Dept, with assistance from SWCD	\$	Monitoring drought conditions, including water quantity and quality, on a regular basis will enable the Village to warn residents when drought may occur. Based on this, the Village can also give timely information as to what actions residents can take to reduce the severity of the drought and reduce their own vulnerability (e.g. with drinking water concerns).	US CDBG-MIT, US HMGP, NYS HM RLF, FEMA EMPG, NRCS EWP Program	High
V Spence r D4	Drought Education and Outreach	G1, G4, G5	Drought	Drought occurs rarely in the Village, causing minor damages on a Village-wide basis. All residents and businesses within the Village rely on private wells as a drinking water source. During drought events, the residents and business owners are at risk of their wells running dry and losing access to drinking water.	Work with the County SWCD to educate property owners on drought-related topics, such as: - How to monitor the quantity and quality of water in their wells - Drinking water safety tips to use during drought - Home water-saving techniques such as installing low-flow showerheads and water-efficient toilets and reusing water - And/or other strategies as determined by the Village and SWCD. Education may occur on a seasonal basis, with the use of informational brochures sent to residents annually, targeted outreach to property owners by phone/mail/email, and/or other strategies as determined by the Village and SWCD.	No	No	1-3 years	Village Maintenance Dept, with assistance from SWCD	\$	Giving timely drought-related information to residents will allow them to take action to reduce the severity of the drought and reduce their own vulnerability to the effects of drought.	US CDBG-MIT, US HMGP, NYS HM RLF, FEMA EMPG, NRCS EWP Program	High
V Spence r S1	Backup Generators	G1, G6	Severe Storms	The Village of Spencer regularly experiences storms which cause minor damages throughout the Village.	Ensure that critical facilities that require emergency power sources are equipped with backup generators. Encourage additional facilities that house vulnerable populations to purchase backup generators, and provide guidance on how to do so.	Yes	Potentially	1-3 years	Village Maintenance Dept	\$\$	The Village can reduce personal injury and property damage by ensuring that critical facilities have backup generators and do not lose power during a severe storm.	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
V Spence r F3	Basement Flood Mitigation Program	G1, G2, G3, G6	Flood	A substantial portion of the Village is within a floodplain, posing a risk to property owners and residents located within such areas.	Conduct outreach to property owners regarding measures they can take to mitigate flood risk on their property. For example, encourage property owners to install sump pumps, install backwater valves, seal their basements, install a french drain, install a gutter system and keep gutters clean, use downspout extensions for gutters, slope yards away from homes, trim branches near basements or move landscaping away from homes, and/or other similar measures. Present information about elevating homes and buyouts of property in the floodplain, where appropriate. Provide information about each action in the form of an informational brochure with local contacts for each action, technical public workshops, or other methods. Consider partnering with landscaping companies, contractors, hardware stores, or other companies to fund the outreach and offer discounts on their products. Pursue additional sources of funding for goods and services that homeowners might use to take these measures.	No	No	1-3 years	Village Maintenance Dept	\$\$	The Village can reduce residents' vulnerability to flooding by providing homeowners with education about measures they can take to protect their homes.	BRIC, FMA, NYS HM RLF, EPA EJSJG, USDA HPG, EDA Disaster Recovery	High
V Spence r S2	Severe Storm Awareness Program	G1, G2, G3, G6	Severe Storm	Many property owners and residents experience heavy impacts from storms on their property, especially as power outages become more common occurrences.	Conduct outreach to property owners, residents, contractors, and/or employees about how to mitigate risk from severe storms and winds, and prepare for these events. This may include, but is not limited to: - Educate homeowners on mitigation measures to reduce impact of wind such as: installing shutters and hurricane clips, securing outdoor objects (e.g. furniture, gutters, downspouts), sealing cracks in their homes to prevent wind or water from coming in, proper techniques for cutting trees and shrubs, assessing homes for weak spots that could be damaged (e.g. roof, windows, doors, garage). Additional measures may be found here: https://www.fema.gov/sites/default/files/2020-11/fema_protect-your-property_severe-wind.pdf - Educate design professionals to include wind mitigation during building design. - Inform residents of shelter locations and evacuation routes - Ensure that school officials are aware of the best area of refuge in school buildings Provide information about each action in the form of an informational brochure with local contacts for each action, technical public workshops, or other methods. Consider partnering with contractors or other service providers.	No	No	1-3 years	Village Maintenance Dept	\$\$	The Village can reduce residents' vulnerability to severe storms by providing property owners and residents with educational materials about measures they can take to protect their homes, and educating other residents, contractors, and/or employees.	US CDBG-MIT, US HMGP	High

7.3 Mitigation Action Prioritization

Each of the Village’s proposed mitigation actions was evaluated and prioritized according to the criteria listed in Section 7.2.4 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
V Spencer F1	Elevation of Railroad Crossing	3	1	2	3	9	Medium
V Spencer MH1	Expansion of Tree Maintenance Program	3	2	3	3	11	High
V Spencer ET1	Establishment of a Cooling Center	2	3	3	2	10	High
V Spencer D1	Drought Mitigation & Emergency Plan	2	3	3	2	10	High
V Spencer D2	Identification of an Alternative Fire Department Water Source	2	2	2	2	8	Medium
V Spencer MH2	Re-Establishment of Mitigation Planning Committee	3	3	3	3	12	High
V Spencer MH3	Fire Station Relocation	3	1	2	2	8	Medium
V Spencer MH4	Public Sewer System Study & Installation	3	1	2	3	9	Medium
V Spencer MH5	Vulnerable Resident Contact List	3	3	3	2	11	High
V Spencer F2	Vulnerability Assessments of Critical Facilities	2	3	1	2	8	Medium

Mitigation Action ID	Mitigation Action Name	Ability to Increase Resilience	Economic Feasibility	Low Environmental Impact	Ability to Implement	Total Score	Priority
V Spencer MH6	Review and Update Municipal Regulations	2	3	3	1	9	Medium
V Spencer D3	Drought Monitoring Plan	2	3	3	2	10	High
V Spencer D4	Drought Education and Outreach	2	3	3	3	11	High
V Spencer S1	Backup Generators	2	2	2	3	10	High
V Spencer F3	Basement Flood Mitigation Program	3	2	2	3	10	High
V Spencer S2	Severe Storm Awareness Program	3	2	3	2	10	High

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 Village's new mitigation actions will be implemented and administered as described in Section 7 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

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 Village of Spencer 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 Village Board meetings and by offering opportunities for members of the public to participate in the implementation of relevant mitigation actions.

Village of Waverly

This section presents the jurisdictional annex for the Village of Waverly for the 2024 Tioga 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 the Village of Waverly regarding this Jurisdictional Annex are identified as follows:

- Primary: Primary: Andrew Aronstam, Mayor
 - aronstama@aol.com
- Alternate: Michele Wood, Clerk-Treasurer
 - mwood@villageofwaverly.com
 - (607)565-8106

Village of Waverly Website: <https://villageofwaverly.com/post.php?pid=51>

2 COMMUNITY SNAPSHOT

2.1 Demographics

The 2020 Census estimated that 4,373 people live in the Village of Waverly. The Village's population has decreased by 2% since the 2010 Census (4,444). The median age in the Village is 38.6 years, and 20% of the population is over the age of 65. The median household income in the Village is \$43,739.

2.2 Location & Land Characteristics

The Village of Waverly is located in the Town of Barton and is bordered by the Pennsylvania border to the south. The Village covers approximately 2.3 square miles. The properties within

the Village have a total assessed value of approximately \$171,339,471, which is distributed across a variety of property classes.

Major transportation corridors in the Village include Northern part of Interstate 86, which is an upgrade of the existing New York State Route 17 that was formerly known as the Southern Tier Expressway. Access to Interstate 86 is available at both the eastern and western extents of the Village. New York State Route 17C and New York State Route 34 also intersect at the eastern end of the Village. In addition, the northern terminus for U.S. Route 220 is at NY 17C (Chemung Street) at the west end of the Village, as described in Section 2.8 of the main body of the HMP. Key water features within the Village include the Chemung River, which runs to the western edge of the Village and joins the Susquehanna River about 6 miles (9.7 km) south of the Village. Cayuta Creek, also known locally as Shepard's Creek, flows through the eastern part of the Village before joining the Susquehanna.

2.3 Governing Body

The Village of Waverly is governed by a Village Board consisting of a Mayor and five Trustees.

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 Village. The proposals that the Village received are summarized in Table 2-1 below; at least one of the proposals for the Village is specified as being located in the Special Flood Hazard Area (1% annual chance flood event area), and none of the proposals for the Village are specified as being located in the Moderate Flood Hazard Area (0.2% annual chance flood event area). These developments may affect the Village's vulnerability to the hazards identified in this HMP.

Table 2-1. Developments from 2018 to March 2023

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
5/2/2019	Approval of the Site Plan Review and Special Use Permit	441 Cayuta Ave (State Route 34)	PUD Site Plan Review/Special Use Permit	Planned Unit Development (PUD)	The applicant is requesting site plan review and a special use permit to replace their existing replaceable letter-style, double-sided 4' x 8' sign located at the outer corner of their parking lot with a new digital sign.	Unspecified
7/5/2019	Approval of the Site Plan Review and Special Use Permit	Between Center and Lincoln Streets	Site Plan Review/Special Permit	Residential (R)	The applicant is requesting site plan review and a special use permit to construct an 18-unit multiple family residence for seniors.	No
10/4/2019	Approval of the PUD Site Plan Review and Special Use Permit	2 N Chemung St (State Route 34)	PUD Site Plan Review/Special Use Permit	Planned Unit Development (PUD)	The applicant is requesting site plan review and a special use permit to establish an auction business in this existing 10,331-square-foot commercial building at the corner of Chemung Street and N Chemung Street.	Unspecified
1/31/2020	Approval of the Site Plan Review	360 Broad Street	Site Plan Review	Commercial	The applicant is requesting site plan approval to convert the ground floor of an existing building (former Village of Waverly offices) on Broad Street into a Mexican restaurant.	Unspecified

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
1/31/2020	Approval of the Site Plan Review	239 Broad Street	Site Plan Review	Commercial	The applicant is requesting site plan approval to place two 40-foot-long shipping containers at the rear corners of the vacant gravel lot between their two buildings but leaving a strip wide enough for tenant parking in the back of the containers.	Unspecified
10/9/2020	Approval of the Comprehensive Plan Update	N/A	Comprehensive Plan Update Review	N/A	The Village of Waverly Planning Board has worked together with the Village Mayor, Thoma Development Consultants, and Tioga County Economic Development & Planning for about a year and a half on this Comprehensive Plan Update.	Unspecified
2/3/2021	Approval of the PUD Special Permit with Site Plan Review	31 Ithaca Street	PUD Special Permit with Site Plan Review	Planned Unit Development (PUD)	The applicant is requesting a PUD special permit with site plan approval to utilize this existing large two-story residential structure as a midwifery and healthcare practice.	Unspecified
2/25/2022	Approval of the PUD Special Permit with Site Plan Review	498 Cayuta Ave	PUD Special Permit with Site Plan Review	Planned Unit Development (PUD)	The applicant is requesting a PUD special permit with site plan approval to establish a mini-storage facility on this current vacant lot.	1% Annual Chance Special Flood Hazard Area

Date	Required Approval	Location	Request	Zoning District(s)	Description	Located in 1% or 0.2% Annual Chance Flood Event Area?
5/6/2022	Approval of the PUD Special Permit with Site Plan Review	13 North Chemung Street	PUD Special Permit with Site Plan Review	Planned Unit Development (PUD)	The applicant is requesting a PUD special permit with site plan approval to establish an outdoor 30'x30' Tiki Bar in the front yard of the Valley Bowling Center.	Unspecified
9/9/2022	Approval of the Site Plan Review and Area Variance	685 Broad Street Extension	Site Plan Review, Area Variance	Industrial (I)	The applicant is requesting a site plan review approval to renovate the existing Waverly Trade Center to establish and operate a beverage bottling facility.	Unspecified

3 CAPABILITIES ASSESSMENT

3.1 Planning Mechanisms and Capabilities

The Village of Waverly identified the following planning mechanisms and capabilities that can support the Village 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 that 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	No	
Mitigation Planning Committee	Yes	Chief of Police, Clerk-Treasurer
Mutual Aid or Shared Services Agreements	No	Informal agreements are in place to share equipment and drivers, such as with the Town of Barton. There are the Waverly-Barton and Sayers-Athens Fire Districts and the Greater Valley and Chemung Emergency Medical Services.
Planning Board	Yes	
Zoning Board of Appeals	Yes	
Other	Yes	Tree Board, Safety Committee (internal), Sewer and Water Board
Development Approvals		
Building Code	Yes	Building Code of NYS
Building Code Effectiveness Grading Schedule (BCEGS) Evaluation	Unspecified	
Fire Department ISO Rating	Unspecified	
Site Plan Review Requirements	Yes	Chapter 153, Section 20
Other	No	
Funding Resources		
Authority to Levy Taxes	Yes	
Capital Improvement Project Funds	Yes	

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?)
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	
General Obligation Bonds and/or Special Tax Bonds	Yes	
Impact Fees for New Development	No	
State Funding Programs (i.e., NYSEFC, NYSOCR, NYSDEC, others)	Yes	Projects which have received funding in the past include: <ul style="list-style-type: none"> ○ 2017 Waverly Glen Park/Two Rivers State Park ○ 2019 Wastewater Treatment Plant Upgrades ○ 2006-2014 CDBG Housing Rehabilitation Program ○ A \$4.5 million NY Forward Grant
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	Yes	Water (aquifer source) and sewer
Other	No	
Land Use Regulations		
Density Controls	No	
Flood Insurance Rate Maps	No	
NFIP Participant / Floodplain Ordinance	Yes	Chapter 80
Hillside Development Regulations	No	
Open Space Preservation	No	
Stormwater Management Regulations	No	
Streambank Setback Regulations	No	
Subdivision Regulations	Yes	Chapter 153, Section 20
Zoning Ordinance	Yes	Chapter 153
Other	No	
Natural Resources		
Forest/Vegetation Management	No	
Stream Corridor Management	No	
Stream Dumping Regulations	No	
Urban Forestry and Landscape Management	Yes	Tree Board, Chapter 137
Watershed Management	No	
Wetland Regulations	No	

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?)
Other	Yes	Follows the Uniform Procedures Act (UPA), Article 70 of the NYS Environmental Conservation Law (ECL)
Plans		
Capital Improvement Plan	Yes	1-3-5 Year Plans for Capital Purchases
Comprehensive Emergency Management Plan	Yes	2013 Comprehensive Emergency Management Plan
Comprehensive Plan	Yes	Comprehensive Development Plan (1981), Comprehensive 2020 Update
Continuity of Operations Plan	No	
Economic Development Plan	Yes	Tioga County 2020 Strategic Plan
Other	No	
Programs/Organizations		
Climate Smart Community	No	
Local Emergency Preparedness/Disaster Response Organizations	No	
Local Environmental Protection Organizations	No	
National Weather Service StormReady Certification	Yes	Tioga County StormReady
Outreach Programs	Yes	Radio station, newspaper, village newsletter, village/police/school Facebook
Partnerships with private entities addressing mitigation or disaster response	No	
School Programs or Adult Educational Programs	No	
Other	Yes	The Village runs a snow emergency program https://villageofwaverly.com/post/_docs/SnowRemovalPolicy.pdf
Staff Positions		
Civil Engineer	No	
Code Enforcement Officer	Yes	
Emergency Manager	No	
Floodplain Administrator	Yes	Code Enforcement
Planner/GIS Coordinator	No	

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?)
Other	Yes	Chief of Police
Technical Abilities		
Grant Writing	No	
Hazard Information Centers	No	
Hazard Warning Systems	No	
Other	Yes	The Village can utilize a drone team at Bradford County, PA

The Village’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 Village should review Table 3-1 when completing updates to the Comprehensive Plan and amendments to the Zoning Code. As part of this review, the Village 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.

Additional strategies to expand and improve hazard mitigation capabilities are detailed in Section 10.3 of the main body of the HMP.

3.2 Integration of Planning Efforts

The Village of Waverly understands the importance of considering an integrated approach when developing municipal plans, policies, programs, and regulations. The Village intends to reference the 2024 Tioga 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 Village 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 Village of Waverly may use the local laws assessment (included in Section 2 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.

4 HAZARD IDENTIFICATION AND RISK ASSESSMENT

4.1 Profiled Hazards

In this HMP Update, the County reviewed multiple natural hazards and determined to profile four natural hazards: flooding, severe storm, extreme temperatures, and drought. Descriptions of each of these hazards are included in Section 5 of the main body of the HMP. The Village of Waverly has chosen to profile the same hazards as the County. No hazards were omitted, and there were no additional hazards identified as unique and specific to the Village of Waverly.

The hazard analysis criteria used to evaluate the Village's vulnerability to each natural hazard are summarized in *Table 4-1*, and the results are presented in *Table 4-2*.

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

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 (Coastal Flooding, Riverine Flooding, Ice Jam)	2	2	1	1	6 - Moderate	4	N/A
Drought	1	1	3	3	8 - Moderate	2	N/A
Severe Storm (Hail, Ice Storm, Lightening, Strong Wind, Winter Weather, Tornado, Hurricane/ Tropical Storm)	3	2	3	2	10 - High	1	N/A
Extreme Temperatures (Cold Wave, Heat Wave)	1	1	3	2	7 - Moderate	3	N/A

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 5 of the main body of the HMP. The following is a subset of events that occurred specifically within the Village. These records informed the development of mitigation actions by demonstrating which hazards have historically had the greatest impact on the Village.

Table 4-3. Hazard Event Records, 2018-2022

Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
None	-	-	-	-
Total			-	-

4.3 Floodplain Statistics

Key waterways in the Village are described in Section 2.2. 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 1,437 acres in the Village, approximately 14.06% are located within the 1% annual chance flood event area and approximately 4.80% are located within 0.2% annual chance flood event area. The estimated number and structure value of parcels in the municipality that intersect mapped floodplains are summarized in Table 4-5. 255 parcels in the Village are located within the 1% annual chance flood event area, with an estimated total structure value of \$23,489,758. 228 parcels in the Village are located within the 0.2% annual chance flood event area, with an estimated total structure value of \$22,035,448.

Table 4-4. Summary of Areas in Floodplains

Total Area of Jurisdiction (Acres)	Percent of Total Area	
	1% Annual Chance Flood Event Area	0.2% Annual Chance Flood Event Area
1,437	14.06%	4.80%

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

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Agricultural	0	N/A	0	N/A
Commercial	62	\$4,812,000	61	\$5,595,000
Community Services	5	\$777,600	6	\$1,137,900
Industrial	5	\$6,850,500	4	\$6,732,700

Property Class	Number of Parcels in 1% Annual Chance Flood Event Area	Approx. Structure Value* in 1% Annual Chance Flood Event Area	Number of Parcels in 0.2% Annual Chance Flood Event Area	Approx. Structure Value* in 0.2% Annual Chance Flood Event Area
Parks and Open Space	2	\$0	1	\$0
Public Services	6	\$2,207,258	5	\$719,458
Residential	126	\$6,570,600	114	\$5,853,770
Vacant	46	\$190,100	35	\$47,620
Recreation	3	\$2,081,700	2	\$1,949,000
Total	255	\$23,489,758	228	\$22,035,448

*Structure Value estimated by subtracting parcel Land Assessed Value from Total Assessed Value

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 insured structure incurs damage costs that are over 50% of its market value, the owner must comply with the local floodplain regulations 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.

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 Village of Waverly currently participates in the NFIP (Community ID 361343), and its current FIRM(s) became effective on 4/17/12. FIRMs are available via FEMA's Flood Map Service Center (<https://msc.fema.gov/portal/home>). Digital FIRM data is also available for Tioga County via FEMA's National Flood Hazard Layer Viewer, which was referenced during the development of this annex. The Village joined the NFIP on 3/16/83. The Village's local law governing floodplain development and NFIP compliance is located in Chapter 80 of the Village code. There

were no compliance issues identified in this hazard mitigation planning process. The Village 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 zero repetitive loss properties in the Village of Nichols. Such properties 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

No concerns about future changes in hazard impacts specific to the Village were identified during the hazard mitigation planning process. The effects of climate change and other factors on future hazard events in Tioga County are covered in more detail in Section 5 of the main body of the HMP.

5 ASSETS AND VULNERABILITIES

5.1 Critical Facilities

Critical facilities include any facility that is critical for emergency response or that requires a special emergency response in the event of hazardous incidents as identified by the Village of Waverly. These 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 and Village 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 Village of Waverly, and any particular vulnerabilities of note. More information about hazard vulnerability, including a tool for understanding the vulnerability of community assets to events of varying magnitudes, is included in Section 6 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 Village'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 Village has included an action in Section 7.2 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

The Village of Waverly has one high-hazard potential dam (HHPD) located in the municipality: Waverly Lower Reservoir Dam. HHPDs can be an asset as well as pose risks to the jurisdiction and neighboring jurisdictions. The HHPD worksheet is located at the end of this jurisdictional annex.

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 Village of Waverly has identified the following additional assets for consideration in hazard mitigation planning:

Table 5-2. Additional Assets

Important Assets	Description
Two water storage tanks above the Waverly Glen	Tank 1: GPS location is 42.010359, -76.555699 Tank 2: GPS location is 42.010426, -76.554961
Bridge 2219140 (identified by the Town of Barton)	Clinton Ave Bridge over Dry Brook (Near Clinton Ave & West Pine Street, Waverly, NY. Located within the Village of Waverly.)
Bridge 2219160 (identified by the Town of Barton)	Pine St Bridge over Dry Brook (Near Pine Street & West Pine Street, Waverly, NY. Located within the Village of Waverly.)

Important Assets	Description
Vulnerable Populations	Special Needs Facilities on Tracy Road and Chemung Street Elizabeth Square Elderwoods Spring Street Apartments Muldoon Gardens

6 SUMMARY OF HAZARD IMPACTS AND VULNERABILITIES

6.1 Flood

The Village of Waverly has ranked its overall vulnerability to a flood event as moderate, as indicated in Table 4-2. Flood events occur infrequently in the jurisdiction and affect one or two problem areas within the jurisdiction, causing moderate damage. The jurisdiction is well-prepared for flood events.

Information on flood event records (Section 1.1), 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 Village'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 Village of Waverly has ranked its overall vulnerability to a severe storm event as high, as indicated in Table 4-2. Severe storms occur infrequently in the jurisdiction and affect the entire jurisdiction, causing major damage. The jurisdiction is moderately prepared for severe storm events.

Records of severe storm events are described in Section 1.1. Impacts to the Village 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. Damage to the Village's critical infrastructure or primary transportation routes would be most impactful to residents. Storm damage would primarily impact the more populated portions of the Village. The Village completes tree maintenance within Village Road right of ways to minimize potential damages to overhead utility lines. Private utility right-of-ways are generally maintained by individual utility companies.

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 Village is vulnerable to, likely making the Village 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 Village of Waverly has ranked its overall vulnerability to a drought event as moderate, as indicated in Table 4-2. Drought events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is not prepared for drought events.

The Village of Waverly is served by a public water supply. This water supply and certain critical facilities (e.g. Barton Well #1, Well 1,2, & 4, and Waverly Waste Water Treatment) could be susceptible to impacts during a drought due to low water yields, particularly if a backup water supply has not been formally established. Additionally, any residents who rely on private wells would also be susceptible to the impacts of a drought due to low water yields.

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 Village'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 Village of Waverly has ranked its overall vulnerability to an extreme temperature event as moderate, as indicated in Table 4-2. Extreme temperature events occur rarely in the jurisdiction and affect the entire jurisdiction, causing minor damage. The jurisdiction is 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 5% of the population in the Village is under 5 years old, and 20% of the population is over 65 years old. Approximately 17% of the residents of the Village 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 14% of the Village's population is below the poverty level. Many residents within these populations are at a higher risk of being impacted by extreme temperature events.

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 Village'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 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 Village.

Top concerns about hazard mitigation in the Village included:

- Fallen tree limbs
- Flooding

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

- A handful of houses in the Cayuta Creek area
- Buildings on Broad Street

The plan was revised to reflect the following changes in community priorities since the 2018 HMP Update:

- Open floodplain area along the east side of Cayuta Ave (Cayuta Creek)

Additional concerns that the Village would like addressed in the plan include:

- None identified

6.6 Additional Impacts

Additional impacts of the hazards are summarized in the problem descriptions in the Village'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 Village proposed 6 mitigation actions in the 2018 Tioga County HMP Update. The status of each action is summarized in Table 7-1, 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 2024 HMP Update? (Yes/No)
Public Safety Generator for Municipal Building	Upgrade the current generator to power the whole police station, the court, and the community center. The upgraded generator would run on natural gas.	All-Hazards	Village of Waverly Clerk	No progress	Yes
Broad Street storm drain line replacement	Phase 1 is to hire a firm to determine the appropriate size of the piping. The current storm drain system running beneath Broad Street will need to be excavated and replaced. An engineering study will need to occur to determine the necessary capacity for the new system. Phase 2 is to implement the engineering findings within 1 year after receiving the report.	Flooding, Severe Storm	Waverly Street Department (DPW)	In progress <i>Some phases complete</i>	Yes
Water Main Replacement	Water Main Replacement: Ball Street, Garfield Street, Athens Street, and Orange Street (extreme cold winters have led to many of the aging water mains to require replacement).	Flooding, Severe Storm, Severe Winter Storm	Waverly Water Department	In progress <i>Some phases complete</i>	Yes

Name	Description	Hazard(s) Mitigated	Lead Agency	Status (Completed, In Progress, No Progress, Discontinued)	Carried into 2024 HMP Update? (Yes/No)
Storm drain line replacements	Village wide storm drain line replacements, many locations in the Village.	Flood, Severe Storm, Severe Winter Storm	Waverly Street and Water Departments	In progress <i>Some phases complete</i>	Yes
Develop Village job descriptions	Develop Village job descriptions to include responsibilities for staff including FPA and staff to report and document hazard event damages.	All-Hazards	Village Board, Village FPA	No progress	Yes
Outreach to Critical Facilities in Floodplain	The village will locate the critical facilities and inform the owners/operators that their structures are located in the floodplain and need to be protected against a 500-year event. The village will provide mitigation options to the property owners.	Flood	Village Floodplain Administrator	No progress	Yes

7.2 New Mitigation Actions

In addition to the actions carried over from the 2018 HMP, the Village of Waverly identified new mitigation actions for inclusion in the 2024 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 Village of Waverly could expand and improve the identified capabilities to achieve mitigation, as described in Section 1 of this annex. Then, a more comprehensive range of actions was evaluated as described in Section 7.2 of the main body of the HMP. Finally, actions that tied in most closely with the vulnerabilities identified by the Village were selected for inclusion in the HMP.

The Village proposed 9 new mitigation actions to be included in the 2024 HMP update. These actions are included in Table 7-2 below.

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
V Waverly F1	Vulnerability Assessments of Critical Facilities	G1, G3, G6	Flood	It is currently undetermined whether or not several of the Village's critical facilities are protected against a 0.2% chance flood event or previous worst case flood event, leaving these facilities vulnerable to flood events.	Village staff will conduct vulnerability assessments to the critical facilities identified in the Village'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). This will serve as a first step toward protecting the facilities, if future funding becomes available. There are no local resources available at this time to conduct engineering design and retrofitting on these structures. Future efforts towards protecting these structures to an 0.2% chance flood event (or previous worst case flood event, if applicable) will be considered if funding becomes available. These may include engineering design, building retrofits, or other measures.	Yes	Maybe	3-5 Years	Department of Public Works	\$	Assessing the Village's critical facilities for their level of protection against a 0.2% chance flood event (or previous worst case flood event, if applicable), is a first step to ensuring that these facilities remain operable during and after flooding events, reducing the overall risk to people and infrastructure.	US HMGP, US BRIC, US Flood Mitigation Assistance, US HUD CDBG-MIT, NYS HM RLF	Medium
V Waverly F2	Inspection / Right-sizing of Culverts	G1, G4	Flooding	Existing culverts within many jurisdictions in Tioga County are not sized appropriately, resulting in increased flood risk.	Assess the condition, size, and effectiveness of culverts within the Village and replace with new right-sized piping, where deemed necessary.	No	Maybe - location-based action	1-3 years	Village Board / Department of Public Works / Tioga SWCD	\$\$	Appropriately resizing culverts will allow for more efficient flow of water during flood events, reducing the extent of flooding and the risk of damage to and closure of bridges, roadways, and other infrastructure.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
V Waverly D1	Drought Action Plan	G1, G2, G5, G6	Drought	The Village of Waverly rarely experiences drought events that cause minor countywide damages.	The Village of Waverly will work with the Waverly Water Department to assess potential actions that can be taken to reduce the impact of drought and select appropriate actions. Potential actions may include upgrading public water delivery systems to eliminate breaks and leaks, improving water supply monitoring, developing a drought emergency plan, distributing information to residents on water-saving techniques, creating agreements for secondary water sources that may be used during drought conditions, and/or other actions as identified by the Village. Funding will be pursued for action(s) that are selected, in order to implement them.	Yes	Maybe - location-based action	1-3 years	Village Board / Department of Public Works	\$	By identifying actions that can be taken to reduce the impact of drought, the Village can reduce the effects of drought on people and property.	HMGP, BRIC, NYS HM RLF, CDBG-MIT, WaterSMART Drought Response Program	High
V Waverly MHI	Outreach to Vulnerable Populations	G1, G2, G6	All Hazards	There are various locations of at-risk populations throughout the Village of Waverly, who are disproportionately impacted by hazard events.	The Village of Waverly will organize outreach to vulnerable populations, including establishing and promoting accessible heating or cooling centers in the community. Churches and other community organizations may be used as a resource. Other potential outreach methods include gathering a list of vulnerable residents who would like to be contacted during hazard events, partnering with community organizations to develop a buddy system of people who will contact vulnerable residents during hazard events, and/or other actions as identified by the Village.	No	Maybe - location-based action	3-5 years	Waverly Police Department	\$	Outreach to vulnerable populations, including heating and cooling centers, will reduce the vulnerability of these populations to hazards, especially extreme temperatures.	FEMA BRIC, FEMA HMGP, EPA EJSG, EDA Disaster Recovery, NYS HM RLF, NYS CSC	High
V Waverly S1	Tree Management Program	G1, G2, G5, G6	Severe Storms	Dying and dead trees that fall during severe storm events damage infrastructure, result in road closures and electricity outages, contribute to the severity of flooding by blocking the flow of water in creeks and streams, and pose a public safety risk.	The Village of Waverly will implement a tree management program for fallen tree limbs. This will include an inventory to assess tree limbs that should be removed, prioritization of tree limbs to be removed, pursuit of grant funding, and the removal of precarious tree limbs. A specific area to focus is West Pine Street.	No	Maybe - location-based action	3-5 years	Village Board / Department of Public Works	\$\$	Removing fallen tree limbs before disasters will reduce the damage that severe storms have on people and property, including making power outages less severe. Implementing a program to assess and remove fallen tree limbs will create long-term resilience that will reduce damage from multiple hazards.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	High
V Waverly S2	Generators for At-Risk Critical Facilities	G1, G2, G5, G6	Severe Storms	Village-wide power outages from severe storms can cause health and safety problems for people relying on critical facilities that do not have backup generators.	Ensure that critical facilities that require emergency power sources are equipped with backup generators. Where possible, use mobile generators and/or solar powered generators.	Yes	Maybe - location-based action	1-3 years	Village Board / Department of Public Works	\$\$	The Village can reduce personal injury and property damage by ensuring that critical facilities have backup generators so that they do not lose power during severe storms.	US CDBG-MIT, US HMGP, NYS HM RLF	High
V Waverly S3	Solar Panels for Backup Power Generation	G1, G4, G6	Severe Storms	Village-wide power outages from severe storms can impact people, property, and the economy.	Install solar panels in the village that are linked to backup power generation.	No	Maybe - location-based action	3-5 years	Village Board / Department of Public Works	\$\$	The Village can reduce power outages' damage to people, property, and the economy, if they install solar panels linked to backup power generation.	FEMA BRIC, FEMA HMGP, NYS CSC, FEMA EMPG, EPA Greening America's Communities, CDBG Public Infrastructure and Community Planning, EFC Green Innovation Grant Program, NYS HM RLF, DOS Smart Growth Comprehensive Planning Grant Program, EPA Smart Growth Support	Medium
V Waverly F3	Erosion Management Plan	G1, G3, G6	Flooding	The Village of Waverly experiences erosion due to flooding, particularly in East Waverly Park and Waverly Glen Park	The Village of Waverly will develop and implement an erosion management plan, focused on East Waverly Park and Waverly Glen Park. This may include proper bank stabilization in these locations. If practical, the Village may use the New York State Standards and Specifications for Erosion and Sediment Control as a guide, found at https://www.dec.ny.gov/fs/docs/pdf/erosionsediment_bluebook.pdf .	No	Maybe - location-based action	3-5 years	Village Board / Department of Public Works / Tioga SWCD	\$\$	An Erosion Management Plan will prevent erosion due to flooding, thereby reducing the damage to the park property, improving water quality and human health, and improving public safety in the parks.	US CDBG-MIT, US HMGP, US Flood Mitigation Assistance, NYS HM RLF	Medium
V Waverly HHPD1	High Hazard Potential Dam Mitigation Plan for Waverly Lower Reservoir Dam	G1, G4, G6	Flood	Waverly Lower Reservoir 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.	Conduct an updated engineering assessment (or multiple assessments over time if necessary) to identify actions that are needed to ensure dam safety and prevent potential dam failure. Implement any necessary actions. Additionally, if still relevant, implement the recommendations of the Engineering Assessment Report, dated October 2014 (see Appendix H, page 241). These include recommendations for meeting the current DEC dam safety criteria and embankment stability, as the existing Factors of Safety are below the standard minimum criteria. These actions should be done in collaboration with any additional stakeholders, such as the dam safety agency. Pursue grant funding to fund the assessments and improvements as necessary.	No	Maybe	3-5 Years	Department of Public Works, with assistance from SWCD	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	Medium

7.3 Mitigation Action Prioritization

Each of the Village’s proposed mitigation actions was evaluated and prioritized according to the criteria listed in Section 7.2.4 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
V Waverly F1	Vulnerability Assessments of Critical Facilities	2	3	1	2	8	Medium
V Waverly F2	Inspection / Right-sizing of Culverts	3	2	2	2	9	Medium
V Waverly D1	Drought Action Plan	2	3	3	2	10	High
V Waverly MH1	Outreach to Vulnerable Populations	2	3	3	2	10	High
V Waverly S1	Tree Management Program	3	2	3	3	11	High
V Waverly S2	Generators for At-Risk Critical Facilities	3	2	3	3	11	High
V Waverly S3	Solar Panels for Backup Power Generation	1	2	3	2	7	Medium
V Waverly F3	Erosion Management Plan	2	2	3	2	9	Medium
V Waverly HHPD1	High Hazard Potential Dam Mitigation Plan for Waverly Lower Reservoir 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 Village's new mitigation actions will be implemented and administered as described in Section 7 of the main body of the HMP. This section includes additional potential funding sources for consideration by each jurisdiction.

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 Village of Waverly may continue to seek public participation in hazard mitigation planning after HMP approval by including a discussion of the HMP as an agenda item at public Village 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 Plans¹
Complete a Separate Worksheet for each² state regulated HHPD in your community.

Name of the Mitigation Plan:	Point of Contact for this Worksheet Name: Email:
Municipality where dam is located:	Name of Dam:
Name of the Dam Owner:	NYS Dam ID #:

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.

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 summaries 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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.