

# Jurisdictional Annex

## Town of Cazenovia

### 1. Contacts

The contacts for the Town of Cazenovia regarding this plan are identified as follows:

- Bill Zupan – Town Supervisor  
Address: Gothic Cottage, 7 Albany Street, Cazenovia, NY 13035  
Phone: (315) 655-9213  
Email: [billzupan@twcnny.rr.com](mailto:billzupan@twcnny.rr.com)
- Bryan Smith – Highway Superintendent  
Address: 3425 Constine Bridge Road, Cazenovia, NY 13035  
Phone: (315) 655-4852  
Email: [bryansmith@townofcazenovia.com](mailto:bryansmith@townofcazenovia.com)

Town Website: <https://towncazenovia.digitaltowpath.org:10079/content>

### 2. Municipal Profile

#### 2.1 Population

The 2020 Census estimated that 6,998 people live in the Town of Cazenovia. The Town's population has decreased by 4.88% since the 2010 Census (7,086) (U.S. Census Bureau, 2020). The median age in the Town is 44 years and 24.5% of the population is over the age of 65. The Town currently covers approximately 51.8 square miles. The Town has an equalized assessed value of approximately \$543 million dollars, which is distributed across a variety of property classes.

#### 2.2 Location

The Town of Cazenovia is located in the western portion of Madison County and is bordered by the Town of Sullivan to the north, the Towns of Fenner and Nelson to the east, the Town of DeRuyter to the south, and the Towns of Fabius Pompey, and Manlius (all in Onondaga County) to the west. Major transportation routes in the Town of Cazenovia is easily accessed by U.S. Route 20, State Route

13, and State Route 92. Population centers in the Town include the Village of Cazenovia and Hamlet of New Woodstock.

### **2.3 Governing Body**

The Town of Cazenovia is governed by a five-member Town Board, which includes the Supervisor and four councilors.

### **2.4 Recent and Anticipated Future Development**

Since the last County HMP (2017), a housing development (Cannon Crest) was constructed on Fenner Road in 2022. A commercial facility (Cunningham Excavation, Inc.) was constructed on Cobblestone Drive in 2021. No new development has occurred in the Special Flood Hazard Area, and the Town's vulnerability to natural hazards has not changed.

### 3. Capability Assessment

#### 3.1 Planning and Regulatory Capability

The Town has considered the 2017 HMP when implementing their existing plans and regulations and progressing projects. 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 1, below.

Table 1. Planning Mechanisms and Capabilities		
Planning Mechanism	Town of Cazenovia	Notes
<b>Administration</b>		
Maintenance Programs	Yes	
Mitigation Planning Committee	Yes	
Mutual Aid or Shared Services Agreements	Yes	
Planning Board	Yes	
Zoning Board	Yes	
<b>Development Approvals</b>		
Building Code	Yes	
Building Code Effectiveness	No	
Grading Schedule (BCEGS) Evaluation		
Fire Department ISO Rating	Yes	Cazenovia and New Woodstock Fire Departments
Site Plan Review Requirements	Yes	
Special Use Permits	Yes	Zoning board of appeals
<b>Funding Resources</b>		
Authority to Levy Taxes	Yes	
Capital Improvement Project Funds	Yes	
Federal Funding Programs (i.e., USDA, FEMA, others)	Yes	FEMA, USDA RD
General Obligation Bonds and/or Special Tax Bonds	Yes	
Impact Fees for New Development	Yes	Developers applying for a permit pays a fee up front for Town to use for engineering services, etc.
State Funding Programs (i.e., NYSEFC, NYSOER, NYSDEC, others)	Yes	
Utility Fees (i.e., water, sewer, stormwater, gas, electric)	Yes	
<b>Land Use Regulations</b>		
Density Controls	Yes	Part of zoning
Flood Insurance Rate Maps	Yes	
Floodplain Ordinance	Yes	
Hillside Development Regulations	Yes	No development allowed on slopes of 15% or greater
Open Space Preservation	Yes	
Stormwater Management	Yes	State regulations apply

Table 1. Planning Mechanisms and Capabilities		
Planning Mechanism	Town of Cazenovia	Notes
Regulations		
Streambank Setback Regulations	Yes	State Health dept. rules for septic
Subdivision Regulations	Yes	
Transfer of Development Rights	Yes	State and Federal Programs Available for Agriculture
Zoning Ordinance	Yes	
Natural Resources		
Forest/Vegetation Management	Yes	Cazenovia Preservation Foundation has Forest Management Plans on larger parcels
Stream Corridor Management	No	
Stream Dumping Regulations	Yes	State rules apply
Urban Forestry and Landscape Management	Yes	"Site Plan Reviews by Planning Board"
Watershed Management	Yes	Oneida Lake Program; Cazenovia Lake Management Plan (needs to be updated)
Wetland Regulations	Yes	State and Federal rules apply
Plans		
Capital Improvement Plan	No	
Comprehensive Emergency Management Plan	No	County has plan in place
Comprehensive Plan	Yes	
Continuity of Operations Plan	No	County has plan in place
Economic Development Plan	No	Unofficial
Other Plans (specify)	Yes	Adopted Public Health Plan in response to COVID-19 pandemic (required by NYS)
Programs/Organizations		
Climate Smart Community	Yes	Bronze certified
Local Emergency Preparedness/Disaster Response Organizations	Yes	Fire Department, Highway Department
Local Environmental Protection Organizations	Yes	Cazenovia Preservation Foundation Cazenovia Heritage Cazenovia Area Conservation Commission (CACC)
National Weather Service StormReady Certification	No	County is certified
Outreach Programs	Yes	Education of Elected to NIMS Standards
Partnerships with private entities addressing mitigation or disaster response	No	
School Programs or Adult Educational Programs	Yes	Fire Safety Education Headstart
Staff Positions		
Civil Engineer	Yes	On retainer
Code Enforcement Officer	Yes	

Table 1. Planning Mechanisms and Capabilities		
Planning Mechanism	Town of Cazenovia	Notes
Emergency Manager	Yes	
Floodplain Administrator	Yes	Code Enforcement Officer
Planner/GIS Coordinator	Yes	Town Highway Dept. has GIS capabilities; County also assists
Technical Abilities		
Grant Writing	Yes	CACTA
Hazard Information Centers	No	
Hazard Warning Systems	Yes	

### 3.2 Emergency Communications, Routes, and Shelters

The Town of Cazenovia utilizes their website and social media for emergency communications. The Town is also covered by Madison County's emergency notification system. Major transportation routes within the Town include State Route 13, U.S. Route 20, and State Route 92. The Town's emergency shelter locations are summarized in Table 2, below.

Table 2. Emergency Shelters						
Facility	Address	Owner/ Occupant	Support medical needs?	ADA Compliant?	Pets accepted?	Notes
Cazenovia Middle/High School	31 Emory Ave Cazenovia, NY 13035	Cazenovia CSD	Yes	Yes	Yes	Backup power available
Town of Cazenovia Highway Department	3425 Constine Bridge Road, Cazenovia, NY 13035	Town of Cazenovia	Yes	Yes	Yes	Backup power available

### 3.3 Temporary and Permanent Housing Locations

The potential temporary and permanent housing locations listed below were identified for displaced residents in the Town of Cazenovia based on the 2017 NYS Hazard Mitigation Planning Standards. It is noted that formal agreements would need to be established in order to use privately owned properties.

- **Potential Temporary Housing Locations**
  - Town of Cazenovia Highway Garage – 3425 Constine Bridge Road, Cazenovia, NY 13035
  - Fenner Fields - 2470-2476 Fenner Rd, Cazenovia, NY 13035

- **Potential Permanent Housing Locations**
  - Approved housing developments with open lots
  - Privately owned vacant land throughout Town (coordination required with landowners for potential property purchase or subdivisions)

## 4. Hazard Vulnerabilities and Ranking

### 4.1 Risk Assessment

The Town reviewed multiple natural hazards to include in the HMP update. The hazard analysis criteria is summarized in Table 3. The Town's natural hazard analysis results are provided in Table 4.

Table 3. Hazard Analysis Criteria						
Score	Extent	Onset	Impact	Frequency	Total Score	Overall Vulnerability
1	One location	Days of warning	Minor damages/injuries	Rare	4 to 5	Low
2	Several locations	Hours of warning	Moderate damages/injuries	Infrequent	6 to 8	Moderate
3	Large area	No warning	Severe damages/injuries	Regular	9 to 12	High

Table 4. Hazard Vulnerability by Event						
Hazard Event	Extent	Onset	Impact (Damages and Injury)	Frequency	Total Score and Overall Vulnerability	Jurisdiction Rank
Severe Thunderstorm/Windstorm/Hail	3	2	2	3	10 – High	1
Ice Storm	3	2	2	3	10 – High	2
Severe Winter Storm	3	2	2	3	10 – High	3
Flood	2	3	2	2	9 – High	4
Tornado	2	3	3	1	9 – High	5
Extreme Temperatures	3	1	2	3	9 – High	6
Wildfire	1	3	2	3	9 – High	7
Earthquake	2	3	2	1	8 – Moderate	8
Landslide	1	3	1	2	7 – Moderate	9
Ice Jam	1	3	1	2	7 – Moderate	10
Drought	3	1	2	1	7 – Moderate	11

## 4.2 Critical Facilities

Critical facilities include any facility that is critical for emergency response or that requires special emergency response in the event of hazardous incidents as identified by the Town of Cazenovia. Table 5, below, denotes the types and locations of critical facilities within the Town. Additional critical facilities are located in the Village of Cazenovia, and are detailed in the Village's annex.

Table 5. Critical Infrastructure in the Town of Cazenovia		
Facility Name	Address	Located in Floodplain
Town of Cazenovia WWTP	4500 Gorge Rd-Route 13	No
Cazenovia Town Highway Dept.	3425 Constine Bridge Rd	No
Cell Tower	1633 Grassy Lane Rd	No
Cell Tower	2565 Fenner Rd	No
Cell Tower	4466 Woodfield Rd	No
Cell Tower	Route 92	No
Electrical Substation	East Rd	No
Electrical Substation	Number Nine Rd	No
Electrical Substation	Rathbun Rd	No
Electrical Substation	Reservoir Rd	No
Electrical Substation	Ridge Rd	No
Madison County Landfill Transfer Station	3455 Constine Bridge Rd	No
New Woodstock Fire Dept.	2632 Mill St	No
New Woodstock Water Turbine	Off Mill St	No
NYS Police	2116 Main St	No
Water Department	Stone Quarry Rd	No
Water Pump Station	Main St	No

## 5. Priority Hazard Events

The following sections detail the priority hazard events identified by the jurisdiction. Additional information about each hazard including frequency, history, and severity within Madison County is included within Section 5.0 of the main body of the Hazard Mitigation Plan. Historical tornado and earthquake records are reported for the last ten years (2012-2022). All other hazard profiles report events that have occurred in the last five years (2017-2022).

The probability of climate-related hazard events is expected to increase in the future within the Town of Cazenovia. Climate change is expected to cause an increase in weather volatility, rising sea level, and greater temperature extremes.

Past occurrences of hazard events are indicated in their respective profiles below. Some hazards do not have specific records of past occurrences, but were profiled for future mitigation planning consideration.

### 5.1 Severe Thunderstorm, Windstorm, or Hail

#### 5.1.1 *Description*

For a description of these hazards, please see Section 5.1 of the main body of the plan.

#### 5.1.2 *Hazard Vulnerability*

The Town's overall vulnerability for a severe thunderstorm, windstorm, or hail event is high, as documented in their hazard analysis in Section 4.1. The entire Town is susceptible to damages from a severe thunderstorm, windstorm, or hail event. Fallen trees from severe winds can damage overhead utility lines, resulting in power outages. In addition, these events are likely to result in damages to private and public infrastructure and property. The Town Highway Department completes tree maintenance within Town road right of ways to minimize potential damages to overhead utility lines. Damages to the Town's critical infrastructure or primary evacuation routes (State Route 13, U.S. Route 20, and State Route 92) would be most impactful to Town residents. Storm damages would primarily impact the more populated portions of the Town, including the Village of Cazenovia and the hamlet of New Woodstock.

### 5.1.3 Historical Hazard Occurrences and Damage Estimates

The Town of Cazenovia reported a local record of a microburst in 2020 that took down trees and damaged boats on Cazenovia Lake. The NCDC reports four thunderstorm wind events that occurred in the Town of Cazenovia within the past five years. Estimated damages for the Town of Cazenovia ranged from \$2,000 to \$15,000 per event (Table 6). Actual damages were likely greater than those estimated by the NCDC.

Table 6. Severe Storm Event Records for the Town of Cazenovia				
Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Thunderstorm Wind	6/26/2019	50 knots	\$10,000.00	-
Thunderstorm Wind	5/29/2020	50 knots	\$15,000.00	-
Thunderstorm Wind	6/16/2022	50 knots	\$2,000.00	-
Thunderstorm Wind	6/16/2022	50 knots	\$2,500.00	-
Total			\$29,500.00	None reported

### 5.1.4 Future Potential Impacts

The Town's overall vulnerability for a severe thunderstorm, windstorm, or hail event remains high. The Town Highway Department and private utility companies will continue to address tree maintenance along roads and utility corridors to mitigate potential storm damages. The frequency and magnitude of severe storm events may increase due to climate change.

## 5.2 Ice Storm

### 5.2.1 Description

For a description of this hazard, please see Section 5.7 of the main body of the plan.

### 5.2.2 Hazard Vulnerability

The Town's overall vulnerability for an ice storm is high, as documented in their hazard analysis in Section 4.1. An ice storm typically affects most or all of the County. The entire Town of Cazenovia is susceptible to damages from an ice storm event. The Town Highway Department completes tree

maintenance within Town road right of ways to minimize potential damages to overhead utility lines, which is common during ice storms. Private utility right of ways are generally maintained by the individual utility companies. Damages to the Town's critical infrastructure or primary transportation routes (State Route 13, U.S. Route 20, and State Route 92) would be most impactful to Town residents. Storm damages would primarily impact the more populated portions of the Town, including the Village of Cazenovia and the Hamlet of New Woodstock.

### *5.2.3 Historical Hazard Occurrences and Damage Estimates*

The NCDC reports one ice storm in Madison County within the past five years, which was reported for the entire County. This event occurred on February 10, 2021 and it is described in Section 5.7 of the main body of the plan. No damage estimates related to ice storms are reported specific to the Town of Cazenovia.

### *5.2.4 Future Potential Impacts*

The Town's overall vulnerability for an ice storm remains high. The Town Highway Department and private utility companies will continue to address tree maintenance along roads and utility corridors to mitigate potential storm damages.

## **5.3 Severe Winter Storm**

### *5.3.1 Description*

For a description of this hazard, please see Section 5.3 of the main body of the plan.

### *5.3.2 Hazard Vulnerability*

The Town's overall vulnerability for a severe winter storm is high, as documented in their hazard analysis in Section 4.1. The entire Town of Cazenovia is susceptible to damages from a severe winter storm event. The Town Highway Department clears Town streets during heavy snow events, and the Town works with the Madison County Highway Department and NYS Department of Transportation for clearing of other roadways. Roadway safety

is a major concern during severe winter storm events. Damages to the Town's critical infrastructure or primary transportation routes (State Route 13, U.S. Route 20, and State Route 92) would be most impactful to Town residents. Storm damages would primarily impact the more populated portions of the Town, including the Village of Cazenovia and Hamlet of New Woodstock.

#### *5.3.3 Historical Hazard Occurrences and Damage Estimates*

The Town of Cazenovia has been affected by a number of severe winter storm events reported for Madison County, which are described in Section 5.3 of the main body of the plan. These storms typically affect more than one area within the County. The NCDC does not report any winter storm damage estimates specific to the Town of Cazenovia.

#### *5.3.4 Future Potential Impacts*

The Town's overall vulnerability for a severe winter storm remains high. The Town Highway Department and private utility companies will continue to address tree maintenance along roads and utility corridors to mitigate potential storm damages. The severity and frequency of severe winter storms may increase due to climate change.

### **5.4 Flood**

#### *5.4.1 Description*

For a description of this hazard, please see Section 5.2 of the main body of the plan.

#### *5.4.2 Hazard Vulnerability*

The Town's overall vulnerability for a flood is high, as documented in their hazard analysis in Section 4.1. The Town is drained by Chittenango Creek, Limestone Creek, and Cazenovia Lake. FEMA provides flood insurance rate maps for the Town of Cazenovia. The 100-year floodplain corresponds with areas that are at high risk for flooding (1% likely to flood any given year), and areas within a 500-year floodplain are at moderate flood risk (0.2% likely to flood in any given year). Figure 1 (Attachment A) shows FEMA mapped 100-year floodplains within the Town. Table 7 summarizes the amount of land

within the Town of Cazenovia that is located within 100-year floodplain, as mapped by FEMA. None of the Town's critical facilities are located in a FEMA mapped floodplain. The estimated structure value of parcels in the Town of Cazenovia that intersect mapped floodplains is summarized in Table 8.

<b>Table 7. Summary of Areas in Floodplains</b> <i>(Source: FEMA Q3 Digital Floodplain Data, 1996)</i>		
<b>Town of Cazenovia Total Area</b>	<b>Percent of Total Area</b>	
	<b>100-Year Floodplain</b>	<b>500-Year Floodplain</b>
31,929 acres	6.8%	0.1%

<b>Table 8. Estimated Structure Value of Parcels within Mapped Floodplains</b> <b>Town of Cazenovia</b>				
<b>Property Class</b>	<b>Number of Parcels in 100-Year Floodplain</b>	<b>Approx. Structure Value* in 100-Year Floodplain</b>	<b>Number of Parcels in 500-Year Floodplain</b>	<b>Approx. Structure Value* in 500-Year Floodplain</b>
Agricultural	13	\$517,800.00	0	\$0.00
Commercial	4	\$4,871,300.00	0	\$0.00
Community Services	2	\$1,788,100.00	0	\$0.00
Industrial	1	\$237,500.00	0	\$0.00
Parks and Open Space	4	\$0.00	0	\$0.00
Public Services	3	\$1,808,500.00	0	\$0.00
Residential	258	\$59,330,900.00	2	\$370,400.00
Vacant	89	\$465,900.00	2	\$0.00
Recreation	4	\$466,000.00	0	\$0.00
<b>Total</b>	<b>\$378.00</b>	<b>\$69,486,000.00</b>	<b>4</b>	<b>\$370,400.00</b>
<i>*Structure Value estimated by subtracting parcel Land Assessed Value from Total Assessed Value (Madison County, 2021)</i>				

#### 5.4.3 Historical Hazard Occurrences and Damage Estimates

According to the NCDC, in the past five years, no flood records were noted to specifically impact the Town of Cazenovia. The Town reported local records of recurring flood issues, which are typically caused by poor stormwater drainage. Recurring flooding issues in the Town occur along multiple roads including Lincklaen Road, Ridge Road, and Bass Road. The Town experiences more flash flooding during heavy rain events than riverine or Lake flooding. As described in Section 6.0 of this annex, NFIP loss claims data were requested from FEMA and a response is pending. According to the County's 2017 HMP, there are no repetitive loss properties in the Town.

#### 5.4.4 *Future Potential Impacts*

The Town's overall vulnerability for a flood remains high. Properties along Chittenango Creek, Limestone Creek, and Cazenovia Lake remain vulnerable to flooding in the future. The Town is proposing three flood mitigation actions for the HMP update, which will reduce flood risk along Lincklaen Road, Ridge Road, and Bass Road. These projects are described in detail in Section 7 of this annex. The frequency and magnitude of flood events may increase due to climate change.

### 5.5 Tornado

#### 5.5.1 *Description*

For a description of this hazard, please see Section 5.8 of the main body of the plan.

#### 5.5.2 *Hazard Vulnerability*

The Town's overall vulnerability for a tornado is high, as documented in their hazard analysis in Section 4.1. The entire Town of Cazenovia is susceptible to damages from a tornado. The topography within the Town is hilly. Tornadoes often touch down along topographic high points in this region and affect more localized areas at one time, rather than longer swaths of damage experienced in flatter areas. Even if only a small area is affected, a tornado could result in severe damage to homes, over-turned automobiles and leveling of utility lines. This event is highly likely to result in damages to private and public infrastructure and property.

#### 5.5.3 *Historical Hazard Occurrences and Damage Estimates*

Three tornadoes have occurred in Madison County within the past ten years, but none of these records occurred in the Town of Cazenovia. There are no tornado-related damage estimates for the Town.

#### 5.5.4 *Future Potential Impacts*

The Town's overall vulnerability for a tornado remains high. Damages from a tornado event can be devastating, and the frequency and magnitude of tornado events may increase due to climate change.

### 5.6 Extreme Temperatures

#### 5.6.1 *Description*

For a description of this hazard, please see Section 5.6 of the main body of the plan.

#### 5.6.2 *Hazard Vulnerability*

The Town's overall vulnerability for an extreme temperature event is high, as documented in their hazard analysis in Section 4.1. Extreme temperatures typically affect most or all of the County, and the entire Town of Cazenovia is susceptible to this hazard. Extreme temperature events tend to have greater impacts on vulnerable populations, including older adults (over 65 years), young children (under 5 years), people with health problems, or people who cannot afford to sufficiently heat or cool their homes. Approximately 1.9% of the population in the Town is under 5 years old, and 24.5% of the population is over 65 years old. Approximately 3.8% of the Town's population is below the poverty level. These populations are at a higher risk of being impacted by extreme temperature events.

#### 5.6.3 *Historical Hazard Occurrences and Damage Estimates*

The NCDC reports three extreme temperatures in Madison County within the past five years. Each of these events was an extreme cold/wind chill reported countywide. Details of these events are described in Section 5.5 of the main body of the plan. No damage estimates related to extreme temperatures are reported specific to the Town of Cazenovia.

#### 5.6.4 *Future Potential Impacts*

The Town's overall vulnerability for an extreme temperature event remains high. Extreme temperatures are likely to increase in frequency and extremity in the future due to climate change.

### 5.7 **Wildfire**

#### 5.7.1 *Description*

For a description of this hazard, please see Section 5.10 of the main body of the plan.

#### 5.7.2 *Hazard Vulnerability*

The Town's overall vulnerability for a wildfire is high, as documented in their hazard analysis in Section 4.1. Undeveloped lands such as forests, open fields, and brush lands within the Town are susceptible to wildfires. These areas are located throughout the entire Town. The Town of Cazenovia contains 591 acres of state forest land. The DeRuyter State Forest, Nelson Swamp Unique Area, and Tioughnioga Wildlife Management Area are partially located in the Town. State forest lands are shown in Figure 1 (Attachment A). The Town is located in a NYS Forest Fire District designated under 6 NYCRR Part 191.1. Within the Fire District, the NYSDEC may maintain an approved fire protection system, including fire observation stations and other equipment necessary to prevent and extinguish forest fires.

#### 5.7.3 *Historical Hazard Occurrences and Damage Estimates*

According to Figure 5.14 (Appendix A of the main body of the plan), the Town of Cazenovia experienced 0.4-0.8 wildfires per square mile in the southern portion and 0.9-1.3 wildfire per square mile in the northern portion from 2003 to 2017 according to reports from the NYSDEC. The Town reported local records of regular brush and grass fires. A wildfire has the potential to cause hundreds of thousands of dollars in damages.

#### 5.7.4 *Future Potential Impacts*

The Town's overall vulnerability for a wildfire remains high. Wildfires are likely to increase in frequency and extremity in the future due to climate change. However, a wildfire is unlikely to cause significant property damages given the rural nature of the Town.

### 5.8 **Earthquake**

#### 5.8.1 *Description*

For a description of this hazard, please see Section 5.5 of the main body of the plan.

#### 5.8.2 *Hazard Vulnerability*

The Town's overall vulnerability for an earthquake is moderate, as documented in their hazard analysis in Section 4.1. According to Figure 5.8 of the main body plan, the Town of Cazenovia has a peak ground acceleration (PGA) Hazard rating of 8-10%g. An earthquake could impact any location within the Town, though historically, the Town has not experienced significant earthquake damages. Earthquakes that damage the Town's critical infrastructure or emergency transportation routes would result in the most significant impacts to the Town and its residents.

#### 5.8.3 *Historical Hazard Occurrences and Damage Estimates*

According to the USGS Earthquake Catalog, there are no historical records of earthquakes occurring in the Town of Cazenovia. An earthquake has the potential to cause hundreds of thousands of dollars in damages.

#### 5.8.4 *Future Potential Impacts*

The Town's overall vulnerability for an earthquake remains moderate. The Town of Cazenovia is within an area of light seismic activity, and is not likely to experience significant earthquake damages.

## 5.9 Landslide

### 5.9.1 *Description*

For a description of this hazard, please see Section 5.4 of the main body of the plan.

### 5.9.2 *Hazard Vulnerability*

The Town's overall vulnerability for landslide is moderate, as documented in their hazard analysis in Section 4.1. The Town of Cazenovia is mapped as an area of low incidence for landslides (Figure 5.6, Appendix A of the main body of the plan). Areas with steep slopes throughout the Town (based on mapped soil units with slopes over 30%) are shown in Figure 1 (Attachment A).

The Town's topography consists of numerous steep hills, similar to other areas in southern Madison County. Roads along steep slopes in the Town, including Fairbanks Road, are most vulnerable to landslides.

### 5.9.3 *Historical Hazard Occurrences and Damage Estimates*

The Town reports local records of landslides occurring along Fairbanks Road and properties along Limestone Creek. A landslide has the potential to cause hundreds of thousands of dollars in damages.

### 5.9.4 *Future Potential Impacts*

The Town's overall vulnerability for landslide remains moderate. The Town recently completed a bank restoration project for a portion of Limestone Creek to reduce risk in this location. Areas with steep slopes in the Town such as Fairbanks Road and areas near Limestone Creek are most likely to be impacted by landslides in the future. However, a landslide is unlikely to cause significant property damages given the rural nature of the Town.

## **5.10 Ice Jam**

### *5.10.1 Description*

For a description of this hazard, please see Section 5.11 of the main body of the plan.

### *5.10.2 Hazard Vulnerability*

The Town's overall vulnerability for an ice jam is moderate, as documented in their hazard analysis in Section 4.1. Properties along Chittenango Creek and Limestone Creek are most vulnerable to ice jams.

### *5.10.3 Historical Hazard Occurrences and Damage Estimates*

The U.S. Army Corps of Engineers (USACE) Cold Regions Research and Engineering Laboratory (CRREL) reports no specific ice jam events for the Town of Cazenovia. The Town reported local records of ice jams on the south end of Chittenango Creek on State Route 13. However, ice jams have not historically resulted in property damages in the Town as they tend to affect undeveloped areas.

### *5.10.4 Future Potential Impacts*

The Town's overall vulnerability for an ice jam remains moderate. Properties along Chittenango Creek and Limestone Creek remain vulnerable to ice jams. However, ice jams are not likely to cause significant property damages in the Town given its rural nature and history with this hazard. The frequency and magnitude of ice jam events may increase due to climate change.

## **5.11 Drought**

### *5.11.1 Description*

For a description of this hazard, please see Section 5.9 of the main body of the plan.

### *5.11.2 Hazard Vulnerability*

The Town's overall vulnerability for drought is moderate, as documented in their hazard analysis in Section 4.1. The Town operates three water districts (New Woodstock, Mount Pleasant, and Cobblefield/Wellington Estates). Each water district is supplied by drilled groundwater wells. Residents in other areas of the Town rely on private wells, which may be susceptible to low water yields during a drought. Additionally, much of the Town consists of agricultural land, which could be significantly impacted by a drought.

### *5.11.3 Historical Hazard Occurrences and Damage Estimates*

The NCDC reports no specific drought events for the Town of Cazenovia. There are no drought-related damage estimates available for the Town.

### *5.11.4 Future Potential Impacts*

The Town's overall vulnerability for drought remains moderate. Areas that rely on private wells with low supply yields and agricultural areas (located throughout the Town) are most likely to be impacted in the future. Drought events are likely to increase in frequency and magnitude in the future due to climate change.

## 6. 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 (FEMA, 2015).

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:

- Creates safer environments by reducing loss of life and decreasing property damage;
- 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
- Lessens the financial impacts on individuals, communities, and other involved parties (FEMA, 2015).

The Town of Cazenovia currently participates in the NFIP (community ID 361290), and its FIRM(s) became effective on 6/19/1985. The Town joined the NFIP on this same date. NFIP loss claims data were requested from FEMA and a response is pending. According to the County's 2017 HMP, there are no repetitive loss properties in the Town. More current repetitive loss data from FEMA is pending. 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.

## 7. Mitigation Strategy and Prioritization

### 7.1 Past, Completed, and Ongoing Initiatives

The Town proposed two mitigation actions in the 2017 Madison County HMP, and the status of each action is summarized in Table 9, below. One the Town's 2017 mitigation actions (Ridge Road Reconstruction) was re-included for the 2022 HMP update.

Table 9. Status of 2017 Mitigation Actions Town of Cazenovia				
Project Name	Description	Hazard(s) Mitigated	Lead Agency	Status
Maple Road Reconstruction	Reconstruction of approximately 1,000 feet of Maple Road, from State Route 13 west to Lincklaen Road.	Flood	Town of Cazenovia Highway	Completed
Ridge Road Reconstruction	The project will include flood and stormwater mitigation via the installation of storm sewer piping and culverts, and ditch stabilization.	Flood	Town of Cazenovia Highway	Not completed; re-included for HMP update

In addition to the projects described in Table 9, the Town completed a stormwater mitigation project on Right Road. Closed stormwater drainage and larger culverts were installed, and roadside ditches were stabilized. In addition, a bank stabilization project was completed along Limestone Creek to address landslide damages.

## 7.2 Proposed Mitigation Actions

The Town proposed three mitigation actions to be included in the HMP update. One action (Cazenovia T2) was re-included from the 2017 HMP. These actions are described in Table 10, below and on worksheets included in Attachment A.

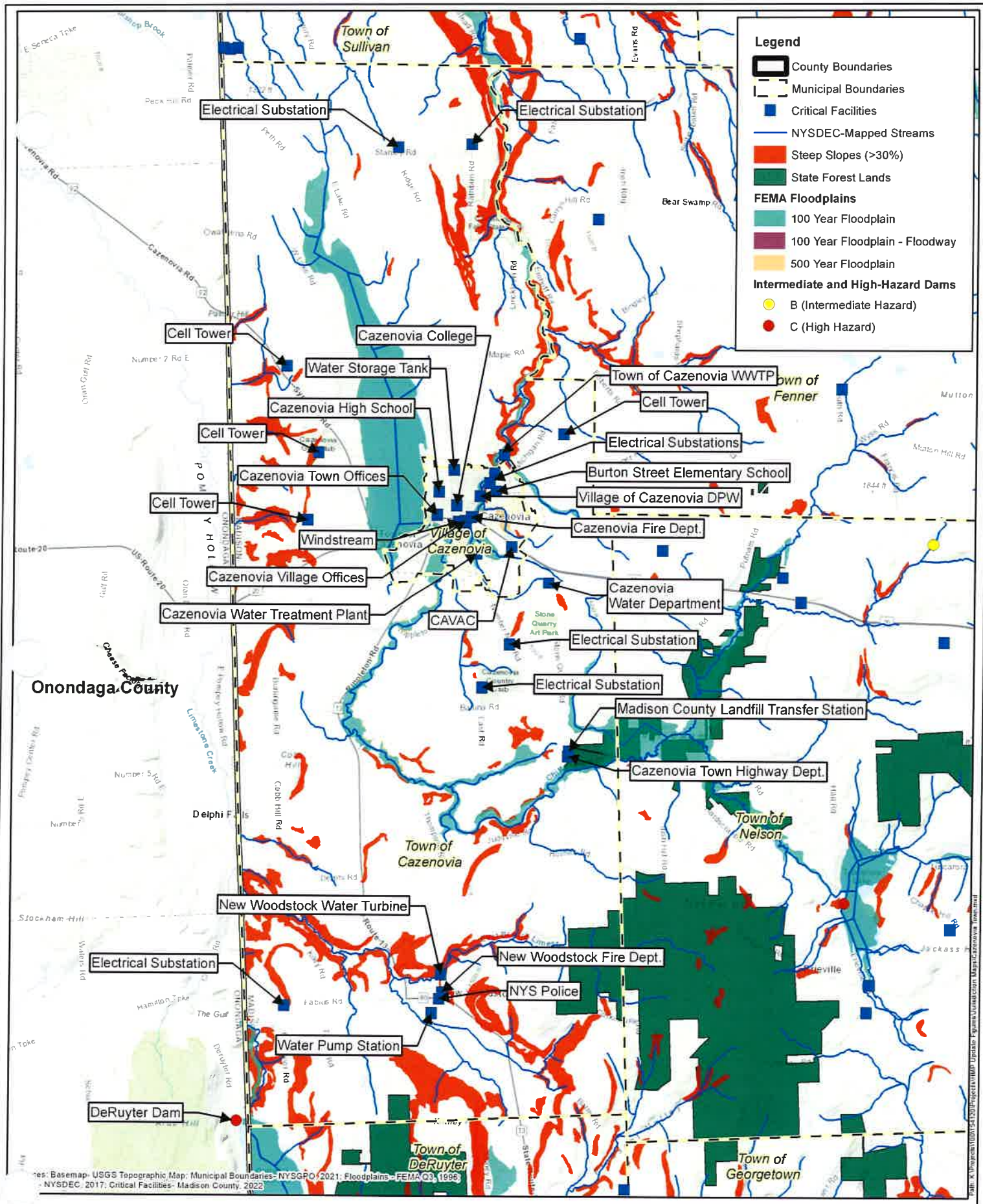
Table 10. Proposed Hazard Mitigation Actions Town of Cazenovia									
Action ID	Mitigation Action	Hazard(s) Mitigated	Implementing Agencies (Lead* & Support)	Planning Mechanism	Timeframe	New or Existing Development	Estimated Cost	Funding Source(s)	Priority
Cazenovia T1	Lincklaen Road Drainage Improvements	Flood	Town of Cazenovia Highway Department	N/A	1 year	Existing	\$46,000	Town Budget, ARPA	High
Cazenovia T2	Ridge Road Reconstruction (re-included from 2017 HMP)	Flood	Cazenovia Town Board	N/A	1 year	Existing	\$420,000	Town Budget, NYSDOT - CHIPS, NYSEFC - CWSRF	High
Cazenovia T3	Bass Road Culvert Upgrade	Flood	Town of Cazenovia Highway Department	N/A	2-3 years	Existing	\$150,000- \$200,000	Town Budget, NYSDOT - CHIPS	High

## 7.3 Cost-Benefit Analysis

Each of the Town's proposed mitigation actions were evaluated and prioritized using the STAPLEE cost-benefit analysis described in Section 7.2.3 of the main body of the plan. The Town's STAPLEE worksheet is provided in Attachment A. The STAPLEE analysis considers the following lenses of evaluation: social, technological, administrative, political, legal, economic, and environmental. It also considers the level of overall costs and benefits of the action.

## **Attachment A**

### **Figure 1, Mitigation Action Worksheets, and STAPLEE Worksheet**



## Madison County HMP Update Mitigation Action Worksheet

**Jurisdiction:** Town of Cazenovia

### Mitigation Action

<b>Project ID:</b>	Cazenovia T1
<b>Project Name:</b>	Lincklaen Road Drainage Improvements
<b>Risk/Vulnerability</b>	
<b>Hazard of Concern:</b>	Flood
<b>Description of the Problem:</b>	The Town experiences recurring flooding issues along Lincklaen Road. One of the culverts along this road is undersized and does not properly convey stormwater flows. The road is also in need of better stormwater drainage (currently there are just open ditches alongside the road).
<b>Proposed Action</b>	
<b>Description of the Solution:</b>	Upgrade culvert with a larger pipe and install closed stormwater drainage infrastructure to better direct storm flows.

Is this project related to a Critical Facility? ☐ Yes ☒ No

*(If yes, this project must intend to protect to the 500-year flood event or the actual worst damage scenario, whichever is greater)*

<b>Level of Protection:</b>	Medium	<b>Estimated Benefits (losses avoided):</b>	Better stormwater conveyance and reduced flood damages
<b>Useful Life:</b>	40-50 years		
<b>Estimated Cost:</b>	\$46,000		

### Plan for Implementation

<b>Priority (High, Medium, Low):</b>	High	<b>Responsible Organization:</b>	Town of Cazenovia Highway Department
<b>Desired Timeframe for Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	Town Budget, ARPA
<b>Estimated Time Required to Implement:</b>	Approx. 1 month	<b>Local Planning Mechanisms to be used in Implementation, if any:</b>	N/A

### Three Alternatives Considered (Including No Action)

	Action	Estimated Cost	Evaluation
<b>Alternatives:</b>	No Action	\$0	No change from existing conditions
	Replace culvert in-kind and establish a regular ditch maintenance program	\$10,000	May help convey storm flows in ditches but not address limited hydraulic capacity of culvert and ditches; flood risk remains
	Upgrade culvert and install closed stormwater drainage	\$46,000	Improved conveyance for high stormwater flows and reduced flood risk

### Progress Report (for Plan Maintenance)

<b>Date of Status Report:</b>	
<b>Summary of Progress:</b>	
<b>Evaluation of the Problem and/or Solution:</b>	

# Madison County HMP Update Mitigation Action Worksheet

**Jurisdiction:** Town of Cazenovia

Mitigation Action	
<b>Project ID:</b>	Cazenovia T2
<b>Project Name:</b>	Ridge Road Reconstruction
Risk/Vulnerability	
<b>Hazard of Concern:</b>	Flood
<b>Description of the Problem:</b>	The Town experiences recurring flooding issues along Ridge Road. There is existing closed stormwater drainage in this location but it is in need of upgrades.
Proposed Action	
<b>Description of the Solution:</b>	Reconstruct roadway , remove curbing, and install new closed stormwater drainage infrastructure. Upgrade existing culverts with larger pipes. Line remaining roadside ditches to stabilize them and reduce erosion.

Is this project related to a Critical Facility? ☐ Yes ☒ No  
*(If yes, this project must intend to protect to the 500-year flood event or the actual worst damage scenario, whichever is greater)*

<b>Level of Protection:</b>	Medium	<b>Estimated Benefits (losses avoided):</b>	Better stormwater conveyance and reduced flood damages
<b>Useful Life:</b>	40-50 years		
<b>Estimated Cost:</b>	\$420,000		

Plan for Implementation			
<b>Priority (High, Medium, Low):</b>	High	<b>Responsible Organization:</b>	Cazenovia Town Board
<b>Desired Timeframe for Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	Town Budget, NYSDOT - CHIPS, NYSEFC - CWSRF
<b>Estimated Time Required to Implement:</b>	1 year	<b>Local Planning Mechanisms to be used in Implementation, if any:</b>	N/A

Three Alternatives Considered (Including No Action)			
	Action	Estimated Cost	Evaluation
<b>Alternatives:</b>	No Action	\$0	No change from existing conditions
	Reconstruct road and replace culverts in-kind	\$30,000	Does not address limited hydraulic capacity of existing infrastructure
	Reconstruct road and upgrade culverts and stormwater drainage infrastructure	\$420,000	Improved conveyance for high stormwater flows and reduced flood risk

Progress Report (for Plan Maintenance)	
<b>Date of Status Report:</b>	
<b>Summary of Progress:</b>	
<b>Evaluation of the Problem and/or Solution:</b>	

# Madison County HMP Update Mitigation Action Worksheet

Jurisdiction: Town of Cazenovia

## Mitigation Action

Project ID:	Cazenovia T3
Project Name:	Bass Road Culvert Upgrade
<b>Risk/Vulnerability</b>	
Hazard of Concern:	Flood
Description of the Problem:	Bass Road currently has a culvert crossing consisting of three separate culvert pipes. This design limits flow capacity, and the Town experiences recurring flooding issues in this location.
<b>Proposed Action</b>	
Description of the Solution:	Replace multi-pipe culvert crossing with a larger single pipe or open box culvert structure. This will improve the hydraulic capacity and reduce flood risk.

Is this project related to a Critical Facility? ☐ Yes ☒ No

(If yes, this project must intend to protect to the 500-year flood event or the actual worst damage scenario, whichever is greater)

Level of Protection:	Medium	Estimated Benefits (losses avoided):	Decreased flood risk and damages
Useful Life:	50+ years		
Estimated Cost:	\$150,000-\$200,000		

## Plan for Implementation

Priority (High, Medium, Low):	High	Responsible Organization:	Town of Cazenovia Highway Department
Desired Timeframe for Implementation:	2-3 years	Potential Funding Sources:	Town Budget, NYSDOT - CHIPS
Estimated Time Required to Implement:	4 months	Local Planning Mechanisms to be used in Implementation, if any:	N/A

## Three Alternatives Considered (Including No Action)

	Action	Estimated Cost	Evaluation
Alternatives:	No Action	\$0	No change from existing conditions
	Replace with larger single pipe	\$150K	Acceptable solution to improve hydraulic capacity and reduce flood risk
	Replace with concrete box culvert	\$200K	Acceptable solution to improve hydraulic capacity and reduce flood risk; longer lifespan than pipe

## Progress Report (for Plan Maintenance)

Date of Status Report:	
Summary of Progress:	
Evaluation of the Problem and/or Solution:	