

Town of Hastings

Jurisdictional Annex

Town of Hastings

1.0 Contacts

Primary and secondary contacts regarding this plan are identified as follows:

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2.0 Municipal Profile

Population

The 2016 American Community Survey estimated that 9,369 people live in the Town of Hastings. The Town's population has increased by 6.4% compared with the 2000 Census population (8,803) (U.S. Census Bureau, 2016).

Location

The Town of Hastings is located in southern Oswego County and is bordered by Oneida Lake and the Oneida River to the south, the Town of West Monroe to the east, the Towns of Parish and Mexico to the north, and the Towns of Palermo and Schroepfel to the west. Interstate 81, U.S. Route 11, and State Route 49 provide direct access to the Town.

Brief History

The Town of Hastings was officially formed in 1825. The area was originally occupied by the Algonquians and Iroquois. Post European settlement, the main industry in the Town was logging and a number of sawmills were in operation. Agriculture was also an important industry in the Town throughout the 1800s and 1900s as a greater percentage of the town became cleared from logging operations. A number of hamlets were settled throughout the 1800s. The New York, Ontario, and Western Railroad was constructed in the 1860s and spurred development throughout the Town (House, 2016).

Governing Body

The Town of Hastings is governed by a five (5) member Town Board, led by the Supervisor.

Future Growth

The Town is seeking stable growth. Since the last County HMP (2012), the Town of Hastings has had no new commercial or residential developments.

3.0 Hazard Vulnerabilities and Ranking

3.1. Risk Assessment

The following scale was developed to determine hazard vulnerability for the jurisdiction. Each event was given a ranking from one (1) through three (3) for the severity of impact based on extent, onset warning, impact in damages and injury, and frequency: three (3) represents the greatest impact (large area, no warning, severe damage, and regular occurrence); two (2) represents moderate impact (several locations, hours of warning, moderate damage, and infrequent occurrence); and one (1) represents low impact (one location, days of warning, minor damage, and rare occurrence). The scores for each of these four (4) categories were used to assign an overall vulnerability for each hazard, as follows:

- Low: 5 or less
- Moderate: 6 to 8
- High: 9 or greater

Table 1: Hazard Vulnerability by Event						
Hazard Event	Extent	Onset	Impact (Damages and Injury)	Frequency	Vulnerability Rank	Jurisdiction Rank
Severe Winter Storm	3	1	2	3	High	1
Severe T-Storm/Wind/ Tornado	3	1	3	3	High	2
Utility Failure	3	3	2	1	High	3
HAZMAT Transit	2	3	2	1	Moderate	4
Extreme Temperatures	3	1	1	2	Moderate	5
Ice Storm	3	1	3	2	High	6
HAZMAT Fixed	1	3	2	1	Moderate	7
Explosion	1	3	2	1	Moderate	8
Transportation Accident	1	3	2	3	High	9
Flood	3	2	3	3	High	10

Table 1: Hazard Vulnerability by Event						
Hazard Event	Extent	Onset	Impact (Damages and Injury)	Frequency	Vulnerability Rank	Jurisdiction Rank
Ice Jam	2	2	2	2	Moderate	11
Drought	3	1	2	1	Moderate	12
Coastal Storm	3	1	2	2	Moderate	13
Tornado	2	1	2	1	Moderate	14
Terrorism	1	3	2	1	Moderate	15
Wildfire	2	3	2	1	Moderate	16
Water Supply Contamination	3	3	2	1	High	17
Dam Failure	1	3	1	1	Moderate	18

3.2. Critical Facilities

Critical facilities are defined as 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 Hastings. The tables below denote the number and locations of critical facilities within the Town.

Table 2: Critical Infrastructure in the Town of Hastings			
Facility Name	Address (Street, Town/Town/Hamlet)	Parcel Located in Floodplain	Structure Located in Floodplain
Transportation Network			
Evacuation Routes	-	-	-
Bridges	-	-	-
Riveredge Airpark	697 County Rt 37, Central Square, NY 13036	No	-
Syracuse Suburban Airport 6NK	Gildner Rd, Central Square, NY 13036	No	-
Public Utilities			
Alltel NY, Inc. NE Region property	off of CR 45	No	-
Cell Tower	off of Bardeen Rd	No	-
Cell Tower	off of US-11	No	-
Hastings WWTP	off of CR 12	No	-
National Grid powerline corridor	throughout Town	No	-
Oswego County Transfer Station	1391 US-11, Hastings, NY 13076	100YR	No
Verizon NY, Inc. property	off of Gildner Rd	No	-
Water Tower	off of NY-49	100YR	No
Water Tower	off of Corporate Park Dr	No	-
Cell Tower	off of Enterprise Dr	No	-

Table 2: Critical Infrastructure in the Town of Hastings			
Facility Name	Address (Street, Town/Town/Hamlet)	Parcel Located in Floodplain	Structure Located in Floodplain
Cell Tower	off of CR 12	No	-
Sewage Pump Station	off of CR 12	100YR, 500YR	No
Buckeye Terminals, LLC	County Rt 37, Central Square, NY 13036	No	-
Municipal Services			
Highway Garage	1134 US-11, Central Square, NY 13036	No	-
Town Hall	1134 US-11, Central Square, NY 13036	No	-
Emergency and Medical Services			
911 Tower	off of US-11 (Transfer Station property)	100YR	No
Caughdenoy Volunteer Fire Dept.	48 Prospect St, Central Square, NY 13036	No	-
Hastings Fire Dept.	1994 US-11, Hastings, NY 13076	No	-
Community Services			
Hastings Post Office	6 County Route 45, Hastings, NY 13076	No	-
Educational, Shelter and Evacuation Facilities			
Hastings Mallory Elementary School	93 Barker Rd, Central Square, NY 13036	No	-
Dams			
Carley Mills Dam	S. Branch Little Salmon River off of CR 84A	-	-
Caughdenoy Dam	Oneida River off of CR 12	-	-
Harold Wagner Pond Dam	Trib. to Little Salmon River off of US-11	-	-
Mallory Dam	Dykeman Creek off of Baum Rd	-	-
Mallory Dam	Big Bay Creek off of CR 32	-	-
Ray Nellis Pond Dam	Trib. to Little Salmon River off of CR 38	-	-

4.0 Priority Hazard Events

The following sections detail the priority hazard events identified by the jurisdiction. Additional information about County-selected hazards including frequency, history, and severity is included within Section 5.0 of the main body of the Plan.

The probability of climate-related hazard events is expected to increase in the future within the Town of Hastings. Climate change is expected to cause an increase in weather volatility, rising sea level, and greater temperature extremes. Properties along Oneida Lake, the Oneida River, and their tributaries are likely to experience increased flooding occurrences.

Past occurrences of hazard events are indicated in their respective profiles below. Some hazards may not have locally available documentation of past occurrences, but were included in this annex for future mitigation planning consideration.

4.1 *Natural Hazards*

Natural hazards selected to be profiled for the Town of Hastings are described in detail below.

4.1.1 Severe Winter Storm

For a description of this hazard, please see Section 5.1.4 of the main body of the Plan.

Hazard Vulnerability

Severe winter storms typically occur about eleven (11) times annually in Oswego County. These storms typically affect most or all of the County. The entire Town of Hastings is susceptible to damages from a severe winter storm event. The Town Highway Dept. clears Town streets during heavy snow events, and the Town works with the Oswego County Highway Dept. and NYS Dept. of Transportation for clearing of other roadways. Roadway safety is a major concern during severe winter storm events.

Historical Hazard Occurrences and Damage Estimates

The Town of Hastings has been affected by a number of county-wide severe winter storm events, described in Section 5.1.4 of the main body of the Plan. Severe winter storms typically occur several times annually in Oswego County. These storms typically affect most or all of the County. The NCDC does not report any winter storm records or damage estimates specific to the Town of Hastings.

Future Potential Impacts

The Town of Hastings will continue to experience severe winter storm events in the future. Severe winter storms are common throughout Oswego County and occur about eleven (11) times annually.

4.1.2 Severe Thunderstorm, Wind, or Tornado and Coastal Storm

For a description of severe thunderstorm, wind, or tornado events, please see Section 5.1.1 of the main body of the Plan. Coastal storms can cause increases in tidal elevations (called storm surge), wind speed, and erosion, caused by both extratropical events and tropical cyclones. Extratropical events including Nor'easters and severe winter low-pressure systems are more applicable to Oswego County. These non-tropical storms produce strong winds and heavy rain or snow, and can last for several days and affect a very large area.

Hazard Vulnerability

The entire Town is highly vulnerable to damages from a severe thunderstorm, wind, or tornado or coastal storm event due to their large extent, high damage potential, and moderate frequency. 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.

Historical Hazard Occurrences and Damage Estimates

In addition to the 101 severe storm events reported within Oswego County, the NCDC reports nineteen (19) specific severe storm events that occurred in the Town of Hastings between 1995 and 2017 (frequency of about once a year). Five (5) of these records were hail events and fourteen (14) were thunderstorm winds. Estimated damages for the Town of Hastings ranged from \$5,000 to \$20,000 (Table 3). Actual damages were likely greater than those estimated by the NCDC.

Table 3: Severe Storm Event Records for the Town of Hastings				
Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Thunderstorm Wind	8/3/1995	-	\$8,000	-
Thunderstorm Wind	5/31/1998	-	\$8,000	-
Thunderstorm Wind	8/1/2000	-	\$15,000	-
Thunderstorm Wind	7/9/2007	50 kts	\$10,000	-
Hail	7/17/2010	1 inch	\$5,000	\$5,000
Thunderstorm Wind	7/26/2011	60 kts	\$8,000	-
Thunderstorm Wind	7/26/2011	52 kts	\$8,000	-
Hail	5/29/2012	1 inch	\$5,000	\$5,000
Hail	5/29/2012	1.75 inch	\$10,000	\$10,000
Thunderstorm Wind	5/29/2012	50 kts	\$10,000	\$10,000
Thunderstorm Wind	5/29/2012	50 kts	\$8,000	\$8,000
Hail	5/22/2013	1.25 inch	\$10,000	-
Hail	5/22/2013	1 inch	\$5,000	-
Thunderstorm Wind	7/19/2013	50 kts	\$10,000	-
Thunderstorm Wind	7/19/2013	50 kts	\$10,000	-
Thunderstorm Wind	9/1/2013	50 kts	\$15,000	-
Thunderstorm Wind	7/8/2017	50 kts	\$10,000	-
Thunderstorm Wind	7/14/2017	50 kts	\$10,000	-
Thunderstorm Wind	8/12/2017	50 kts	\$10,000	-
Total			\$175,000	\$38,000

Future Potential Impacts

Severe storms are a common event in the Town of Hastings and will continue to occur in the future. The frequency and magnitude of severe storm events may increase due to climate change.

4.1.3 Extreme Temperatures

For a description of this hazard, please see Section 5.1.5 of the main body of the Plan.

Hazard Vulnerability

Historically, extreme cold events have occurred about every other year in Oswego County. These events typically affect most or all of the County. The entire Town of Hastings is susceptible to an extreme temperature event. Vulnerable populations, including people under the age of five (5) or over the age of sixty-five (65), along with low income populations and people with health problems are most vulnerable. The Town was determined to have a moderate vulnerability to extreme temperature events due to their widespread nature, and relatively common occurrence.

Historical Hazard Occurrences and Damage Estimates

The Town of Hastings was affected by the county-wide extreme cold events recorded by the NCDC, which are described in Section 5.1.5 of the main body of the Plan. No damage estimates or records related to extreme temperature events are reported specifically for the Town of Hastings. Extreme temperature events are unlikely to cause significant property damage, though crop damages are possible depending on the time of year. Significant injuries or loss of life due to extreme temperature events are possible, but in small numbers.

Future Potential Impacts

The Town of Hastings will continue to experience extreme temperature events in the future, as will the rest of Oswego County. Extreme temperature events are likely to increase in frequency due to climate change. Rural communities such as the Town of Hastings are generally used to extreme temperature events. The Town has an emergency shelter established, which is equipped with backup power and could be used as a warming station for residents during extreme cold events.

4.1.4 Ice Storm

For a description of this hazard, please see Section 5.1.3 of the main body of the Plan.

Hazard Vulnerability

Historically, ice storms have occurred about once every seven (7) years in Oswego County. These storms typically affect most or all of the County. The entire Town of Hastings is highly vulnerable to damages from an ice storm event due to this hazard's wide extent and high damage potential.

Historical Hazard Occurrences and Damage Estimates

The Town of Hastings was affected by the three (3) county-wide ice storm events recorded by the NCDC, which are described in Section 5.1.3 of the main body of the Plan. No damage estimates or records related to ice storms are reported specifically for the Town of Hastings. Ice storms have the potential to cause hundreds of thousands of dollars in property damages, and can result in cascading hazards such as transportation accidents which can lead to injuries or loss of life.

Future Potential Impacts

The Town of Hastings will continue to experience ice storm events in the future, as will the rest of Oswego County. The Town Highway Dept. 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.

4.1.5 Flood

For a description of this hazard, please see Section 5.1.2 of the main body of the Plan.

Hazard Vulnerability

The Town drains to Oneida Lake and the Oneida River. FEMA's Flood Insurance Mapping Program designates areas that are at risk for flooding. Low flood risk are areas unlikely to flood, moderate risk are areas within the 500-year floodplain (0.2% likely to flood in any given year), and high risk are areas that frequently flood, up to the 100-year flood risk zone (1% likely to flood in any given year). Table 4 summarizes the amount of land within the Town of Hastings that is located within 100-year and 500-year floodplains and low-risk flood areas.

Table 4: Summary of Areas in Floodplains (Source: FEMA DFIRM 2013)			
Town of Hastings Total Area	Percent of Total Area		
	100-Year Floodplain	500-Year Floodplain	Area of Minimal Flood Hazard
28,188 acres	14.71%	0.16%	85.12%

Table 5 below summarizes the value of properties in the Town of Hastings that are located within the 100-year floodplain and is categorized by land use type. This table was derived from FEMA floodplain mapping and parcel data from the Oswego County Real Property Tax Office.

Table 5: Parcels within to 100-year Flood Events and Their Estimated Structure Values				
Type of Structure	# Parcels in 100-Year Floodplain	Approx. Structure Value* in 100-Year Floodplain	# Parcels in 500-Year Floodplain	Approx. Structure Value* in 500-Year Floodplain
Agricultural	16	\$648,980	1	\$13,500
Commercial	34	\$5,625,270	4	\$956,900
Community Services	5	\$11,906,700	0	-
Industrial	3	\$144,900	0	-
Residential	580	\$56,590,200	157	\$16,295,150
Utility	6	\$2,900,437	3	\$2,054,237
Other**	220	\$2,574,800	40	\$1,917,300
Total	864	\$80,391,287	205	\$21,237,087
*Structure Value estimated by subtracting parcel's Land Assessed Value from Total Assessed Value (Oswego County Real Property Tax Office, 2018)				
**Includes parcels classified as vacant; recreational; and wild forest/conservation land/parks.				

Historical Hazard Occurrences and Damage Estimates

According to NOAA's Storm Events Database, in the past fifteen (15) years, no flood records were noted to specifically impact the Town of Hastings. The Town has recurring issues with beaver dams on streams, which cause localized flooding issues. The Town has had occasional flooding issues on Bardeen Road in the past, typically during the spring, but flooding impacts in this area are not of significant concern. This road crosses a large pond and wetland complex. The Town has also been impacted by numerous county-wide events described in Section 5.1.2 of the main body of the plan.

As described in Section 6.0 of this annex, six (6) NFIP loss claims have been paid as of November 2017 in the Town of Hastings totaling \$36,876.22. There is one (1) repetitive loss

property in the Town of Hastings, a single family residence. This property has incurred a total of two (2) losses, with total payments of \$12,321.74 for building damages.

Future Potential Impacts

Properties along the shore of Oneida Lake and the Oneida River, which border the Town to the south, and their tributaries are vulnerable to flooding. Nearly 15% of the Town of Hastings is within a mapped 100-year floodplain. In addition, several critical facilities are located on parcels that intersect the 100-year and/or 500-year floodplain (Table 2). However, the structures themselves are outside of a mapped floodplain.

4.1.6 Ice Jam

For a description of this hazard, please see Section 5.1.3 of the main body of the plan.

Hazard Vulnerability

In the Town of Hastings, an ice jam could occur along the Oneida River and any of the tributaries to the river or Oneida Lake (Figure 1). Areas that may incur damages due to an ice jam generally include properties within a 100-year or 500-year floodplain, as shown in Table 5 in Section 4.1.5. In the Town of Hastings, these areas primarily consist of residential properties and vacant land.

Historical Hazard Occurrences and Damage Estimates

In the winter of 2018, a number of ice jams occurred on streams throughout the Town, resulting in localized flooding issues on private properties and along roadways.

Future Potential Impacts

Streams throughout the Town, along with the Oneida River, will continue to pose risks of ice jams in the Town of Hastings. In the future, ice jams may occur more frequently due to climate change.

4.1.7 Drought

Droughts are extended periods of time with unusually low precipitation, which lead to a limited water supply and crop losses. Drought periods progress through stages and drought intensity may vary considerably during the drought period. The time of occurrence and duration can cause significant variations in drought impacts. Droughts are categorized by the U.S. Drought Monitor in five (5) levels based on severity:

- Category D0: Abnormally dry conditions; may lead to a drought.

- Category D1: Moderate drought; some damages to crops and pasture may occur, water levels are low.
- Category D2: Severe drought; crop losses and water shortages are likely to occur.
- Category D3: Extreme drought; major crop losses and widespread water shortages.
- Category D4: Exceptional drought; extreme crop losses and water emergencies result.

Hazard Vulnerability

The entire Town of Hastings is moderately susceptible to a drought due to the widespread extent and potential to cause moderate damages. Agricultural areas and private wells would experience the most significant impacts. The majority of the Town is currently served by a public water system. Residents outside of the existing water district rely on private groundwater wells for potable water. The Town is currently progressing a water system expansion project which would provide municipal water service to the remainder of the Town.

Historical Hazard Occurrences and Damage Estimates

There are no drought records specifically reported for the Town of Hastings. The Town was impacted by a drought in the late summer and fall of 2016, which affected the entire County. The Town has a number of agricultural properties that could experience significant crop losses during a drought event (tens to hundreds of thousands of dollars).

Future Potential Impacts

The entire Town of Hastings remains susceptible to a drought event. While drought events only occur occasionally, they are likely to increase in frequency and magnitude in the future due to climate change.

4.1.8 Wildfire

A wildfire is an uncontrollable combustion of trees, brush, or grass involving a substantial land area which may have the potential for threatening human life and property. Wildfires often begin unnoticed and spread quickly and are usually signaled by dense smoke that fills the area for miles around. In Oswego County, past occurrences of wildfires were caused by open burning.

Hazard Vulnerability

The Town of Hastings is moderately susceptible to a wildfire. The Town primarily consists of forested cover and also has a large number of agricultural properties. A wildfire event could impact a moderate amount of the Town and would come with little to no warning. The Town of Hastings experienced 1.4 to 3.4 wildfires per square mile between 2003 and 2017 (see Figure 5.9, Appendix A of the main body of the plan).

Historical Hazard Occurrences and Damage Estimates

There are no historical records or damage estimates of wildfires within the Town of Hastings. Previous wildfire events within Oswego County were generally caused by open burning during dry weather. The NYSDEC implemented a statewide open burn ban in 2010, which has helped reduce the number of wildfires throughout the state. Wildfires generally do not cause significant property damages as they tend to occur in undeveloped portions of the County. Crop damage is more likely to occur. However, the jurisdiction or County would likely incur significant costs associated with firefighting and other emergency response needs.

Future Potential Impacts

The Town of Hastings is largely undeveloped and remains susceptible to wildfires, though the risk is relatively low. The statewide open burn ban is expected to remain in effect, which lessens the risk of wildfires.

4.2 Technological Hazards

Technological hazards selected to be profiled by the Town of Hastings are described in detail below.

4.2.1 Utility Failure

Hazard Vulnerability

A utility failure involves the loss of electricity, natural gas supply, phone service, or water supply as a result of an internal system failure. While utility failures are often associated with natural hazard events, this hazard on its own does not include loss of utility access due to other disaster events. The Town of Hastings primarily has overhead utility lines, including electric, phone, and cable networks and also has underground natural gas lines and a public water supply system. A utility failure could impact the entire developed portion of the Town. The Town's vulnerability to utility failures was determined to be high due to the widespread extent and fast onset of a utility failure.

Historical Hazard Occurrences and Damage Estimates

The Town of Hastings was impacted by a widespread electricity failure in 2003 that impacted much of the northeastern U.S., which resulted in power outages for about one (1) day. No specific utility failure records are available for the Town itself. The Town is more likely to experience utility failures associated with a severe storm, ice storm, or severe winter storm than a purely technologically-caused utility failure.

Future Potential Impacts

The Town will remain susceptible to utility failures in the future. However, the Town is more likely to encounter utility failures due to a natural hazard event than this hazard occurring on its own.

4.2.2 HAZMAT Transit

Hazard Vulnerability

Hazardous Materials (HAZMAT) in Transit events involve the uncontrollable release of flammable, toxic, corrosive, chemically instable, or combustible materials during transport that can damage infrastructure, pollute the environment, and/or cause injuries or death. The Town of Hastings contains several major transportation routes, including Interstate 81, U.S. Route 11, and State Route 49. Interstate 81 and U.S. Route 11 run north to south through the eastern half of the Town. State Route 49 runs east to west through the southern part of the Town. In addition, the CSX Railroad (freight only in this location) runs north to south through the eastern half of the Town. A transportation accident involving hazardous materials on these roadways or the railroad has the potential to impact a portion of the Town of Hastings.

Historical Hazard Occurrences and Damage Estimates

There are no specific records of HAZMAT in transit events in the Town of Hastings. This hazard has been documented in other portions of the County (see main body of this plan update for details). A train derailment involving hazardous materials occurred in the Village of Central Square, just on the edge of the Town boundary in 2005. However, the Town of Hastings elected to include this hazard due to the moderate risk posed by the major transportation routes and railroad corridor that run directly through the Town.

Future Potential Impacts

Although HAZMAT in transit events are infrequent, the Town remains susceptible to future HAZMAT incidents along Interstate 81, U.S. Route 11, and State Route 49.

4.2.3 HAZMAT Fixed, Explosion

Hazard Vulnerability

A fixed-site hazardous materials incident or explosion could occur at sites that store petroleum products or other chemicals for industrial or commercial use. The NYSDEC lists twenty-six (26) bulk storage sites in the Town of Hastings (Figure 1). These sites are primarily petroleum bulk storage facilities (gas stations, auto shops and dealerships, Town facilities, and marinas) and one (1) chemical and major oil storage facility (Buckeye Terminals). If a large petroleum or chemical spill were to occur at either of these locations, nearby properties may need to be evacuated to prevent human exposure and facilitate cleanup. An explosion could also occur at any of these sites. Explosions are also a concern for HAZMAT in Transit incidents.

Historical Hazard Occurrences and Damage Estimates

There are no available records for explosions specifically in the Town of Hastings. The Town elected to profile this hazard due to the presence of hazardous material storage facilities that store or use hazardous materials. Particularly, if a chemical or petroleum spill or explosion occurred at Buckeye Terminals, a large portion of the Town would be affected and it could lead to severe injuries or loss of life.

Future Potential Impacts

The Town remains susceptible to fixed-site hazardous material events and explosions, though they are a rare occurrence. Properties close to bulk storage facilities that store petroleum products or chemicals are at the most risk of being affected by a fixed-site hazardous materials incident.

4.2.4 Transportation Accident

Hazard Vulnerability

For the purposes of hazard mitigation, a transportation accident is defined as an accident on land, water, or in the air resulting in mass casualties or a substantial loss of property. The Town of Hastings contains Interstate 81, U.S. Route 11, and State Route 49, three (3) major transportation routes. Interstate 81 and U.S. Route 11 run north to south through the eastern half of the Town. State Route 49 runs east to west through the southern part of the Town. These roadways are heavily travelled and there is potential for major accidents to occur, especially as a result of poor road conditions during a winter storm or ice storm. A transportation accident on any of these roadways has the potential to impact a portion of the Town of Hastings and cause severe injuries or loss of life.

Historical Hazard Occurrences and Damage Estimates

While minor vehicular accidents are relatively common throughout the County, there are no specific records of major transportation accidents in the Town of Hastings (accidents involving mass casualties or substantial loss of property). The Town elected to profile this hazard due to the increased risk of this hazard occurring along major transportation routes.

Future Potential Impacts

Major transportation accidents are infrequent, but the Town remains susceptible to future incidents along major transportation routes, particularly as a result of natural hazards such as a severe winter storm or ice storm. Transportation accidents do not pose a large risk to infrastructure, however, they are likely to cause injuries or loss of life. Maintaining roadway safety and clearly designating evacuation routes can aid in prevention of transportation accidents.

4.2.5 Terrorism

Hazard Vulnerability

Terrorism is defined as the threat or use of violence for political or social gain. Terrorism typically causes community disruption and multiple injuries or deaths. The Town of Hastings is moderately vulnerable to a terrorist event due to the event's short onset (no warning) and moderate potential impact to Town infrastructure and residents.

Historical Hazard Occurrences and Damage Estimates

There are no records of terrorist events in the Town of Hastings or Oswego County. The Town elected to profile this hazard for the HMP update to account for future potential impacts.

Future Potential Impacts

With the recent rise in localized terrorism events throughout the country such as shootings in schools and public places, the Town chose to analyze this hazard for the HMP update. However, terrorism remains a low risk for the Town of Hastings. The Town contains two schools, Hastings-Mallory Elementary and Central Square Middle School. The Town also operates a public water supply system that could be the target of a terrorist attack.

4.2.6 Water Supply Contamination

Hazard Vulnerability

The Town of Hastings would be highly vulnerable to water supply contamination due to the moderate extent, fast onset, and moderate damage or injury potential for this hazard. The majority of the Town is supplied by a public water system, and an expansion of the existing system to remainder of the Town is currently in design. The Town's water systems receive water from the Onondaga County Water Authority (OCWA). Water is supplied by the Metropolitan Water Board's (MWB) Lake Ontario water treatment facility near the City of Oswego. While unlikely, contamination could be caused due to improper treatment or localized groundwater contamination for residents relying on private wells. Water supply contamination could also result from terrorism.

Historical Hazard Occurrences and Damage Estimates

There are no historical records or damage estimates for water supply contamination in the Town of Hastings. However, if this event were to occur, it has the potential to cause a moderate number of injuries or loss of life.

Future Potential Impacts

The Town is susceptible to a water supply contamination event, but the risk is relatively low.

4.2.7 Dam Failure

Hazard Vulnerability

Dam failures can be attributed to natural or man-made hazards. The impoundment of large volumes of water poses a threat; the failure of a dam can lead to catastrophic flooding.

The New York State Department of Environmental Conservation (NYSDEC) maintains a database to classify dams based on the event of a failure. Explanations of dam classifications are noted in Table 5.13 (Appendix A) of the main body of the plan.

There are six (6) dams in the Town of Hastings, four of which are Class A (low hazard) dams located on various tributaries to Oneida Lake. The Caughdenoy Dam on the Oneida River and the Mallory Dam on Dykeman Creek are classified as a Class B intermediate hazard dams. The Caughdenoy dam impounds water for navigation and recreation with a normal capacity of 255,360 acre-feet. The dam has a length of 550 feet and is 15 feet high, for a capacity of 255,360 acre-feet. The Mallory Dam impounds water for recreation with a normal capacity of 18 acre-

feet. The dam has a length of 352 feet and is 6 feet high, for a capacity of 18 acre-feet. The dam consists of concrete.

Historical Hazard Occurrences and Damage Estimates

There are no records of dam failures occurring in the Town of Hastings. The Town elected to include this hazard due to the potential for significant damages to occur should the Class B Caughdenoy Dam or Mallory Dam fail.

Future Potential Impacts

Should either Class B dam fail, properties immediately downstream of the dams would be susceptible to flooding, which primarily consist of residential properties.

5.0 Capability Assessment

5.1 Planning and Regulatory Capability

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 6, below.

Table 6. Planning Mechanisms and Capabilities		
Planning Mechanism	Town of Hastings	Notes
Plans		
Comprehensive/Land Use Plan	X	Adopted.
Economic Development Plan	X	In place.
Post-Disaster Recovery Plan	X	In place.
Watershed Protection Plan	X	In place.
Comprehensive Emergency Management Plan	X	In place.
Policies/Ordinances		
Building Codes	<ul style="list-style-type: none"> • 2010 Residential Code of NYS • 2010 Fire Code of NYS • 2010 Building Code of NYS • 2010 Existing Building Code of NYS • 2010 Energy Conservation Construction Code of NYS • 2010 Plumbing Code of NYS • 2010 Mechanical Code of NYS • 2010 Fuel Gas Code of NYS 	Town Code Enforcement Officer
Zoning/Land Use Codes	X	Zoning last updated March 2018
Subdivision Regulations	X	Adopted.
Flood Regulations	X	Local Law No. 1 of 2013
Stormwater Ordinance	X	Adopted.
Site Plan Review Requirements	X	Town Planning Board responsible
Real Estate Disclosure Requirement	X	In place.

Table 6. Planning Mechanisms and Capabilities		
Planning Mechanism	Town of Hastings	Notes
Programs		
NFIP Participant	X	Current participant.
Public Education/Awareness Program	X	Fire Dept. responsible
Stream Maintenance Program	X	Highway Dept. responsible
Storm Drainage Maintenance Program	X	Highway Dept. responsible
Mutual Aid Agreements	X	Agreements with the Village of Central Square
Studies/Reports		
Hazard Analysis/Risk Assessment	X	2012 Oswego County Hazard Mitigation Plan
Floodplain Maps and/or Studies	X	2011 FEMA Digital Flood Insurance Rate Maps
Staff/Development		
Development Planner	X	Planning Board
Building Code Official	X	Code Enforcement Officers (2)
Engineer/Public Works Official	X	Highway Dept.
Local Floodplain Administrator	X	Code Enforcement Officers
Public Information Official	X	Town Supervisor

5.2 Emergency Communications, Routes, and Shelters

The Town of Hastings, along with Oswego County, utilize the HyperReach emergency communications system. Major transportation routes within the Town include Interstate 81, U.S. 11, and State Route 49. The Town of Hastings has one (1) established emergency shelter, shared with the Village of Central Square:

- Paul V. Moore High School – 44 School Dr, Central Square, NY 13036

The high school is ADA-compliant. The Town currently does not have any pet sheltering accommodations.

5.3 Temporary and Permanent Housing Locations

The potential temporary and permanent housing locations listed below were identified for displaced residents in the Town of Hastings 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**
 - Central Square Middle School Athletic Fields- 248 US Rt 11, Central Square, NY 13036
 - Gerald P. Van Lieu Town Park- Wilson Rd, Hastings, NY
 - Hastings-Mallory Elementary School Fields- 93 Barker Rd, Central Square, NY 13036
 - Caughdenoy Links Golf Course- 344 CR 33, Central Square, NY 13036
- **Potential Permanent Housing Locations**
 - Gerald P. Van Lieu Town Park- Wilson Rd, Hastings, NY

6.0 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 Hastings currently participates in the NFIP. As of November 2017, the Town had forty-nine (49) flood insurance policies in-force with a total of \$9,653,300 in coverage. In addition, eight (8) NFIP claims have been filed to date, two (2) of which were closed without payment. The remaining six (6) claims were closed with \$36,876.22 in payments. There is one repetitive loss property in the Town of Hastings (a single family residence). As of October 2017, this property incurred two (2) losses with total payments of \$ \$12,321.74 for building damages (no content losses paid).

The Town's Code Enforcement Officer serves as the Local Floodplain Administrator, and flood maps are available for viewing and copying at the Town Hall (1134 US Route 11, Central Square, NY 13036). The Town has been maintaining NFIP participation by performing the duties and actions that were listed in the local laws adopted by the Town Board (Local Law #1 of 2013). The Town will continue to comply with the NFIP by enforcing floodplain management requirements and regulating new development in Special Flood Hazard Areas, in addition to other required duties. There is one (1) repetitive loss properties in the Town. The Town will also consider potential mitigation efforts for this property to prevent future flood-related damages.

7.0 Mitigation Strategy and Prioritization

7.1 Past, Completed, and Ongoing Initiatives

The Town has progressed several mitigation projects since the publication of the previous Oswego County HMP. The Town proposed four (4) mitigation actions in the 2012 Oswego County HMP. The details and status of previous actions are summarized in Table 7. None of the 2012 mitigation actions proposed for the Town of Hastings were re-included for the 2018 update.

Table 7. 2012 Hazard Mitigation Actions Town of Hastings				
Proposed Mitigation Action	Hazard(s) Mitigated	Goals and Objectives Met	Implementing Agency	Status
Implement response protocols to remove debris jams from waterways	Flood	3-c	County DPW, Municipal DPW/Highway, Fire Depts., Canal Corps, USACE	This is an ongoing action that the Town addresses annually. The Highway Dept. has maintenance under control.
Implement response protocols to remove ice jams from waterways	Ice jam	4-d, 4-e, 5-a, 5-e	County DPW, Municipal DPW/Highway, Fire Depts., Canal Corps, USACE	This is an ongoing action that the Town addresses annually. The Town now has a protocol in place. The Highway Dept. is in charge.
Examine and implement ways to reduce flooding issues on north shore of Oneida Lake	Flood	4-d	NYSOEM, FEMA, Municipal Boards, Canal Corp., North Shore Council of Governments.	No progress- action no longer a priority for the Town (the Town does not have many issues with flooding along the lake shore).
Review emergency evacuation signage within I-81 corridor communities – establish such signage if needed	Severe storm, ice storm, earthquake, tornado, flood, wildfire, winter storm, coastal storm, landslide, terrorism, hazmat (transit)	5-c, 5-e	County EMO, Hastings municipal board and Highway/DPW Dept., NYSDOT	The Town did not address this action but emergency signage along I-81 was implemented by the NYSDOT.

7.2 Proposed Mitigation Actions

The Town proposed two (2) new mitigation actions to be included in the HMP update. These actions are described in Table 8, below and on worksheets included in Attachment A.

Table 8. 2018 Proposed Mitigation Actions Town of Hastings									
Action ID	Mitigation Action	Hazard(s) Mitigated	Implementing Agencies (Lead* & Support)	Planning Mechanism	Timeframe	New or Existing Development	Estimated Cost	Funding Source(s)	Priority
Hastings 1	Conduct Inflow & Infiltration Study for existing sewer system; implement sewer system rehabilitation as recommended	Flooding	Town Community Development and Planning Director*	Economic Development Plan, Comprehensive Plan	1 year (study), 5 years (rehab work)	Existing	\$40,000	NYSEFC-CWSRF	1 (High)
Hastings 2	Provide backup power for Town Highway Garage	Severe Storms, Severe Winter Storm, Utility Failure	Town Highway Superintendent*	Comprehensive Plan	1 year	Existing	\$15-20K	FEMA- PDM; USDA-RD Community Facilities Grant	2 (High)
Potential Funding Sources FEMA PDM: https://www.fema.gov/pre-disaster-mitigation-grant-program NYSEFC CWSRF: https://www.efc.ny.gov/CWSRF USDA-RD Community Facilities Grant: https://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program									

7.3 Cost-Benefit Analysis

Each of the Town's proposed mitigation actions were evaluated and prioritized using the STAPLEE cost-benefit analysis. The Town's STAPLEE worksheet is provided in Attachment B. The STAPLEE analysis includes the following lenses of evaluation: social, technological, administrative, political, legal, economic, and environmental.

8.0 Works Cited

House, Kelley. 2016. "Town of Hastings". *History of Oswego County, New York, Marking the Bicentennial*. Eds Shawn Doyle, Roy Reehil, Debra Allen, Justin White, Janet Clerkin, Kelly Jordal, and Kara Alheim. Oswego, NY: Oswego County, New York, 2016. 67-69. Print.

U.S. Census Bureau. 2016. "Summary File." 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. Accessed 5 September 2018. Available from:
<https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

Figure 1

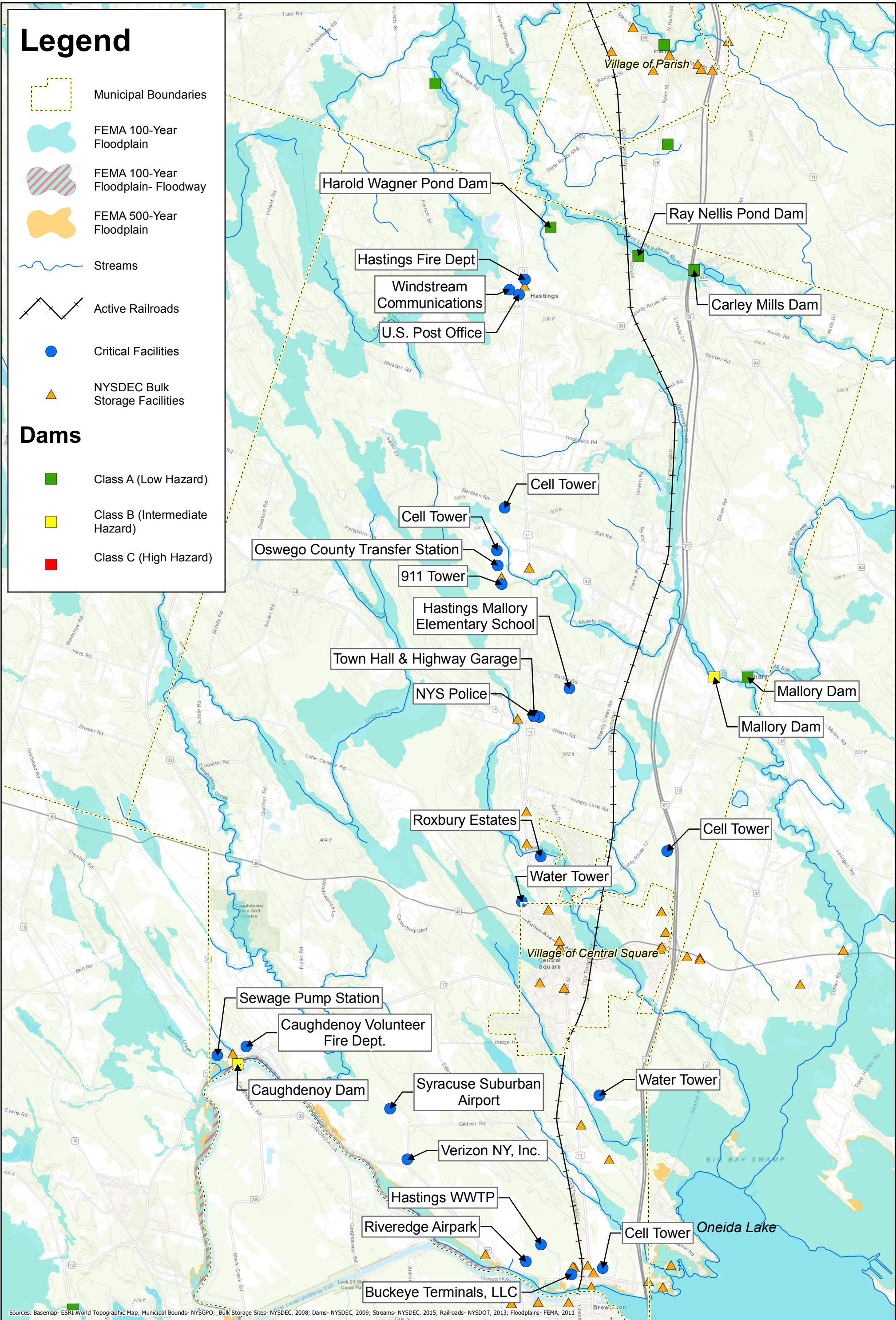
**Hazard Area Extent and Location Map –
Town of Hastings**

Legend

- Municipal Boundaries
- FEMA 100-Year Floodplain
- FEMA 100-Year Floodplain- Floodway
- FEMA 500-Year Floodplain
- Streams
- Active Railroads
- Critical Facilities
- NYSDEC Bulk Storage Facilities

Dams

- Class A (Low Hazard)
- Class B (Intermediate Hazard)
- Class C (High Hazard)



Attachment A

**Mitigation Action Worksheets –
Town of Hastings**

Oswego County Multi-Jurisdictional Hazard Mitigation Plan

Name of Jurisdiction:	Town of Hastings
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Mitigation Action Worksheet	
Project Name:	Conduct Inflow & Infiltration Study for existing sewer system; implement sewer system rehabilitation as recommended
Project Number:	Hastings 1
Risk/Vulnerability	
Hazard of Concern:	Flood
Description of the Problem:	During heavy precipitation events, stormwater flows reach the sanitary sewer system. This leads to high flows that the Town's wastewater treatment plant cannot accommodate. In addition, this can lead to localized sanitary/storm sewer overflows and flooding of residential properties.
Action of Project Intended for Implementation	
Description of the Solution:	Conduct an Inflow and Infiltration Study for the Town's sanitary sewer system. This will target rehabilitation methods to reduce flooding issues associated with sewage overflows.

Is this project related to a Critical Facility? Yes X 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:	High	Estimated Benefits (losses avoided):	Define rehabilitation methods needed to decrease flooding issues and increase WWTP efficiency.
Useful Life:	Medium		
Estimated Cost:	\$40,000 for study		

Plan for Implementation			
Prioritization:	High (#1)	Desired Timeframe for Implementation:	1-5 years
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	NYSEFC- CWSRF
Responsible Organization:	Community Development & Planning Director	Local Planning Mechanisms to be used in Implementation, if any:	Economic Development Plan, Comprehensive Plan

Three Alternatives Considered (Including No Action)			
	Action	Estimated Cost	Evaluation
Alternatives:	No Action	\$0	Existing flooding issues remain.
	Complete inflow and infiltration study	\$40,000	Initial step to determine rehabilitation needed for sewer system.
	Sanitary sewer system rehabilitation project	\$1 million	Solve issues with existing infrastructure to decrease flooding and increase sewer system efficiency

Progress Report (for Plan Maintenance)	
Date of Status Report:	
Report of Progress:	
Update Evaluation of the Problem and/or Solution:	

Oswego County Multi-Jurisdictional Hazard Mitigation Plan

Name of Jurisdiction:	Town of Hastings
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Mitigation Action Worksheet	
Project Name:	Provide backup power for Town Highway Garage
Project Number:	Hastings 2
Risk/Vulnerability	
Hazard of Concern:	Severe Storm, Severe Winter Storm, Ice Storm, Utility Failure
Description of the Problem:	Currently the Town Highway Garage lacks a backup power source, risking interruption of critical operations during a power outage.
Action of Project Intended for Implementation	
Description of the Solution:	Install a generator at the highway garage to ensure continuity of operations during hazard events that involve power outages.

Is this project related to a Critical Facility? Yes X 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:	High	Estimated Benefits (losses avoided):	Prevention of widespread power outages, maintain safe road conditions, prevent damages to Town infrastructure
Useful Life:	1 year		
Estimated Cost:	\$15,000-\$20,000		

Plan for Implementation			
Prioritization:	Medium (#2)	Desired Timeframe for Implementation:	1 year
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	FEMA- PDM; USDA-RD Community Facilities Grant
Responsible Organization:	Town Highway Superintendent	Local Planning Mechanisms to be used in Implementation, if any:	Comprehensive Plan

Three Alternatives Considered (Including No Action)			
	Action	Estimated Cost	Evaluation
Alternatives:	No Action	\$0	Critical facility may lose power during storm event.
	Purchase a portable generator for use at multiple facilities	\$8,000	Requires more coordination for use, may not power entire facility.
	Install backup generator at highway garage	\$15,000-20,000	Critical facility remains operational during power outages.

Progress Report (for Plan Maintenance)	
Date of Status Report:	
Report of Progress:	
Update Evaluation of the Problem and/or Solution:	

Attachment B

**STAPLEE Table –
Town of Hastings**

Worksheet #6

STAPLEE Criteria Consideration Table

Mitigation Action Prioritization and Comparison

Jurisdiction	Town of Hastings
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