

Village of Hannibal

Jurisdictional Annex

Village of Hannibal

1.0 Contacts

The contacts for the Village of Hannibal regarding this plan were identified as follows:

- Ron Greenleaf –Mayor
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Phone: (315) 564-6037
Email: hannibalboss@yahoo.com
- Joe Caruana – Deputy Mayor
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- Jake Malcott – Town Highway Superintendent
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2.0 Municipal Profile

Population

The 2016 American Community Survey estimated that 559 people live in the Village of Hannibal. The Village's population has decreased since the 2000 Census population (542) by 3.1% (U.S. Census Bureau, 2016).

Location

The Village of Hannibal is located in the center of the Town of Hannibal, in southwestern Oswego County. State Routes 3 and 104 provide direct access to the Village.

Brief History

The Village of Hannibal was officially formed in 1860. The area was originally occupied by the Onondaga and Oneida Nations. The first structure within the Village was a log hotel built in 1808. Hannibal was primarily an agricultural community until World War II, dominated by fruit and vegetable crops as well as dairy farming. The Lake Ontario Shore Railroad was

constructed through Hannibal in 1872 and helped spur development in the area, and provided a means of shipping crops and dairy products (Newvine, 2016).

Governing Body

The Village of Hannibal is governed by a five (5) member Village Board, led by the Mayor.

Future Growth

The Village of Hannibal is seeking stable growth as opportunities arise. No new commercial or residential developments have been completed in the Village since the County's 2012 HMP. All future development proposals would undergo local site plan review to ensure that all local, state, and federal requirements and regulations are met.

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 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
Explosion	1	3	2	1	Moderate	2
Ice Storm	3	1	3	2	High	3
Severe T-Storm/Wind/Tornado	3	1	3	3	High	4
Terrorism	2	3	2	1	Moderate	5

Table 1: Hazard Vulnerability by Event						
Hazard Event	Extent	Onset	Impact (Damages and Injury)	Frequency	Vulnerability Rank	Jurisdiction Rank
HAZMAT Transit	2	3	2	1	Moderate	6
Epidemic	2	1	2	1	Moderate	7
Ice Jam	2	2	2	1	Moderate	8
Flood	3	2	3	3	High	9
Coastal Storm	3	1	2	2	Moderate	10
Oil Spill	2	3	2	1	Moderate	11
Wildfire	2	3	2	1	Moderate	12
Drought	3	1	2	1	Moderate	13
Dam Failure	1	3	1	1	Moderate	14

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 Village of Hannibal. The table below denote the number and locations of critical facilities within the Village.

Table 2: Critical Facilities in the Village of Hannibal			
Facility Name	Address	Parcel Located in Floodplain	Structure Located in Floodplain
Public Utilities			
Citizens Telecom of NY property	327 Church St, Hannibal, NY 13074	No	-
Emergency Services			
Hannibal Fire Company	155 Oswego St, Hannibal, NY 13074	100YR	No
Educational Facilities			
Hannibal High School	928 Cayuga St, Hannibal, NY 13074	100YR	No
Fairley Elementary School	953 Auburn St, Hannibal, NY 13074	No	-
Kenney Middle School	846 Cayuga St, Hannibal, NY 13074	No	-
Dams			
Hannibal Dam	Ninemile Creek at Mill St	-	-

4.0 Priority Hazard Events

The following sections details the fourteen (14) top 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 Village of Hannibal. 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 may not have locally available documentation of past occurrence, but were included in this annex for future mitigation planning consideration.

4.1 Natural Hazards

Natural hazards selected to be profiled for the Village of Hannibal 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 Village of Hannibal is susceptible to damages from a severe winter storm event. The Village Public Works department clears Village streets during heavy snow events, and the Village 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 Village of Hannibal 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 Village of Hannibal.

Future Potential Impacts

The Village of Hannibal 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 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 Village of Hannibal is susceptible to damages from an ice storm event.

Historical Hazard Occurrences and Damage Estimates

The Village of Hannibal 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 Village of Hannibal.

Future Potential Impacts

The Village of Hannibal will continue to experience ice storm events in the future, as will the rest of Oswego County. The Village Public Works department completes tree maintenance within Village 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.

4.1.3 Severe Thunderstorm, Wind, Tornado, 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 Village is susceptible to damages from a severe thunderstorm, wind, or tornado 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.

Historical Hazard Occurrences and Damage Estimates

In addition to the 101 severe storm events reported within Oswego County, the NCDC reports four (4) wind, lightning, and hail events that occurred in the Village of Hannibal in from 1994 to 2017 (Table 3). It is important to note that these events were reported for the location Hannibal and may include the Town of Hannibal. Actual damages were likely greater than those estimated by the NCDC.

Table 3: Severe Storm Event Records for the Village of Hannibal				
Event Type	Date	Magnitude	Estimated Property Damage	Estimated Crop Damage
Hail	7/18/2016	1 inch	-	-
Thunderstorm Wind	9/2/2013	50 kts	\$15,000	-
Thunderstorm Wind	1/9/2008	50 kts	\$10,000	-
Thunderstorm Wind	6/19/2007	50 kts	\$10,000	-
Total			\$35,000	-

Future Potential Impacts

Severe storms are a common event in the Village of Hannibal and will continue to occur in the future. The frequency and magnitude of severe storm events may be increased due to climate change.

4.1.4 Ice Jam

An ice jam is described as a large accumulation of ice in rivers or streams that interrupts the normal flow of water and often leads to flooding conditions and/or damage to nearby structures. Ice jam events typically occur from the early winter to late spring months and are often short-lived and often affect only a localized reach or area of a body of water. Freeze-up jams occur when waterbodies are beginning to freeze over during the early winter and do not typically result in significant floods. Break-up jams typically occur later in the spring when built up ice breaks or moves as it begins to melt or when water levels rise due to precipitation or snowmelt. Break-up jams often result in flooding and property damages.

Hazard Vulnerability

In the Village of Hannibal, an ice jam could occur along Sterling Valley Creek, Ninemile and other major tributaries to 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 4 in Section 4.1.3.

Historical Hazard Occurrences and Damage Estimates

No historical occurrences have been recorded specifically for the Village of Hannibal.

Future Potential Impacts

Major tributaries to Oneida Lake will continue to pose risks of ice jams in the Village of Hannibal. In the future, ice jams may occur more frequently due to climate change.

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 Village is predominantly drained by tributaries of Lake Ontario such as Sterling Valley and Ninemile Creeks in the Lake Ontario drainage basin. 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 Village of Hannibal 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 2011)			
Village of Hannibal Total Area	Percent of Total Area		
	100-Year Floodplain	500-Year Floodplain	Area of Minimal Flood Hazard
732.3	9.01%	0.00%	90.99%

Table 5 below summarizes the value of properties in the Village of Hannibal 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 Hannibal 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
Commercial	3	\$897,100	0	-
Community Services	4	\$8,526,200	0	-
Residential	31	\$2,040,200	0	-
Other**	12	\$9,200	0	-
Totals:	50	\$11,472,700	0	-
*Structure Value estimated by subtracting parcel's Land Assessed Value from Total Assessed Value (Oswego County Real Property Tax Office, 2018)				

Historical Hazard Occurrences and Damage Estimates

According to NOAA's Storm Events Database, in the past ten (10) years, one (1) flood record was noted to specifically impact the Village of Hannibal.

On July 28, 2006, a flash flood was reported in Hannibal. No damages or injuries were recorded.

As described in Section 6.0 of this annex, there have been no NFIP flood loss claims in the Village of Hannibal.

Future Potential Impacts

Properties along the tributary waterways of Lake Ontario are vulnerable to flooding. No critical facilities are located on parcels that intersect the 100-year and/or 500-year floodplain (Table 2).

4.1.6 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 Village of Hannibal is moderately susceptible to a wildfire. The Village primarily consists of forested cover and also has a large number of agricultural properties. A wildfire event could impact a moderate amount of the Village and would come with little to no warning.

Historical Hazard Occurrences and Damage Estimates

There are no historical records or damage estimates of wildfires within the Village of Hannibal. 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 Village of Hannibal 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.

4.1.7 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 Village of Hannibal 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 Village currently has a public water system for portions of the Village. Other residents rely on private groundwater wells for potable water.

Historical Hazard Occurrences and Damage Estimates

There are no drought records specifically reported for the Village of Hannibal. The Village was impacted by a drought in the late summer and fall of 2016, which affected the entire County.

Future Potential Impacts

The entire Village of Hannibal 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.

4.2 Technological Hazards

Technological hazards selected to be profiled by the Village of Hannibal are described in detail below.

4.2.1 Explosion, HAZMAT Transit, Oil Spill

Hazard Vulnerability

Explosions, HAZMAT transit, and oil spill events could occur at facilities that store and transport hazardous materials. The NYSDEC lists four active petroleum bulk storage sites within the Village of Hannibal (Figure 1). These sites include one gas station, the Village, the Hannibal School District bus garage, and a trucking business. An explosion has the potential to occur at any of these sites storing petroleum products or other flammable chemicals. An explosion could also occur due to a transportation accident involving hazardous materials.

Historical Hazard Occurrences and Damage Estimates

There are no available records for explosions specifically in the Village of Hannibal. The Village elected to profile this hazard due to the presence of hazardous material storage facilities and industrial facilities that store or use combustible materials.

Future Potential Impacts

The Village remains susceptible to explosions, though they are a rare occurrence. Properties close to bulk storage facilities that store combustible materials are at the most risk of being affected by an explosion.

4.2.2 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 Village of Hannibal is moderately susceptible to a terrorist event due to the event's short onset (little to no warning) and moderate potential impact to Village infrastructure or residents.

Historical Hazard Occurrences and Damage Estimates

There are no records of terrorist events in the Village of Hannibal or Oswego County. The Village 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 Village chose to analyze this hazard for the HMP update. However, terrorism remains a low risk for the Village of Hannibal. The Village is mostly rural and does not have any schools or public infrastructure that is likely to be the target of a terrorist attack.

4.2.3 Epidemic

Hazard Vulnerability

Epidemics are defined as an outbreak of disease to an unusually large number of individuals or proportion of the population. Epidemics may include both human and animal illnesses. The Village of Hannibal was determined to have a low vulnerability risk for an epidemic event, since it has a relatively long onset, very low frequency, low damage potential, and may impact a moderate amount of the Village's population. The most vulnerable populations include young children under the age of five (5), older adults over the age of sixty-five (65), and those with existing medical conditions.

Historical Hazard Occurrences and Damage Estimates

There are no historical occurrences or impact estimates of epidemics specific to the Village of Hannibal. However, the Village elected to include this hazard in order to account for potential widespread illnesses such as influenza.

Future Potential Impacts

The risk of an epidemic occurring in the Village of Hannibal remains low, but it is possible and could affect a portion of the Village's population.

4.2.4 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 is one (1) dam in the Village of Hannibal. The Hannibal Dam is a Class B dam located within the Village of Hannibal, on Ninemile Creek. The dam is a concrete gravity dam and is utilized for fire protection, stock, or small farm pond as well as recreation.

Historical Hazard Occurrences and Damage Estimates

There are no records of dam failures occurring in the Village of Hannibal. The Village elected to include this hazard due to the potential for significant damages to occur should the Class B dam fail.

Future Potential Impacts

Should the dam fail, properties immediately downstream of the dam would be susceptible to flooding.

5.0 Capability Assessment

5.1 Planning and Regulatory Capability

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 6, below.

Table 6. Planning Mechanisms and Capabilities		
Planning Mechanism	Village of Hannibal	Notes
Plans		
Comprehensive/Land Use Plan	X	Adopted.
Post-disaster Recovery Plan	X	In place.
Capital Improvement Plan	X	In place.
Comprehensive Emer. Mgmt. 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 	Code Enforcement Officer
Zoning/Land Use Codes/Restriction	X	Local Law.
Subdivision Regulations	X	Adopted.
Property Set-back Ordinance	X	In zoning.
Stormwater Ordinance	X	Adopted.
Flood Regulations	X	Adopted.
Real Estate Disclosure Requirement	X	In place.
Programs		
NFIP Participant	X	Current participant.
Public Education/ Awareness Program	X	Fire Dept. responsible
Stream Maintenance Program	X	Town Highway Dept. responsible
Storm Drainage Maintenance Program	X	Town Highway Dept. responsible
Mutual Aid Agreements	X	Agreements with neighboring jurisdictions and Oswego County
Studies/Reports		
Hazard Analysis/Risk Assessment	X	2018 Oswego County HMP update
Floodplain Maps/Insurance Studies	X	FEMA- 2013
Staff/Development		
Building Code Official	X	Code Enforcement Officer
Engineer/Public Works Official	X	Dept. of Public Works

Table 6. Planning Mechanisms and Capabilities		
Planning Mechanism	Village of Hannibal	Notes
Local Floodplain Administrator	X	Code Enforcement Officer
Public Information Official	X	Mayor

5.2 Emergency Communications, Routes, and Shelters

The Village of Hannibal, along with Oswego County, utilize the HyperReach emergency communications system. Major transportation routes within the Village include County Route 3, NYS Route 104, and Cayuga Street. The Village of Hannibal, combined with the Town of Hannibal, has two (2) established emergency shelters:

- Kenney Middle School – 846 Cayuga Street
- Hannibal High School – 928 Cayuga Street

The middle and high school are both ADA-compliant. The Village does not currently have any emergency sheltering accommodations in place for pets. Pets may be sheltered at the City of Oswego's animal shelter, if space were available.

5.3 Temporary and Permanent Housing Locations

The potential temporary and permanent housing locations listed below were identified for displaced residents in the Village of Hannibal based on the 2017 NYS Hazard Mitigation Planning Standards.

- **Potential Temporary Housing Locations**
 - High School Athletic Fields – 928 Cayuga Street
- **Potential Permanent Housing Locations**
 - Vacant Village property at intersection of Rochester St and Cayuga St

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 Village of Hannibal currently participates in the NFIP. As of July 2018, the Village had one (1) flood insurance policies in-force, with a total coverage amount of \$105,000.00.

As of July 2018, no claims have been filed. No repetitive loss properties have been identified by the Village.

The Village's Code Enforcement Officer serves as the Local Floodplain Administrator, and flood maps are available for viewing and copying at the Village Hall (824 County Route 34). The Village has been maintaining NFIP participation by performing the duties and actions that were listed in the local laws adopted by the Village Board. The Village 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.

7.0 Mitigation Strategy and Prioritization

7.1 Past, Completed, and Ongoing Initiatives

The Village of Hannibal proposed one (1) mitigation action in the 2012 Oswego County HMP. The details and status of those actions are described in Table 7, below.

Table 7. 2012 Hazard Mitigation Actions Village of Hannibal				
Proposed Mitigation Action	Hazard(s) Mitigated	2012 Goals & Objectives Met	Implementing Agency	Status
Conduct a comprehensive engineering assessment of the dam in Hannibal	Flood	5-f	Village of Hannibal municipal board, Town of Hannibal, NYSDEC	No progress to date due to lack of funding. The Village re-included this action for the present plan update.

7.2 Proposed Mitigation Actions

The Village proposed three (3) new mitigation actions to be included in the HMP update. One of these proposed actions is a joint project with the Town of Hannibal. These actions are described in Table 8, below and on worksheets included in Attachment A.

Table 8. 2018 Proposed Mitigation Actions Village of Hannibal									
Action ID	Mitigation Action	Hazard(s) Mitigated	Implementing Agencies (Lead* & Support)	Planning Mechanism	Timeframe	New or Existing Development	Estimated Cost	Funding Source(s)	Priority
Hannibal Village 1	Conduct comprehensive engineering assessment of Hannibal Dam	Flood, Dam Failure	Village DPW Superintendent	Capital Improvement Plan	1-5 years	Existing	\$30-45K	FEMA- PDM; Local budgets	Hannibal Village 1
Hannibal Village 2	Rehabilitate sidewalks near schools	Severe Storms, others involving school evacuation	Village DPW Superintendent	Comprehensive Plan, Capital Improvement Plan	1-5 years	Existing	\$100K	FEMA- PDM; NYSDOT- CHIPS	Hannibal Village 2
Hannibal Village 3*	Implement public awareness program to keep public informed before and during natural disasters	All	Mayor	Comprehensive Emergency Management Plan	1-3 years	N/A	\$5,000	FEMA- PDM; Local budgets	Hannibal Village 3*
*Shared action with Town of Hannibal Funding Sources FEMA PDM: https://www.fema.gov/pre-disaster-mitigation-grant-program NYSDOT CHIPS: https://www.dot.ny.gov/programs/chips									

7.3 *Cost-Benefit Analysis*

Each of the Village's proposed mitigation actions were evaluated and prioritized using the STAPLEE cost-benefit analysis. The Village'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**


Newvine, Lowell. 2016. "Town and Village of Hannibal". 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. 62-66. 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 –
Village of Hannibal**


Legend


- 


Municipal Boundaries
- 


FEMA 100-Year Floodplain
- 


FEMA 100-Year Floodplain-Floodway
- 


FEMA 500-Year Floodplain
- 


Streams
- 


Active Railroads
- 

Critical Facilities
- 

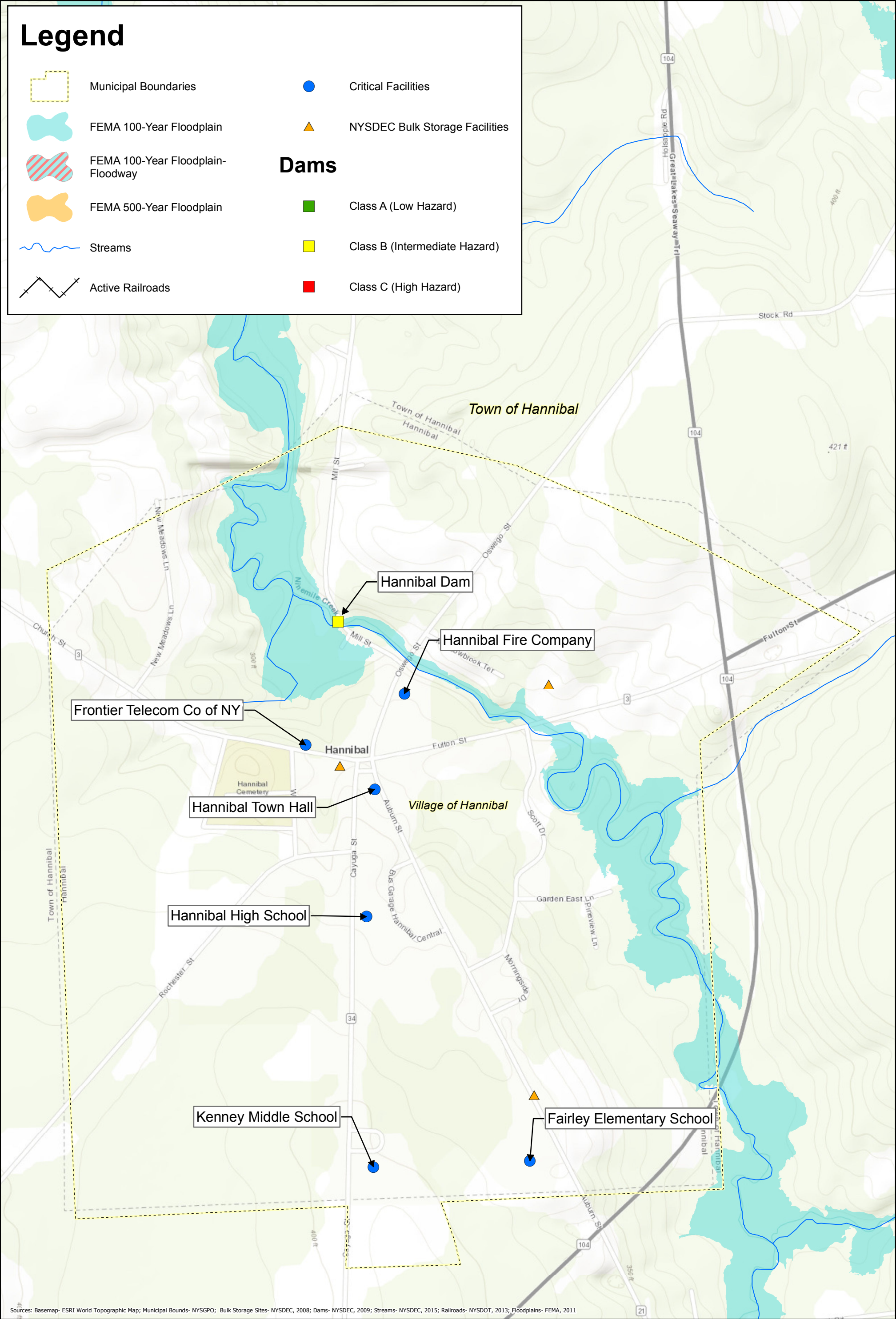
NYSDEC Bulk Storage Facilities
- 

Dams
- 

Class A (Low Hazard)
- 

Class B (Intermediate Hazard)
- 

Class C (High Hazard)



Sources: Basemap- ESRI World Topographic Map; Municipal Bounds- NYSGPO; Bulk Storage Sites- NYSDEC, 2008; Dams- NYSDEC, 2009; Streams- NYSDEC, 2015; Railroads- NYSDOT, 2013; Floodplains- FEMA, 2011

Attachment A

**Mitigation Action Worksheets –
Village of Hannibal**

Oswego County Multi-Jurisdictional Hazard Mitigation Plan

Name of Jurisdiction:	Village of Hannibal
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Mitigation Action Worksheet	
Project Name:	Conduct comprehensive engineering assessment of Hannibal Dam
Project Number:	Hannibal Village 1
Risk/Vulnerability	
Hazard of Concern:	Flood, Dam Failure
Description of the Problem:	The Hannibal Dam is in need of structural improvements, but no engineering assessment has been completed to date to determine what specific rehabilitative work is needed.
Action of Project Intended for Implementation	
Description of the Solution:	Complete an engineering assessment of Hannibal Dam to detail alternatives for structural improvements and potential costs.

Is this project related to a Critical Facility? Yes _____ No X

(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:	Low	Estimated Benefits (losses avoided):	Provide information on dam structure to reduce flooding potential and risk of ram failure.
Useful Life:	Short-term (study)		
Estimated Cost:	\$40,000		

Plan for Implementation			
Prioritization:	High (#1)	Desired Timeframe for Implementation:	1-5 years
Estimated Time Required for Project Implementation:	6 months	Potential Funding Sources:	FEMA- PDM
Responsible Organization:	Village DPW Superintendent	Local Planning Mechanisms to be used in Implementation, if any:	Capital Improvement Plan

Three Alternatives Considered (Including No Action)			
	Action	Estimated Cost	Evaluation
Alternatives:	No Action	\$0	Dam continues to pose a flood/dam failure risk.
	Complete engineering assessment of Hannibal Dam	\$40,000	First step in dam failure/flood mitigation- provide alternatives to move forward with structural rehabilitation
	Implement dam rehabilitation project	\$1 million +	Ultimate goal but need an engineering assessment completed first.

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:	Village of Hannibal
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Mitigation Action Worksheet	
Project Name:	Rehabilitate sidewalks near schools
Project Number:	Hannibal Village 2
Risk/Vulnerability	
Hazard of Concern:	Severe Storm, Severe Winter Storm
Description of the Problem:	Students currently lack safe pedestrian access during school evacuations. Sidewalks are unsafe.
Action of Project Intended for Implementation	
Description of the Solution:	Upgrade sidewalks in the vicinity of the high school, middle school, and elementary school to provide safer evacuation routes from schools during hazard events.

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):	Provide safer evacuation means for students and staff.
Useful Life:	Long-term (ongoing action)		
Estimated Cost:	\$50,000		

Plan for Implementation			
Prioritization:	High (#2)	Desired Timeframe for Implementation:	1-5 years
Estimated Time Required for Project Implementation:	2 years	Potential Funding Sources:	FEMA- PDM; NYSDOT- CHIPS; Village budget
Responsible Organization:	Town Highway Superintendent	Local Planning Mechanisms to be used in Implementation, if any:	Comprehensive Plan, Capital Improvement Plan

Three Alternatives Considered (Including No Action)			
	Action	Estimated Cost	Evaluation
Alternatives:	No Action	\$0	Sidewalks remain unsafe
	Bus students to safe areas during hazardous conditions	\$5,000	Could work in most situations but adds layer of complexity- must coordinate drivers, wait for buses to arrive, etc.
	Rehabilitate sidewalks near schools	\$50,000	Increase safety of sidewalks and provide better evacuation routes for students and staff.

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 Hannibal and Village of Hannibal
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Mitigation Action Worksheet	
Project Name:	Implement public awareness program to keep public informed before and during natural disasters
Project Number:	Hannibal Town 3, Hannibal Village 3
Risk/Vulnerability	
Hazard of Concern:	All
Description of the Problem:	Currently, the Town and Village notify residents of hazard conditions using traditional media (television, radio, newspapers) and lack a way to reach people who either don't use or have access to these resources.
Action of Project Intended for Implementation	
Description of the Solution:	Implement a public education program to teach residents how to use the HyperReach program and how to sign up for cell phone notifications. Increase social media outreach regarding hazard mitigation and emergency preparedness and communicate to residents where to access online resources.

Is this project related to a Critical Facility? Yes _____ No X

(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):	Residents are better prepared for hazardous conditions.
Useful Life:	Long-term		
Estimated Cost:	\$5,000		

Plan for Implementation			
Prioritization:	High (#3)	Desired Timeframe for Implementation:	1-5 years
Estimated Time Required for Project Implementation:	6 months	Potential Funding Sources:	FEMA- PDM; Town budget. Village budget
Responsible Organization:	Town- Town Supervisor Village- Mayor	Local Planning Mechanisms to be used in Implementation, if any:	Comprehensive Emergency Management Plan

Three Alternatives Considered (Including No Action)			
	Action	Estimated Cost	Evaluation
Alternatives:	No Action	\$0	No change- many residents remain uninformed of emergency preparedness resources
	Increase social media outreach regarding disaster preparedness	\$100	Not a complete solution- older residents may not have access to social media, and people may not be aware of Town's social media presence
	Hold in-person public education session(s) and increase social media outreach regarding disaster preparedness	\$5,000	More complete solution- providing information in a number of formats would reach a wider population.

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

Attachment B

**STAPLEE Table –
Village of Hannibal**

STAPLEE Criteria Consideration Table
Mitigation Action Prioritization and Comparison

Jurisdiction Village of Hannibal

Action ID	Action	S	T	A	P	L	E	E	Can action be easily implemented?	Does action achieve multiple plan objectives?	Can action be quickly implemented?	Level of action benefits	Level of action overall costs	Priority ranking
		+ = Benefit (favorable), - = Cost (unfavorable), 0 = Neutral or N/A											Levels = High, Medium, or Low	
Hannibal Village 1	Conduct comprehensive engineering assessment of Hannibal Dam	+	+	-	+	0	0	+	+	+	+	High	High	High (#1)
Hannibal Village 2	Rehabilitate sidewalks near schools	+	+	+	+	0	-	0	-	+	-	High	High	High (#2)
Hannibal Village 3*	Implement public awareness program to keep public informed before and during natural disasters	+	+	-	+	+	-	0	+	+	+	High	Med	Med (#3)

*Shared action with Town of Hannibal