

10.2.5 Town of Cornwall

This section presents the Jurisdictional Annex for the Town of Cornwall. The Town of Cornwall previously had an existing hazard mitigation plan that was locally adopted on October 21, 2013.

10.2.5.1 Contacts

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

- Todd M. Hazard – Police Chief
183 Main St.
Cornwall, NY 12518
(845) 534-8100
- Richard Randazzo – Supervisor
183 Main St.
Cornwall, NY 12518
(845) 534-9100

10.2.5.2 Municipal Profile

Population

According to the U.S. Census, the 2010 population for the Town of Cornwall was twelve thousand, seven hundred four (12,704), with a population density of four hundred seventy-one (471) persons per square mile. The population has increased by a 3.2% from the 2000 census (12,307). Population is concentrated in and adjacent to the Village of Cornwall-on-Hudson (2010 pop: 3,018) which is located within the Town of Cornwall. Other hamlets within the Town include Canterbury (or “Downtown Cornwall”), Firthcliffe, Firthcliffe Heights, Meadowbrook, Mountainville, Orrs Mill, Salisbury Mills, and West Cornwall.

Location

The Town of Cornwall is located along the Hudson River approximately fifty-two (52) miles north of New York City in eastern Orange County, New York. The Town is enclosed by the Town of New Windsor to the north, Towns of Woodbury and Blooming Grove to the west, Town of Highlands to the south, and the Hudson River and Westchester County to the east.

Brief History

The Town of Cornwall was explored by Henry Hudson in 1609, at the time the land was occupied by the Waoraneck Indians. In 1685 a colony of twenty-five (25) Scottish families settled around the mouth of the Moodna Creek. The town namesake stemmed from when the English and Scotch families came to the fertile tableland above the river meadows naming it "new Cornwall" because of the marked similarity to the County of Cornwall, England.

It is believed that the hamlet of Canterbury was the site of this settlement. The first recorded Town meeting was held here in April 1765, and it was here that public action was taken to change the name to Cornwall, in 1799. In the late 1800s the Town became a summer resort because of the natural beauty of the river, its mountain vistas, scenic trails, fresh country air and convenience to New York City via riverboat or railroad. (Town of Cornwall/Town of Cornwall 2013 Hazard Mitigation Plan, 2013)

Governing Body

The Town of Cornwall operates under the authority of the Town Board. The Town Board is comprised of the Supervisor, Deputy Supervisor and three (3) councilpersons who represent the governing and legislative body of the town, with the Supervisor functioning as chief executive officer.

Future Growth

The Town's population has seen consistent, though waning, growth throughout the past thirty (30) years. From 1980-1990, the population surged nearly eleven percent (11%). The following ten (10) years saw an increase of just over seven percent (7%), and most recently 2.8% (2000-2010). Given the continued growth track, the population is estimated to grow by seven (7%) by 2020. Such growth will be guided away from areas vulnerable to flooding through the development review process, NYS building codes, and NYSDEC floodplain regulations.

10.2.5.3 Hazard Vulnerabilities and Ranking

Hazard Identification

Numerous natural and technological hazards were identified to have the potential to impact the Town. The hazards identified in this section were selected as a result of local history of hazard events or the possibility of such occurrence based on a local predisposition to any one hazard. For more information on hazards to which Orange County has deemed lands within the County to be vulnerable, refer to Section 5.0 of this Plan.

The Town of Cornwall identified eight (8) hazards as having the potential to impact the municipality:

- Extreme Temperatures
- Severe Thunderstorms
- Hurricanes
- Floods
- Landslides
- Earthquake
- Severe Winter Storm
- Ice Storm

Risk Ranking

Table 10.2.5a shows the exposure within the Town to each hazard and the aggregate value of structures and their contents. These values were obtained by identifying structures at risk from various hazards, adding up property values from the Assessor’s records, and then adding contents values estimated using the FEMA methodology. Table 10.2.5b describes the FEMA “contents value estimation method.”

Table 10.2.5a: Town-wide Hazards		
<i>Source: New York State Division of Homeland Security and Emergency Services (DHSES)</i>		
Hazard	Potential Risk	Total Value
Earthquakes	All areas of the Town of Cornwall have at least some risk from identified hazards	\$14,696,675
Extreme Temperatures and Drought		
Flooding		
Windstorms (Hurricanes & Tropical Storms)		
Severe Winter Storms		
Landslides		

Table 10.2.5b: Contents Value as Percentage of Building Replacement Value	
<i>Source: New York State Division of Homeland Security and Emergency Services (DHSES)</i>	
Occupancy Class	Contents Value (%)
Residential	50
Commercial	100
Medical	150
Parking	50
Industrial	150
Construction	100
Agriculture	100
Religious/Non-Profit	100
Emergency Response	150
Government	100
Schools/Libraries	100
Colleges/Universities	150

Critical Facilities

A list of community Critical Facilities was generated to aid in mitigation planning. The following table summarizes the number of these facilities within the Town of Cornwall which may be impacted by any of the previously noted hazards. Critical facilities were identified by the Town as meeting this definition: “Any structure(s) and/or infrastructure within a community whose incapacity or destruction would:

- Have a debilitating impact on the defense or economic security of that community.
- Significantly hinder a community’s ability to recover following a disaster.”

Discretion was left up to the participating jurisdiction to select these facilities.

Table 10.2.5c: Proposed Mitigation Projects For Critical Facility Infrastructure (CFI)		
Community	CFI	Mitigation Project
Town of Cornwall	Tamara Lane	Drainage improvements and the road curbed and resurfacing
Town of Cornwall	Hasbrouck Avenue	Drainage improvements
Town of Cornwall	Hazen Street	Drainage improvements and road resurfacing
Town of Cornwall	Clinton Street	Drainage improvements and installation of sidewalks
Town of Cornwall	Boulevard	Drainage improvements
Town of Cornwall	Murry Road	Provide drainage system
Town of Cornwall	Taylor Road Flats	Provide drainage system
Town of Cornwall	Beaver Dam Lake Area	Construct flood protection berm
Town of Cornwall	Torrey Lane	Drainage improvements, road resurfacing, and installation of sidewalks

The Town of Cornwall has fourteen (14) critical facilities within the 500-year floodplain or the high hazard Landslide Rating¹ area. Of these facilities, Storm King State Park, is the only CFI listed in both.

Table 10.2.5d: Town of Cornwall Critical Facilities and Infrastructure in Hazard Areas			
Critical Infrastructure	500-yr Floodplain	Landslide Rating Area	Associated Mitigation Action
Black Rock Treatment Plant	N	Y	CT-6
Mountainville Engine Firehouse	Y	N	CT-6
Taylor Road Well Field	Y	N	CT-1
Village Department of Public Works	Y	N	CT-6
Town of Cornwall Wastewater Plant	Y	N	CT-6
Chauncey Stillman Pond Dam	N	Y	N/A
Firthcliffe Dam	N	Y	N/A
Orrs Pond Dam	N	Y	N/A
St. Patrick's Pond Dam	N	Y	N/A
Harvard Black Rock Forest	N	Y	N/A
Storm King State Park	Y	Y	CT-1
New York Military Academy	N	Y	CT-6
Town of Cornwall Elementary School	Y	N	CT-1, CT-6
Town of Cornwall Middle School	Y	N	CT-1, CT-6

As indicated in Section 2.8, participating municipalities did not wish to disclose the locations of public water systems facilities due to security concerns. However, they acknowledge the criticality of such facilities. While it is assumed that most municipal water systems facilities are not located within the floodplain, these jurisdictions will explore hardening/relocation opportunities for those that are located within the floodplain should such actions become necessary due to the incidence of flooding impacts.

By necessity, critical wastewater facilities are located within the 500-year floodplain due to discharge requirements and gravity-fed systems optimization. While relocation is neither desired nor feasible, participating municipalities will seek to harden these facilities where feasibly and fiscally possible.

Table 2.8a – Orange County NPDES Data lists all wastewater facilities in the County, including the Town of Cornwall, with a NPDES (National Pollutant Discharge Elimination System) permit. In the case of New York State, NPDES permit listing match State Pollutant Discharge Elimination System (SPDES) permit listings.

¹ Areas with a landslide rating in of greater than 37 are considered hazardous. The data was derived from HAZUS software analysis.

Priority Hazard Profiles

The following sections detail the priority hazard events identified by the jurisdiction. Additional information about each hazard including frequency, history, and severity within Orange County is included within Section 5.0 of the main body of the Hazard Mitigation Plan (Volume I).

The probability of climate-related hazard events is generally expected to increase in the future within the Town of Cornwall. This anticipated increase results from the expected increase in weather volatility associated with climate change. Hudson River communities will also experience increased threat of flooding due to sea level rise. Upstream tributaries such as the Moodna Creek Watershed also experience increased flooding occurrences to a lesser extent.

Past occurrences of hazard events are indicated in their respective profiles below. Some hazards may not have locally available documentation of past occurrence, but are nonetheless profiled in this annex to instill future mitigation planning consideration.

This Hazard Mitigation Plan only addresses natural hazards as identified in the main body of the plan. Man-made and technological hazards are identified separately in the Town’s Comprehensive Emergency Management Plan.

Flood

Areas of the Town adjacent to the Moodna and Woodbury Creeks and the Hudson River are vulnerable to damaging floods on an annual basis. Orange County is ranked as the 5th most flood vulnerable county in New York State, due to its flooding history and based on potential flood exposure and vulnerability to loss. The Town of Cornwall and the Village of Cornwall-on-Hudson have enacted and enforced floodplain management ordinances as required. Both communities also have Flood Insurance Rate Maps (FIRM’s) that at a minimum show floodways, 100-year flood zones, and 500-year flood zones.

Table 10.2.5e: Summary of Land Areas In Flood Hazard Areas (Source: FEMA DFIRM Data 2016)						
Jurisdiction	Total Land Area (Acres)	High Flood Risk (Acres)	Moderate Flood Risk (Acres)	Low Flood Risk (Acres)	Land in High Flood Risk %	Land in Moderate Flood Risk %
		A, AE, AH, AO	X500	X	A, AE, AH, AO	X500
Town of Cornwall	16,446	892	83	15,447	5%	1%

Historical Occurrence:

Several historic major flooding events have affected the Town since 1999.

- September 2000 – three (3) to four (4) inch rainfall, significant serious street flooding along with some basement flooding in Cornwall.

- October 2005 – Heavy rain resulted in significant flooding on some rivers, most small brooks and streams and throughout urban areas in low lying and poor drainage areas, more than ten (10) inches of rain in Cornwall.
- July 2009 – Several streams exceeded bank in Cornwall-on-Hudson.

The following table illustrates the value of property in the Town of Cornwall that is located within the 500-year floodplain and is categorized by land use type. This table was derived from FEMA floodplain mapping and parcel data from the Orange County Property Assessor.

Type of Structure	# Structures in Hazard Area	Value of Structures (in millions)
Residential	175	\$52.5
Commercial	24	Unknown
Industrial	0	\$0
Agricultural	2	Unknown
Religious/Non-profit	0	\$0
Government	4	\$1.1
Education	2	Unknown
Utilities	0	\$0
Dams	0	\$0
Parks	1	Unknown
Total	208	\$53.6

Extreme Temperatures

For a description of this hazard, please see Section 5.1.

Historical Occurrence:

In the past ten (10) years there is no record of extreme temperatures that have explicitly impacted the Town of Cornwall, however, there have been a number of recorded occurrences within Orange County. The information can be found in the main body of the document.

Severe Storm/Severe Thunderstorm

For a description of this hazard, please see Section 5.2.

Historical Occurrence:

In the past ten (10) years there is no record of extreme temperatures that have explicitly impacted the Town of Cornwall, however, there have been a number of recorded occurrences within Orange County. The information can be found in the main body of the document.

Tornado

For a description of this hazard, please see Section 5.2.

Historical Occurrence:

In the past ten (10) years there is no record of tornados that have explicitly impacted the Town of Cornwall, however, there have been a several recorded occurrences within Orange County. The information can be found in the main body of the document.

Hurricane

For a description of this hazard, please see Section 5.3.

Historical Occurrences:

In the past ten (10) years there is no record of extreme temperatures that have explicitly impacted the Town of Cornwall, however, there have been a number of recorded occurrences within Orange County. The information can be found in the main body of the document. It is of note that hurricane threats could potential increase due to climate change trends.

Drought

Drought could have significant impacts to the production in agricultural areas inside the Town of Cornwall. To a lesser extent, lack of precipitation for an extended period of time would impact recharge to the aquifers and groundwater wells that support the majority of the Town's water supply. Within the Town, municipal water service is provided to a majority of the population in the Town of Cornwall. This would mean the necessity for water restrictions, which could impact manufacturing output.

The following table shows the impact of drought for the Town. Crop farmers in the southwestern portion of the County will be the ones who experienced most significantly, particularly in the Black Dirt Region, where several municipalities have 25-45% of their land areas given over to agriculture. For residences, businesses, and institutions in Orange County, water is mostly sourced from groundwater aquifers: according to the Orange County Water Master Plan (August 2010), 56% of Orange County water supplies serving residences and businesses come from groundwater, with 33% from surface water and the remaining 11% from the New York City aqueduct system. The majority of the County water supply is provided by one hundred sixty-one (161) community water supply systems drawing from reservoirs (29) and aquifers (132). Three (3) municipalities in the County draw their supplies from the Catskill Aqueduct (with another able to draw water from this source under emergency conditions), one (1) municipality draws water from the Delaware Aqueduct, and 80% of the County land area is serviced by

individually-owned wells. The County is served by sixty-three (63) water districts, some of which cross municipal boundaries.

Table 10.2.5g: Distribution of Agricultural Land in Orange County (Orange County GIS, 2016)			
Municipality	Total Area (Acres)	Total Agricultural Land (Acres)	Total Agricultural Land %
Cornwall, Town of	14,385	765	5.3%

Historical Occurrence:

In the past ten (10) years there is no record of extreme temperatures that have explicitly impacted the Town of Cornwall, however, there have been a number of recorded occurrences within Orange County. The information can be found in the main body of the document.

Landslide

Landslides occur when a slope fails and moves downward due to gravity; this can be caused by anything that disrupts ground stability, from storms to acts of man. The New York State Geological Survey denotes areas with steep slopes and glacial lake clay soils as landslide vulnerable. There are areas within the Town of Cornwall that meet these criteria. The Town has areas with steep slopes and ridgelines, these step terrain areas are generally wooded, increasing the probability for a potential landslide in the future. Analysis of critical facilities that fall into these high landslide rating areas can be found in Table 10.2.5d and in Attachment I.

The following table illustrates the value of property in the Town of Cornwall that is located within the landslide rating area and is categorized by land use type. This table was derived from GIS mapping and parcel data from the Orange County Property Assessor.

Table 10.2.5h: Structures in the Town of Cornwall Vulnerable to Landslide Events and Their Estimated Values		
Type of Structure	# Structures in Hazard Area	Value of Structures (in millions)
Residential	164	\$49.2
Commercial	4	Unknown
Industrial	1	Unknown
Agricultural	4	Unknown
Religious/Non-profit	0	\$0
Government	1	Unknown
Education	1	Unknown
Utilities	0	\$0
Dams	4	Unknown
Parks	2	Unknown
Total	181	\$49.2

Earthquake

Earthquakes are uncommon within the Town of Cornwall. While there have been several earthquakes within the region, none have been above a 3.0 in magnitude. However, there have been several earthquakes in and around Orange County that are outlined in the main body of this document.

Winter Storms

Winter storms present a frequent hazard to the area. For a description of this hazard, please see Section 5.8.

Numerous winter storm events have affected the Town of Cornwall and remain a high risk storm event. Other historical occurrences related to winter storms for the County as a whole can be found in the main body of this document.

Historical Occurrence:

- March 2005 – Snow quickly developed and spread northeast across the region. In Orange County, snowfall accumulations ranged from six (6) inches at the Town of Cornwall to ten (10) inches at Circleville.

Ice Storm

For a description of this hazard, please see Section 5.8.

Historical Occurrence:

According to NOAA's Storm Events Database, four (4) ice storm events have been recorded for Orange County in the past ten (10) years, however there is no specific information is available for the Town of Cornwall. More historical occurrences related to the County as a whole can be found in the main body of this document.

Wildfire

A wildfire is defined as an uncontrollable combustion of trees, brush, or grass involving a substantial land area which may have the potential for threatening human life and property. Dry conditions at various times of the year can increase the potential for wildfire events. Often, wildfires begin abruptly and spread quickly, creating a dense smoke that can fill the surrounding area for miles. Humans start four (4) out of every five (5) wildfires, typically due to debris burns, arson, or carelessness. Lightning strikes are also a leading cause of wildfires (NYS DEC, 2016).

One of the major contributing factors to severity of wildfires depends on the presence of humans within areas where wildfires would typically occur. The Wildland/Urban Interface (WUI) is the area where houses and wildland vegetation meet. Housing developments alter the structure and function of forests. Wildfires are common in forests they help to cycle nutrients within forests as well as remove combustible debris. However, with human lives and structures mixed into the equation, wildfires need to be controlled and manipulated. This manipulation results in fewer wildfires which results in the accumulation of combustible materials, which can lead to larger more intense wildfires. The 2014 Annual Report for the NYSDEC Division of Forest Protection indicates that there were twenty-three (23) wildfires within Zone 3B which includes the Town of Cornwall. These wildfires burnt a total of two hundred and thirty-nine (239) acres; none of these wildfires were over one hundred (100) acres in size.

Ice Jam

Although a large amount of information associated with ice jam events has been collected since the early 1900's, documentation of the actual rate of occurrence of such events is not easily obtained. The lack of information on ice jams can be attributed, in part, to the fact ice jam events are often short-lived and often affect only a localized reach or area of a body of water (U.S. Army CRREL, 2004).

Historical Occurrence:

According to the U.S. Army Corps of Engineers (USACE) Cold Regions Research and Engineering Laboratory (CRREL) Ice Jam Database, the Town of Cornwall experienced one (1) ice jam in 1999.

- On Sunday, January 24, 1999, Ulster County Officials reported an ice jam on the Verkeerder Kill along the Ulster and Orange County Border. It is in the vicinity of the confluence of the Verkeerder Kill and Shawangunk Kill rivers in Crawford, New York. Ulsterville Road from the intersection of Pirog Road south into the Town of Cornwall in Orange County was closed. A bridge near the intersections of Ulsterville Road, Pirog Road, and Gillespie Street was flooded with four (4) to five (5) feet of water. At 11:25 p.m. on Sunday, it was reported that the ice jam had diminished. Crawford Police Officials reported that Ulsterville Road was reopened and flood waters had receded.

Probability of Future Events:

It is possible that future ice jams will impact the Town of Cornwall. Ice jams are not a common event for the Town. The best way to reduce future impacts is through organized planning and proper response. Community and municipal response and action are key to reducing impacts and damages from ice jam events.

10.2.5.5 Capability Assessment

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the municipality.

Tool/Program (Code, Ordinance, Plan)	Status Do you have this? (Y/N)	Authority (Local, County, State, Federal)	Dept./Agency Responsible	Code Citation and Comments (Code Chapter, date of adoption, name of plan, explanation of authority, etc.)
Building Code	Y	Local State, Federal	Planning and Building	International codes 2010 Edition
Zoning Ordinance	Y	Local	Planning and Building	It is adequately administrated and enforced.
Subdivision Ordinance	Y	Local, State	Town Board, Town Planning Board	It is adequately administrated and enforced.
NFIP Flood Damage Protection Ordinance	Y	Federal, State, Local	Town Board, Building Inspector	Chapter 124 Flood Damage Prevention, Adopted 7/18/1988, updated May 2010
NFIP - Freeboard	Y	Federal, State	Town Board, Building Inspector	State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
NFIP - Cumulative Substantial Damages	N			

Table 10.2.5i: Planning and Regulatory Tools				
Tool/Program (Code, Ordinance, Plan)	Status Do you have this? (Y/N)	Authority (Local, County, State, Federal)	Dept./Agency Responsible	Code Citation and Comments (Code Chapter, date of adoption, name of plan, explanation of authority, etc.)
Special Purpose Ordinances (e.g. wetlands, critical or sensitive areas)	Y	Local, State, Federal	Town Board, Town Planning Board	
Growth Management	N			
Floodplain Management/Basin Plan	Y	Local, State	Town Board	
Stormwater Management Plan/Ordinance	Y	Local, State	Hwy Dept. Dept. Public Works	MS-4 Partial
Comprehensive Plan/Master Plan	Y	Local	Town Board	Adopted March 13, 2012
Capital Improvements Plan	N			
Site Plan Review Requirements	Y	Local, State, Federal	Town Board, Building Inspector	
Economic Development Plan	N			
Emergency Response Plan	Y	Local, State	Town Board, Hwy. Dept., Police Dept.	
Post Disaster Recovery Plan	Y	Local, State	Town Board	
Post Disaster Recovery Ordinance	Y	Local, State	Town Board	

Administrative and Technical

The table below summarizes potential staff and personnel resources available to the Town.

Table 10.2.5j: Administrative and Technical Capabilities		
Available Staff/ Personnel Resources	Y or N	Department/ Agency/Position
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Y	Planner - Leslie Dorson, Garond Associates
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Building Inspector, Chief Building Official- Gary Vinson
Planners or engineers with an understanding of natural hazards	Y	Civil Engineer
NFIP Floodplain Administrator	Y	Building Inspector
Surveyor(s)	Unknown	

Table 10.2.5j: Administrative and Technical Capabilities		
Available Staff/ Personnel Resources	Y or N	Department/ Agency/Position
Personnel skilled or trained in “GIS” applications	Unknown	
Scientist familiar with natural hazards in the County.	N	
Emergency Manager	Y	Kurt W. Hahn
Grant Writer(s)	N	
Staff with expertise or training in benefit/cost analysis	Unknown	
Professionals trained in conducting damage assessments	Unknown	

Fiscal

Table 10.2.5k: Fiscal Capabilities Identified by Town of Cornwall						
Funding Source	Earthquakes	Extreme Temperatures	Flooding	Windstorms	Winter Storms	Landslides
Community Assistance Program-State Support Services Element (NFIP)			+			
Community Development Block Grant/Economic Development Initiative			+	+		
Community Development Block Grant/Entitlement Grant	+	+	+	+	+	+
Community Development Block Grant/Small Cities Program	+	+	+	+	+	+
Community Disaster Loan	+	+	+	+	+	+
Cooperative Forestry Research						+
Emergency Community Water Assistance Grants			+			
Emergency Conservation Program			+			
Emergency Flood and Shelter National Board Program	+	+	+	+	+	+
Emergency Management Institute Training Assistance	+	+	+	+	+	+
Emergency Rehabilitation of Flood control Works			+			
Flood Plain Management Services			+			
Hazard Mitigation Grant Program	+	+	+	+	+	+
Project Impact: Building Disaster Resistant Communities	+	+	+	+	+	+
Public Assistance Grant Program	+	+	+	+	+	+

National Flood Insurance Program:

Jurisdiction	# Policies	# Claims (Losses)	Total Loss Payments	# Repetitive Loss Properties	# Severe Rep. Loss Properties
Town of Cornwall	43	26	\$477,493	0	0

The Town of Cornwall has forty-three (43) current National Flood Insurance Program policies and has had fourteen (14) flood insurance claims since 1978. The total flood insurance in force is \$10,041,600 and the total premium is 24,807. The Town is in good standing with the NFIP and there are no outstanding compliance issues. Administration is provided through the Town Planning Board.

The Town has been maintaining NFIP participation by performing the duties and actions that were listed in the local laws that their municipal boards adopted. (Local Law #7 of 2009) The Town Floodplain Administrator has been provided an NFIP best practices incorporation guidance document and will be using it to improve local participation in NFIP standards going forward. This package of documents was provided by NYSDHSES and can be found in Appendix F - NFIP Floodplain Administrator Guidance Package.

Hazard Mitigation: Existing and Planning Mechanisms

Emergency Communications, Routes, and Shelters:

Orange County utilizes the CodeRED system for emergency notifications. Residents can also visit the Town’s website to sign up to receive text alerts regarding news from the Town of Cornwall about closings, refuse schedule changes, police department notices, and like. The Town follows emergency route rules set by Orange County. The Town has one (1) designated emergency shelter: Munger Cottage (40 Munger Drive, Cornwall, NY 12518).

Comprehensive Plan:

The Town’s Comprehensive Plan was last adopted in March 13, 2012 but an update is currently underway. In the Town’s 2012 Comprehensive Plan, Section 7.3 recommends that the plan is reviewed and updated every five (5) to six (6) years. The plan discusses existing conditions, goals and objectives adopted from the previous 2005 Comprehensive Plan, environmental preservation issues, as well as public accommodations and municipal facilities. There is no discussion of mitigation or planning strategies in regards to hazards faced by the Town.

Planning Mechanisms:

While this annex has provided a summary and description of existing plans, policies, and regulatory mechanisms that support hazard mitigation, the 2018 Orange County Hazard Mitigation Plan Update is intended to allow for the integration of its recommendations and data into local plans. Listed below are several planning and policy mechanisms that lend themselves to the integration of materials and objectives from this hazard mitigation plan. Columns to the right indicate whether the municipality has utilized hazard mitigation planning elements in the past (as in the aftermath of a previous local hazard mitigation plan) and whether they intend to be utilized in the future (which most, if not all, do).

Table 10.2.5m: Incorporation of Hazard Mitigation Planning into Existing and Future Planning Mechanisms		
Planning Mechanism	Has been Utilized	May be Utilized
Capital Improvement Budget: Hazard Mitigation Actions to be considered during the development of annual capital improvement plans. Compliance with Hazard Mitigation goals and objectives as well as the hazard vulnerability of site will be a consideration during the evaluation of infrastructure and facilities projects.	X	X
Operating Budget: Hazard Mitigation Actions to be considered within day-to-day operating budgets as funding permits.	X	X
Building & Zoning Ordinances: Review of the hazard mitigation plan and hazard analyses are part of the evaluation of land use, zoning, and development review ordinances and permitted processes.	X	X
Comprehensive Land Use Plan: Elements such as hazard vulnerability and hazard area extents will be considered during the development of future land use maps and other elements of comprehensive planning.	X	X
Human Resource Manual: Employee job descriptions may contain elements related to hazard mitigation planning and associated recommendations.		X
Grant Applications: Support for funding requests in the form of data, maps, and priority recommendations will be drawn from the hazard mitigation plan.	X	X
Fire Plan: Fire Plans for the municipality and local fire departments can utilize data and mapping in the hazard mitigation plan.	X	X
Local School Service Projects: Municipal officials and staff can explore the possibility of collaboration with local school districts to provide avenues for student community service projects as well as educational opportunities.		X
Economic Development: Local chambers of commerce and other economic development agencies can utilize the hazard mitigation plan to better inform new/expanding businesses in finding a location.		X

10.2.5.6 Mitigation Strategy and Prioritization

Past, Completed, and Ongoing Initiatives

The actions listed in the Town of Cornwall's previous local hazard mitigation plan have not yet been completed due to lack of funding and have carried over into this plan update.

Proposed Initiatives

Table 10.2.3n: 2018 Proposed Mitigation Actions/Projects Identified				
Action	Description	Involved Agency(ies)	Funding Source(s)	Cost
CT-1	Provide hazard mitigation information at various locations throughout the Town and Village; primary location for information including emergency preparedness lists, flood plain maps, and NFIP information will be the Town and Village websites	Police and Fire Departments	FEMA Hazard Mitigation Grant (HMGP), FEMA Pre-Disaster Mitigation Funds (PDM), NYS Division of Homeland Security & Emergency Services	Low
CT-2	Provide existing emergency preparedness lists and NFIP information to residents in high-risk flood areas	Supervisor/Mayor's Office, Police and Fire Departments, Highway Dept/DPW	Federal/State/Town/Village	Low
CT-3	Continue training Town and Village staff within the National Incident Management System (NIMS)	Supervisor/Mayor's Office	Town/Village	Medium
CT-4	Relocate or flood harden Wastewater Treatment Plant on Shore Road along the Moodna Creek as necessary within flood prone areas	Town Board, Town Consulting Engineer	FEMA Hazard Mitigation Grant (HMGP), FEMA Pre-Disaster Mitigation Funds (PDM)	Medium
CT-5	Identify, map and publicize the reception centers throughout the Town and Village	Police Department and School District	FEMA Hazard Mitigation Grant (HMGP), FEMA Pre-Disaster Mitigation Funds (PDM), NYS Division of Homeland Security & Emergency Services	Low
CT-6	Acquire emergency generators for critical facilities such as Munger Cottage Emergency Shelter.	Town Board, Town Consulting Engineer	FEMA Hazard Mitigation Grant (HMGP), FEMA Pre-Disaster Mitigation Funds (PDM)	Medium
CT-7	Obtain funding to purchase or replace equipment and supplies utilized by the Town Highway Department and Village of Public Works during winter storm events	Highway Department/DPW	Town/Village	Medium
CT-8	Construct channel stabilization measure including retaining wall and bridge replacements	Highway Department, Consulting Engineer	FEMA Hazard Mitigation Grant (HMGP), FEMA Pre-Disaster Mitigation Funds (PDM), NYS Division of Homeland Security & Emergency Services	High

Table 10.2.3n: 2018 Proposed Mitigation Actions/Projects Identified				
Action	Description	Involved Agency(ies)	Funding Source(s)	Cost
CT-9	Hasbrouck Ave - drainage improvements between Rovert Rd. and Idlewild Creek	Highway Department, Consulting Engineer	FEMA Hazard Mitigation Grant (HMGP), FEMA Pre-Disaster Mitigation Funds (PDM) , NYS Division of Homeland Security & Emergency Services	Medium
CT-10	Clinton St. - drainage improvements between Hasbrouck Ave and Union St.	Highway Department, Consulting Engineer	FEMA Hazard Mitigation Grant (HMGP), FEMA Pre-Disaster Mitigation Funds (PDM) , NYS Division of Homeland Security & Emergency Services	Medium
CT-10	Union St. - drainage improvements between Robert Rd. and Clinton St.	Highway Department, Consulting Engineer	FEMA Hazard Mitigation Grant (HMGP), FEMA Pre-Disaster Mitigation Funds (PDM) , NYS Division of Homeland Security & Emergency Services	Medium
CT-12	Murry Rd. - drainage improvements between Lee Road Middle School and Mailer Ave.	Highway Department, Consulting Engineer	FEMA Hazard Mitigation Grant (HMGP), FEMA Pre-Disaster Mitigation Funds (PDM) , NYS Division of Homeland Security & Emergency Services	Medium
CT-13	Acquisition of repetitive loss (RL) and severe repetitive loss (SRL) properties within municipal limits	Town Board, Consulting Engineer	FEMA, NYS Division of Homeland Security & Emergency Services	High

The following two tables provide general guidance toward prioritizing and pursuing funding for hazard mitigation projects.

Table 10.2.5o: Potential Funding Sources for Projects by Category						
Funding Source	Earthquakes	Extreme Temperatures	Flooding	Windstorms	Winter Storms	Landslides
Community Assistance Program-State Support Services Element (NFIP)			+			
Community Development Block Grant/Economic Development Initiative			+	+		
Community Development Block Grant/Entitlement Grant	+	+	+	+	+	+
Community Development Block Grant/Small Cities Program	+	+	+	+	+	+
Community Disaster Loan	+	+	+	+	+	+
Cooperative Forestry Research						+
Emergency Community Water Assistance Grants			+			
Emergency Conservation Program			+			
Emergency Flood and Shelter National Board Program	+	+	+	+	+	+
Emergency Management Institute Training Assistance	+	+	+	+	+	+
Emergency Rehabilitation of Flood control Works			+			
Flood Plain Management Services			+			
Hazard Mitigation Grant Program	+	+	+	+	+	+
Project Impact: Building Disaster Resistant Communities	+	+	+	+	+	+
Public Assistance Grant Program	+	+	+	+	+	+

Table 10.2.5p: General Prioritization of Proposed Mitigation Actions		
Strategy	Priority	Potential Implementation Barriers
Hazard Awareness	High	Administrative/Economic
Flood Education and Evacuation Routes	High	Administrative/Economic
Training	High	Administrative
Flood Proofing and Structural Measures	High	Social/Technical/Administrative/ Legal/Economic
Reception Centers	High	Administrative/Economic
Generators	High	Administrative/Economic
Winter Storm Preparedness	Moderate	Economic/Environmental
Channel Stabilization	Moderate	Social/Political/Legal/Economic

STAPLEE forms were completed for each of these actions. A table with these evaluations can be found in Attachment II of this jurisdictional annex.

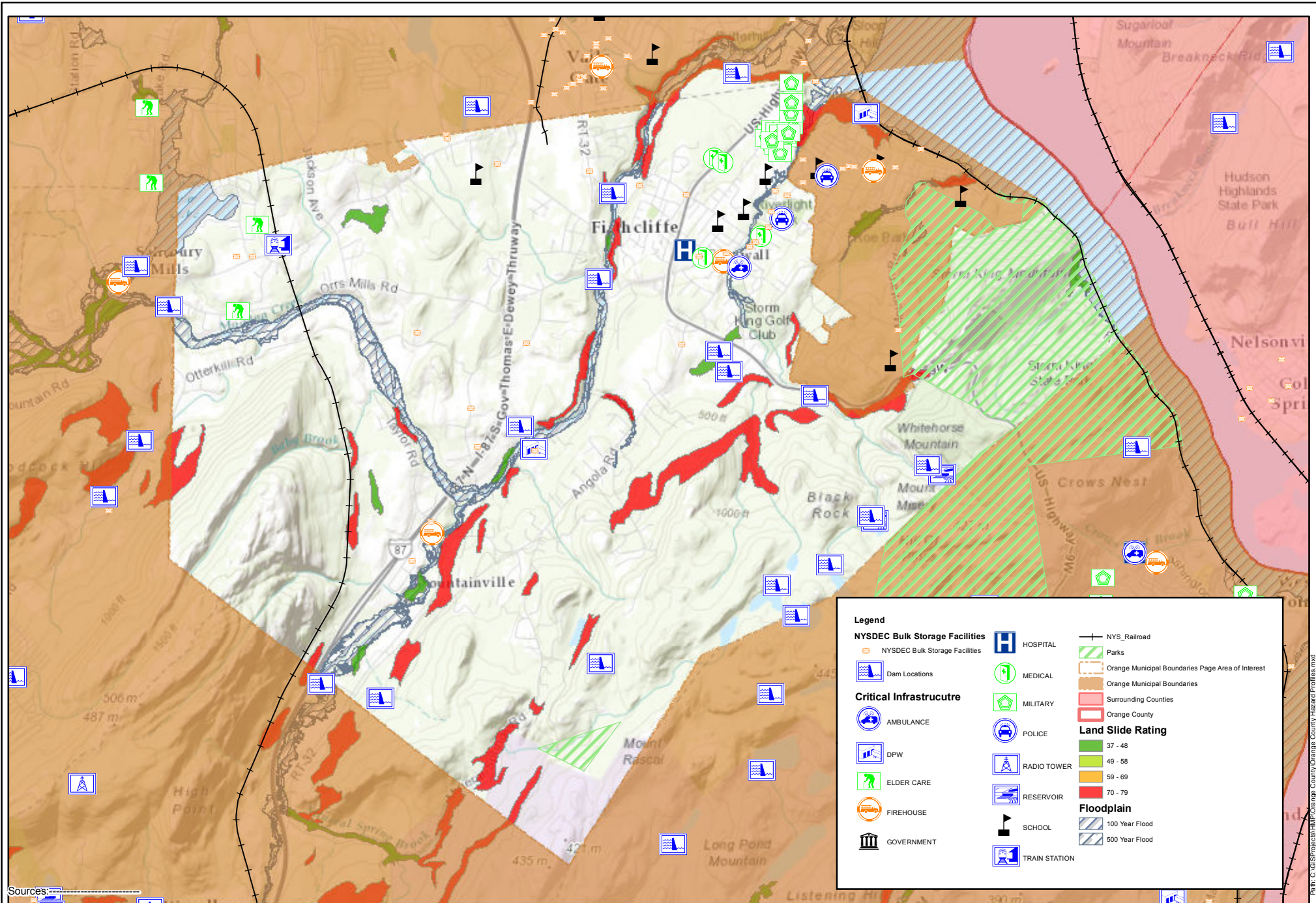
“STAPLEE” refers to the following lenses of evaluation: social, technological, administrative, political, legal, economic, and environmental.

10.2.5.7 Hazard Area Extent and Location

Maps demonstrating the location of certain hazard areas are attached as Attachment I.

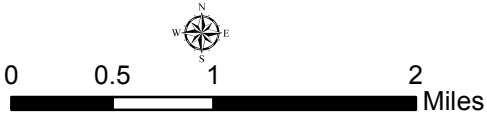
Attachment I

**Hazard Area Extent and Location Map -
Town of Cornwall**



Legend

NYSDEC Bulk Storage Facilities	HOSPITAL	NYS Railroad
Dam Locations	MEDICAL	Parks
AMBULANCE	MILITARY	Orange Municipal Boundaries Page Area of Interest
DPW	POLICE	Orange Municipal Boundaries
ELDER CARE	RADIO TOWER	Surrounding Counties
FIREHOUSE	RESERVOIR	Orange County
GOVERNMENT	SCHOOL	Land Slide Rating
	TRAIN STATION	37 - 48
		49 - 58
		59 - 69
		70 - 79
		Floodplain
		100 Year Flood
		500 Year Flood



Path: C:\GIS\Projects\HMP\Orange County\Orange County Hazard Forces.mxd

Attachment II

STAPLEE Mitigation Action Cost/Benefit Analysis - Town of Cornwall

STAPLEE Criteria Consideration Tables
Mitigation Action Prioritization and Comparison

Jurisdiction:

Town of Cornwall

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	
CT-1	Provide hazard mitigation information at various locations throughout the Town and Village; primary location for information including emergency preparedness lists, flood plain maps, and NFIP information will be the Town and Village websites	+	+	-	+	0	-	+	+	+	+	High	Low	High
CT-2	Provide existing emergency preparedness lists and NFIP information to residents in high-risk flood areas	+	+	+	+	+	+	+	+	+	+	Medium	Low	High
CT-3	Continue training Town and Village staff within the National Incident Management System (NIMS)	+	+	+	+	+	+	+	+	+	+	Medium	Medium	High
CT-4	Construct mitigation or relocate structures as necessary within flood prone areas	0	-	0	0	-	-	+	-	+	0	Medium	Medium	High
CT-5	Identify, map and publicize the reception centers throughout the Town and Village	0	0	-	+	-	-	+	+	0	+	Medium	Low	High
CT-6	Obtain funding to purchase or replace emergency standby generators for critical facilities	+	0	0	+	+	-	+	+	+	0	Medium	Medium	High
CT-7	Obtain funding to purchase or replace equipment and supplies utilized by the Town Highway Department and Village of Public Works during winter storm events	+	+	0	+	+	-	-	+	+	+	Medium	Medium	Medium
CT-8	Construct channel stabilization measure including retaining wall and bridge replacements	-	0	0	-	0	-	+	0	0	0	Medium	High	Medium
CT-9	Hasbrouck Ave - drainage improvements between Rovert Rd. and Idlewild Creek	+	+	+	+	0	-	+	0	+	-	High	Medium	Medium
CT-10	Clinton St. - drainage improvements between Hasbrouck Ave and Union St.	+	+	+	+	0	-	+	0	+	-	High	Medium	Medium
CT-11	Union St. - drainage improvements between Robert Rd. and Clinton St.	+	+	+	+	0	-	+	0	+	-	High	Medium	Medium
CT-12	Murry Rd. - drainage improvements between Lee Road Middle School and Mailer Ave.	+	+	+	+	+	-	+	0	+	-	High	Medium	High

STAPLEE Criteria Consideration Tables
Mitigation Action Prioritization and Comparison

Jurisdiction: Town of Cornwall

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	
CT - 13	Acquisition of repetitive loss (RL) and severe repetitive loss (SRL) properties within municipal limits	0	+	0	0	+	0	+	0	+	0	High	High	High

Attachment III

**Hazard Mitigation Worksheets -
Town of Cornwall**

Mitigation Actions and Strategy Detail Worksheet

Action Worksheet	
Name of Jurisdiction	Town of Cornwall
Name of Hazard Mitigation Plan	Orange County Multi-Jurisdictional Hazard Mitigation Plan
Potential Actions/Projects (not being implemented at this time)	
Action/Project Number	CT – 4
Name of Action/Project	Relocate or flood harden Wastewater Treatment Plant
Summary of Evaluation: Benefits (losses avoided), estimated costs, and other factors considered	Relocate or flood harden Wastewater Treatment Plant on Shore Rd along the Moodna Creek as necessary within flood prone areas.
Plan for Implementation	
Responsible Organization	Town Board, Town Consultant Engineer
Action/Project Priority	Medium
Potential Funding Sources	HMGP, PDM
Other assisting organizations, entities, etc.	N/A
Local planning mechanisms to be used in project/action implementation, if any	None.
Progress Report	
Date of status report	
Report of progress	
Evaluation of effectiveness	

Mitigation Actions and Strategy Detail Worksheet

Action Worksheet	
Name of Jurisdiction	Town of Cornwall
Name of Hazard Mitigation Plan	Orange County Multi-Jurisdictional Hazard Mitigation Plan
Potential Actions/Projects (not being implemented at this time)	
Action/Project Number	CT – 6
Name of Action/Project	Acquisition of generators
Summary of Evaluation: Benefits (losses avoided), estimated costs, and other factors considered	Acquire emergency generators for critical facilities such as the Munger Cottage Emergency Shelter.
Plan for Implementation	
Responsible Organization	Town Board, Town Consulting Engineer
Action/Project Priority	High
Potential Funding Sources	HMGP, PDM
Other assisting organizations, entities, etc.	N/A
Local planning mechanisms to be used in project/action implementation, if any	None.
Progress Report	
Date of status report	
Report of progress	
Evaluation of effectiveness	

Mitigation Actions and Strategy Detail Worksheet

Action Worksheet	
Name of Jurisdiction	Town of Cornwall
Name of Hazard Mitigation Plan	Orange County Multi-Jurisdictional Hazard Mitigation Plan
Potential Actions/Projects (not being implemented at this time)	
Action/Project Number	CT – 13
Name of Action/Project	Acquisition of repetitive loss (RL) and severe repetitive loss (SRL) properties within municipal limits
Summary of Evaluation: Benefits (losses avoided), estimated costs, and other factors considered	Continued loss and damage to existing structures and belongings would be resolved at repetitive loss locations. No action alternative would result in additional and repeat damages from flood events and storms. Cost would depend on assessed value of the properties in question.
Plan for Implementation	
Responsible Organization	Town Board, Town Consultant
Action/Project Priority	High priority – high success at moderate cost
Potential Funding Sources	FEMA, NYSDHSES
Other assisting organizations, entities, etc.	FEMA, NYSDHSES
Local planning mechanisms to be used in project/action implementation, if any	Resources used: FEMA flood mapping, NYSDHSES/FEMA records of RL and SRL
Progress Report	
Date of status report	Being reviewed

Report of progress	
Evaluation of effectiveness	

Orange County
Multi-Jurisdictional All Natural Hazard Mitigation Plan
Emergency Shelter Questionnaire

Name of Your Municipality:	<u>Town of Cornwall</u>
Common Name of Your Emergency Shelter:	<u>Munger Cottage</u>
Street Address of Your Emergency Shelter:	<u>40 Munger Drive</u>
	<u>Cornwall, NY 12518</u>
Name of the Owner of Your Emergency Shelter:	<u>Town of Cornwall</u>
Name of the Regular Occupant of Your Emergency Shelter:	<u>No resident at this location</u>

Name of Jurisdiction: _____

**RESOLUTION
TO AUTHORIZE THE ACCEPTANCE AND ADOPTION OF THE
MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE FOR
ORANGE COUNTY, NEW YORK**

WHEREAS, the Orange County Department of Emergency Services, with the assistance from Barton & Loguidice, D.P.C., has gathered information and prepared the Multi-Jurisdictional Hazard Mitigation Plan Update for Orange County, New York; and

WHEREAS, the Multi-Jurisdictional Hazard Mitigation Plan Update for Orange County, New York has been prepared in accordance with the Disaster Mitigation Act of 2000 and Title 44 Code of Federal Regulations (CFR), Part 201; and

WHEREAS, Title 44 CFR, Chapter 1, Part 201.6(c)(5) requires each local government participating in the preparation of a Multi-Jurisdictional Mitigation Plan or Plan Update to accept and adopt such plan; and

WHEREAS, the Town of Cornwall, has reviewed the 2016 Multi-Jurisdictional Hazard Mitigation Plan Update for Orange County, has found the document to be acceptable, and as a local unit of government, has afforded its citizens an opportunity to comment and provide input regarding the Plan Update and the actions included in the Plan;

WHEREAS, the Town of Cornwall, will consider the Multi-Jurisdictional Hazard Mitigation Plan Update for Orange County during the implementation and updating of local planning mechanisms, and will incorporate the hazard assessment data, hazard vulnerabilities, and mitigation actions in these mechanisms, where applicable;

NOW THEREFORE, BE IT RESOLVED, that the Town of Cornwall, as a participating jurisdiction, adopts the Multi-Jurisdictional Hazard Mitigation Plan Update for Orange County, New York, dated May 2016.

This resolution was thereupon declared duly adopted on _____.

(Supervisor)

(Clerk)