

8.22 - Jurisdictional Annex, City of Troy

This section presents the jurisdictional annex for the City of Troy. The jurisdiction's governing body passed a formal resolution to participate in this multi-jurisdictional hazard mitigation plan update. A copy of their resolution is maintained at the local government offices and at the Rensselaer County Bureau of Public Safety.

8.22.1 Contact Information

The jurisdiction's resolution to participate identified a Primary Point of Contact and an Alternate for this hazard mitigation plan update. These individuals represented the jurisdiction on the county-wide Core Planning Group and led a local team of Jurisdictional Assessment Team Members who undertook various local activities related to the plan update.

HAZARD MITIGATION PLAN POINTS OF CONTACT						
Primary Point of Contact				Alternate Point of Contact		
Name: Eric McMahon Title: Assistant Chief, Fire Department Address: 2175 6th Avenue, Troy, NY 12180 Phone Number: 518-270-4471 E-mail Address: eric.mcmahon@troyny.gov				Name: Thomas Garrett Title: Chief, Fire Department Address: 2175 6th Avenue, Troy, NY 12180 Phone Number: 518-270-3826 E-mail Address: tom.garrett@troyny.gov		
Jurisdictional Assessment Team Members						
Local Jurisdiction Role/Position	Name	Email	Phone	Date of Invitation	Method of Invitation	Agreed to participate?
Land Use/Community Planner	Steven Strichman	Steven.Strichman@troyny.gov	518-279-7166	2/4/2019	IN-PERSON	AGREED
Emergency Manager	Eric McMahon	Eric.McMahon@TroyNY.gov	518-270-4471	2/4/2019	IN-PERSON	AGREED
Floodplain Manager/Administrator	Dave Sheeran	Dave.Sheeran@troyny.gov	518-279-7190	2/4/2019	IN-PERSON	AGREED
Public Works Director / City Engineer	Todd Dickenson	Todd.Dickinson@troyny.gov	518-279-7186	2/4/2019	IN-PERSON	AGREED
Building Code Official	Dave Sheeran	Dave.Sheeran@troyny.gov	518-279-7190	2/4/2019	IN-PERSON	AGREED
Fiscal/Budget Officer	Andrew Piotrowski	andrew.piotrowski@troyny.gov	518-279-7108	2/4/2019	IN-PERSON	AGREED
Manager/Administrator	Monica Kurzejeski	Monica.Kurzejeski@troyny.gov	518-279-7159	2/5/2019	IN-PERSON	AGREED
Elected Officials	Troy City Council	citycouncil@troyny.gov	518-279-7317	2/6/2019	IN-PERSON	AGREED
Local Hospital	Rich Bytner	richard.bytner@sph.com	518-271-3300	2/6/2019	EMAIL	AGREED
Major University	Vadim Thomas	thomav@rpi.edu	518-276-6000	2/6/2019	EMAIL	AGREED
Significant Business						
Neighboring County 1	Tom Garrett-Chief-WFD	tgarrett@watervliet.com	518-270-3826	March 2019	IN-PERSON	AGREED
Neighboring County 2	Rob Bugeios-Chief-GIFD	bob.bougeois@villageofgreenisland.com	518-273-2201	March 2019	IN-PERSON	AGREED
Neighboring County 3	Joe Fahd-Chief-Cohoes FD	jfahd@ci.cohoes.ny.us	518-237-5011	March 2019	IN-PERSON	AGREED
Neighboring County 4	Joe Gregory-Chief AFD	jgregory@albanyny.gov	518-447-7879	March 2019	IN-PERSON	AGREED
Tribal Group/Nation						

8.22.2 JURISDICTION PROFILE

8.22.2.1 Location and Land Area

The City of Troy is located in west Rensselaer County, in the eastern part of New York State. It shares a border with Schaghticoke to the north; and Albany County to the west.

According to the 2010 U.S. Census Bureau, Rensselaer County has a total area of 665 square miles (1,720 km²), of which 652 square miles (1,690 km²) is land and 13 square miles (34 km²) (1.9%) is water. Of that, City of Troy has a total area of 11.06 square miles (28.64 km²), of which 8.36 square miles (26.83 km²) is land and 0.70 square miles (1.81 km²) is water.

8.22.2.2 Population

According to the 2010 U.S. Census Bureau's American Community Survey 5-Year Estimates, the population of City of Troy is estimated to be 50,129 persons.

8.22.2.3 Demographics

Of a total area of 11.02 square miles (2010 Census data), the land area is 10.41 square miles and population per square mile is 4,721.8 persons.

Of the total population, there are 102.1 males per 100 females (all ages). Persons under 18 years comprise 20.2% of the population, and 10.9% are persons 65 years and over (2010 Census). Young and old subsets of the population may have unique needs as far as care requirements and potential cognitive and/or mobility limitations before, during, and after a disaster.

The number of persons who speak a language other than English is 6,034, or 12.9%, of which 34.1% speak English less than "very well". Persons not speaking English well may have trouble understanding instructions regarding disaster preparation, response, and recovery.

Regarding education, of persons age 25 years and older, 77.7% are high school graduates or higher, and 19.4% have received their bachelor's degree or higher (2000 Census data). Higher education can help enhance skills associated with cognition and evaluation of risk. Higher education can, therefore, foster an overall improved perception of risk, particularly where individuals may not have prior direct experience preparing for, responding to, or recovering from a particular hazard in their daily lives.

Regarding families and living arrangements, from 2013 to 2017 there were 20,505 total households and 2.22 persons per household. Persons living alone sometimes have less of a direct social circle for support before, during, and after a disaster.

The Census Bureau classifies all people not living in housing units (house, apartment, mobile home, rented rooms) as living in group quarters. The two types of group quarters are

Institutional (correctional facilities, nursing homes, mental hospitals) and Non-Institutional (college dormitories, military barracks, group homes, missions, shelters). The total number in group quarters are 4,508 or 9.0 % overall, with 493 (1.0%) institutionalized and 4,015 (8.0%) noninstitutionalized population. The needs of persons living in group quarters are unique, and residents are likely to have access and functional needs and unique care requirements before, during, and after a disaster.

According to 2017 ACS, the median household income was \$40,911; the per capita income in past 12 months (2017) was \$22,955; and the percentage of persons in poverty was 26.1%. Lower income persons have limited financial resources to draw from in both a pre- and post-disaster scenario and are likely to require support as they prepare for, and recover from, hazard events.

The total of noninstitutionalized civilians with a disability is 15.5%, and percentage of people with a disability over age 65 years is 35.6%. The total percentage of persons (civilian, noninstitutionalized) without health insurance is 6.1%. Persons with disabilities have access and functional needs such as cognitive or mobility limitations that may put them at greater risk before, during, and after a hazard event.

8.22.2.4 Brief History

The area that is now Rensselaer County was inhabited by the Algonquian-speaking Mohican Indian tribe at the time of European encounter. Kiliaen van Rensselaer, a Dutch jeweler and merchant, purchased the area in 1630, as part of the Dutch colony New Netherland. The land passed from English rule (1664) to Dutch control (1673), then back to English rule (1674), until American independence in 1776. Rensselaer County was created in 1790s from an area that was originally part of the very large Albany County. In 1807 the county reorganized.

City of Troy area had long been occupied by the Mahican Indian tribe, but Dutch settlement began in the mid-17th century. The Dutch colony was conquered by the English in 1664. In 1789, Troy adopted its present name following a vote of the people. Troy was incorporated as a town two years later and extended east across the county to the Vermont line, including Petersburg. In 1796, Troy became a village and in 1816, it became a city. Lansingburgh, to the north, became part of Troy in 1900. Due to the confluence of major waterways and a geography that supported water power, the American industrial revolution took hold in this area making Troy reputedly the fourth wealthiest city in America around the turn of the 20th century.

8.22.2.5 Governing Body Format

The governing body of the municipality consists of a Mayor and City Council, composed of seven (7) elected members serving two year terms. This council serves as the municipal/local government, performing executive functions of different natures. Members of this governing body are elected by the people.

8.22.2.6 Growth/Development Trends

Performing an assessment of growth and development trends is one step of a hazard mitigation plan update. This look into the future is important because development in hazard areas could put more people and property in harm's way and, in turn, could work to increase potential disaster-related damages and losses at a time when the mitigation plan's purpose is to reduce the potential for damages emanating from natural disasters.

An evaluation of growth and development trends was undertaken by each participating jurisdiction as part of the development of the initial plan in 2011. As part of this plan update, the City of Troy reviewed and updated its prior feedback to reflect current conditions in the community as of early 2019.

The City of Troy did note major residential or commercial development taking place, or any major infrastructure development planned for the next five years in the municipality. Several multi-story residential buildings are planned or being redeveloped; the only new building of note will be located at First and Ida Streets.

New Development/Potential Development in the Municipality						
Property Name	Type (Residential or Commercial)	No. of Structures	Address	Block and Lot	Known Hazard Zone	Description /Status
Poestenkill Place	Residential	1	244-246 First Street		Flood	80 units of residential

The City of Troy enforces local laws to protect new development from the effects of natural hazards. All new development within the flood zone is reviewed by fire department, engineering, public utilities and public works staff, and must comply with all flood zone regulations.

8.22.3 HAZARD IDENTIFICATION

The following hazards represent those that were deemed to be significant hazards of concern for the City of Troy:

Profiled Hazards in the City of Troy													
Jurisdiction	Atmospheric Hazards						Hydrologic Hazards			Geologic Hazards		Other Hazards	
	Extreme Temperatures (Coldwave /Heat Wave)	Hurricane / Tropical Storm	Lightning	Tornado	Wind	Winter Storm	Drought	Flood			Earthquake	Landslide ⁴	Wildfire ⁵
								Flooding ²	Dam Failure ¹	Ice Jam ³			
Troy, City of	■	■	■	■	■	■	■	■	■	■	■	■	■

Notes: (1) Based on presence of a High hazard dam (NYSDEC classification) either in the municipality or close upstream on a watercourse flowing through that municipality and feedback from the County Planning Department. (2) Based on identification of improved property in mapped FEMA flood hazard zones. (3) Based on historical records, Flood Insurance Studies, and local information as well as feedback from the County Planning Department. (4) Based on identification of improved property in mapped high incidence or high susceptibility landslide risk zones, plus those municipalities in which details of individual landslide events are available. (5) Based on identification of improved property in mapped wildfire hazard zones.

8.22.4 NOTABLE HAZARD EVENT OCCURRENCES SINCE 2011

Rensselaer County has a long history of natural hazard events occurring, as detailed in Section 3 of this plan. A summary of historical events is provided in each of the hazard profiles of Section 3 and includes a chronology of events that have affected the County and its municipalities.

NOAA's NCDC records 1,141 hazard event occurrences from 1950 to 2018 causing 1 fatality, 116 injuries, \$27,679,000 in property damage, and \$305,800 in crop damage. The table below presents a summary of 415 events that are included in NOAA's NCDC records for Rensselaer County since the prior 2011 HMP was prepared to summarize the recent range and impact of natural hazard events potentially affecting the County and its municipalities. For details of events prior to 2011, refer to Section 3 of this plan.

Natural Hazard Event History (January 2011 through December 2018)					
Event Type	Count	Fatalities	Injuries	Property Damage	Crop Damage
Blizzard	2	0	0	\$0	\$0
Cold/Wind Chill	28	0	0	\$0	\$0
Excessive Heat	3	0	0	\$0	\$0
Extreme Cold/Wind Chill	8	0	0	\$0	\$0
Flash Flood	20	0	0	\$320,000	\$0
Flood	16	0	0	\$10,000	\$0
Frost/Freeze	6	0	0	\$0	\$0
Hail	29	0	0	\$0	\$0
Heat	17	0	0	\$0	\$0
Heavy Rain	1	0	0	\$0	\$0
Heavy Snow	13	0	0	\$0	\$0
High Wind	17	0	0	\$0	\$0
Lightning	1	0	0	\$50,000	\$0
Storm Surge/Tide	1	0	0	\$0	\$0
Strong Wind	22	0	0	\$48,000	\$4,000
Thunderstorm Wind	141	0	7	\$0	\$0
Tropical Storm	2	0	0	\$0	\$0
Winter Storm	28	0	0	\$0	\$0
Winter Weather	60	0	0	\$0	\$0
Total	415	0	7	\$428,000	\$4,000

Since 1954, Rensselaer County has been designated as eligible for at least one form of FEMA assistance in 16 Federally-declared major disasters and eight Federally-declared emergencies. Since the adoption of the 2011 HMP, Rensselaer County has been designated as eligible for at least one form of FEMA assistance in three of the state's 12 Federally-declared major disasters (2011 through 2018).

Rensselaer County Disaster Declarations, 2011-2018					
Declaration Year	Event Incident Period	Declaration Type	Disaster Type	Disaster Number	Rensselaer County Designation
2017	March 14-15, 2017	Major Disaster Declaration	Severe Winter Storm and Snowstorm	DR-4322	Declared for PA only
2011	September 7-11, 2011	Emergency Declaration	Tropical Storm Lee	EM-3341	Declared for PA Category B

Rensselaer County Disaster Declarations, 2011-2018					
Declaration Year	Event Incident Period	Declaration Type	Disaster Type	Disaster Number	Rensselaer County Designation
2011	August 26, 2011 through September 5, 2011	Major Disaster Declaration	Hurricane Irene	DR-4020	Declared for PA and IA
2011	December 26-27, 2010	Major Disaster Declaration	Severe Winter Storm and Snowstorm	DR-1957	Declared for PA Category B

Source: FEMA, online at <https://www.fema.gov/disasters>, queried on July 11, 2019
PA= FEMA's Public Assistance Program
IA= FEMA's Individual Assistance Program
Category B= FEMA's Public Assistance Program Category B (Emergency Protective Measures)

Some more recent notable events in the City of Troy since 2011 include:

May 26, 2011

Trees and wires were reported down at 102nd Street and 8th Avenue in Troy due to strong thunderstorm winds.

August 28, 2011 – Irene

The remnants of Hurricane Irene brought heavy to extreme rainfall throughout Rensselaer County. Route 7 across Rensselaer County was closed due to numerous reports of flooding. Major flooding occurred on the Hoosic River at Eagle Bridge, on the Hudson River at Troy. Also, a mudslide occurred on Route 2 (Brunswick Road) at Route 66 (Pawling Avenue) causing a house to collapse and two other houses were knocked from their foundations by about eight feet and a large tree fell and destroyed an automobile shop. The Rensselaer County Emergency Management Office requested voluntary evacuations for parts of the City of Troy due to flooding from the Hudson River for the neighborhoods between Ferry Street (Route 2) and the Menands Bridge (Route 378) from the Hudson River east to Fourth Street (Route 4) in South Troy and the area between 112th Street and 126th Street from the Hudson River to 5th Avenue in Lansingburgh (North Troy). Numerous homes and businesses were flooded in downtown Troy including Dinosaur Bar-B-Que. The Dunn Memorial Bridge eastbound ramp to Routes 9 and 20 was closed due to flooding from 10:45 am August 29th to midday on August 30th.

October 29-30, 2012 – Sandy

Rainfall in Rensselaer County was not excessively heavy and did not cause notable flooding, thanks to dry antecedent conditions. Wind gusts of 40 to 60 mph were common from the afternoon of the 29th until the early morning hours of the 30th.

July 9, 2014 – Thunderstorm Winds

Trees and wires were reported down in the Lansingburgh section of Troy due to thunderstorm winds.

Winter 2014-2015 – Extreme Temperatures (Coldwave)

Rensselaer County Planning recalls that water transmission lines that had been built to code (four feet below grade) froze in the winter of 2014-2015 due to extreme cold temperatures over a long duration that put the frost line below four feet. As a result, some people lost public water because the water pipes were frozen. Areas particularly impacted were the City of Troy (Lansingburgh) and some places in the Town of Brunswick.

July 19, 2015 – Thunderstorm Winds

Heavy rainfall from thunderstorms led to flash flooding in the city of Troy. A portion of Second Avenue (U.S. Route 4) was temporarily closed due to a foot and a half of flood waters across the roadway.

June 30, 2017 to July 1, 2017 - Severe Storms and Flooding

Numerous strong to severe thunderstorms occurred across Rensselaer County. Thunderstorm winds caused damages throughout the county, downing trees and power lines, and heavy rains caused flooding in many areas of the county.

8.22.5 NATIONAL FLOOD INSURANCE PROGRAM SUMMARY

The City of Troy has participated in FEMA's National Flood Insurance program (NFIP) since 1980.

• Total number of policies ¹ :	522
• Insurance in force ² :	\$90,129,000
• Total number of losses:	193
• Total claims paid:	\$2,219,294
• Repetitive Loss Properties:	5
• Severe Repetitive Loss Properties:	0

The City of Troy provided the following NFIP Administrator Input in 2019, for inclusion in the 2019 HMP.

¹ Policies in Force from www.fema.gov on 02/21/19, data current as of 09/30/18.

² Insurance in Force from www.fema.gov on 02/21/19, data current as of 09/30/18.

Name: Chris Wheland Title: Superintendent of Public Utilities
 Community: City of Troy Email and Phone: chris.wheland@troyny.gov 518-369-3259



Worksheet 2 - NFIP

Note: This form should be filled out by your floodplain administrator. Submittals should be returned via email to Jay Wilson at jwilson@renuco.com. Feel free to contact Anna Foley of AECOM if you have questions, at anna.foley@aecom.com. All communities participating in the National Flood Insurance Program (NFIP) provided FEMA with a floodplain management ordinance and a designated floodplain administrator as a prerequisite to enter the program. All participating communities must provide the information below. Please return a copy of your floodplain management ordinance to us with this submittal.

Adoption Date of your Current Floodplain Management Ordinance	Date of Entry into NFIP ¹	Position or Title of Your Jurisdiction's Designated Floodplain Manager/Administrator (may also be called NFIP Coordinator)	Is this person a Certified Floodplain Manager?	Is floodplain management an auxiliary function?	Is your community in good standing with the NFIP?		
3/6/1980	3/18/1980	Director of Code Enforcement	[] Yes [X] No	[X] Yes [] No	[X] Yes [] No		
Provide an explanation of NFIP administration services (i.e., permit review, GIS, education or outreach, inspections, engineering capability, etc.):							
Enforcement of NYS Building Code in flood prone areas as depicted in Flood Insurance Rate Maps. This enforcement includes permit review, inspections and engineering review.							
Describe barriers to running an effective NFIP program in the community (if applicable):							
Personnel capacity with the duties described as a flood plain manager							
When was most recent FEMA Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?*	Is a CAV or CAC scheduled or needed?	Does the current floodplain management ordinance exceed FEMA or State minimum requirements? If so, describe how.	Is training of staff regarding NFIP issues planned?	Does your community intend to continue to enforce the floodplain management requirements including regulating new construction in Special Flood Hazard Areas (SFHAs)?	Does your community participate in the CRS? If so, state your Class.	Does your community intend to continue its participation in the CRS program?	If your community is not currently participating in the CRS program, are you intending to initiate the process during the next planning cycle?
Unknown	[] Yes [X] No	[] Yes [X] No	[] Yes [X] No	[X] Yes [] No	[] Yes* [X] No * Class	[] Yes [X] No	[] Yes [X] No
*Describe any outstanding compliance issues (i.e., current violations):							
None known at this time							

¹ Your date of entry into the NFIP can be found at: <http://www.fema.gov/cis/NY.html> (column "Reg-Emer Date").

Rensselaer County Multi-Jurisdictional Hazard Mitigation Plan Update – NFIP Worksheet NFIP-1

Name: Chris Wheland Title: Superintendent of Public Utilities
 Representing: City of Troy Email and Phone: chris.wheland@troyny.gov 518-369-3259



Provide an explanation of your local floodplain permitting process:

In areas of known flooding, as indicated on the flood insurance rate maps, the city of Troy requires an elevation certification in which the lowest habitable portion of the building is brought 2 foot above the 100 year flood plain elevation. The city requires this in accordance with the NYS Building code.

Does your community intend to continue floodplain identification and mapping services including any local requests for map updates?	Does your community intend to initiate/continue the buyouts of repetitive loss properties?	Does your community intend to commit staff or resources to improve local mapping or code administration in the future?	Does your community intend to provide local outreach to promote the sale of flood insurance?	Does your community intend to participate in RiskMAP meetings and planning initiatives?	Does your community intend to continue to implement structural improvements to mitigate against flooding - culverts, drainage basins, etc.?	Does your community intend to continue to implement home improvement programs designed to minimize basement flooding?	Does your community intend to continue to implement roadway improvements to reduce damage from future flooding events?	Does your community intend to implement plans and programs in coordination with a local or regional drainage/sewer authority?
[] Yes [X] No	[X] Yes [] No	[X] Yes [] No	[] Yes [X] No	[X] Yes [] No	[X] Yes [] No	[] Yes [X] No	[] Yes [X] No	[X] Yes [] No
Does your community intend to adopt the new FEMA Advisory Base Flood Elevations?				As Floodplain Manager, did you (or your predecessor at the time) actively participate in the development of the initial Hazard Mitigation Plan?		As Floodplain Manager, are you actively participating in the development of this Hazard Mitigation Plan Update?		Have there been any changes to your community's local floodplain management program since the last version of the plan in 2011?
[] Yes [X] No				[X] Yes [] No		[] Yes [X] No		[] Yes* [X] No
* If you answered "yes", that there have been changes to your local program since 2011, please describe:								
NA								
Provide a description of your community assistance and monitoring activities:								
All new projects will continue to be scrutinized by the Planning Zoning Commission to ensure compliance.								
NFIP participating communities are required to update/revise their floodplain management ordinance to ensure that it complies with the latest FEMA regulations. Will your community continue to commit to this program requirement?				NFIP participating communities are also required to update/revise their floodplain management ordinance to be consistent with the latest FIRMs. Will your community continue to commit to this program requirement?				
[X] Yes [] No				[X] Yes [] No				

Note: NFIP policy statistics by community are maintained at: <http://bsa.nfipstat.fema.gov/reports/1011.htm#NFI>
 NFIP claims data by community is maintained at: <http://bsa.nfipstat.fema.gov/reports/1040.htm#P34>
 Information about structures at risk of flooding can be found in the current Hazard Mitigation Plan.
 All NFIP participating communities should encourage local residents to purchase and maintain flood insurance.

Rensselaer County Multi-Jurisdictional Hazard Mitigation Plan Update – NFIP Worksheet NFIP-2

8.22.6 ASSET IDENTIFICATION AND CHARACTERIZATION

An inventory of geo-referenced assets in Rensselaer County has been created in order to identify and characterize property and persons potentially exposed to the identified hazards. Section 3b of the plan presents the asset identification and characterization process in great

detail. The following table presents an overview of assets in Rensselaer County³ and the subset of those assets that fall within the City of Troy.

³ The County totals are included here for readers to understand the proportion of countywide assets that lie within this municipality.

Asset Inventory																			
Jurisdiction	Improved Property (RCV ⁴)	Emergency Facilities					Critical Infrastructure and Utilities										Other Key Facilities		Historic and Cultural Resources
		Fire Stations	Police Stations	EMS / Ambulance Stations	Hospitals	Shelters ⁵	Wastewater Facilities	Water Treatment Facilities	Airports	Railroads (Passenger/ Freight Station)	Electric Power Facilities	Communications Facilities	Oil Facilities	Hazardous Materials Sites	Natural Gas Facilities	Ports	Schools	Residential Senior Care Facilities ⁶	
Rensselaer County	\$33,333,947,000	44	9	19	2	33	8	1	0	13	1	6	5	60	1	12	64	3	84
City of Troy	\$11,211,809,000	1	3	3	2	6	2	1	0	2	0	0	1	1	0	4	20	2	42

Rensselaer County	Population, Census 2010:	159,429
City of Troy	Population, Census 2010:	50,129
Rensselaer County	Vulnerable Population, Census 2010 (under 5 years, and over 64 years)	30,429
City of Troy	Vulnerable Population, Census 2010 (under 5 years, and over 64 years)	8,674

⁴ Replacement Cost Value

⁵ Specific shelter data is protected information and is not released to the public unless and until necessary during a disaster.

⁶ * As per the County Department of Economic Development and Planning, these figures only encompass the senior centers which are not residential facilities.

Exposure – Assets in the Floodplain

Land. Approximately 15 percent of land in the City of Troy is located in the 100-year floodplain.

Land in the 100-year Floodplain			
Municipality	Land Area of Municipality (Acres)	Land in the 100-year Floodplain (Acres)	Percent of Land in the 100-Year Floodplain (%)
Troy, City of	7,066	1,054	15%

Improved Property. Approximately eight percent of improved property in the City of Troy is located in the 100-year floodplain.

Improved Property in the 100-year Floodplain			
Municipality	Replacement Cost Value (RCV) Structure and Contents (\$)	RCV in the 100-year Floodplain (\$)	Percent of RCV in the 100-Year Floodplain (%)
Troy, City of	\$11,211,809,000	\$885,055,654	8%

Population. Approximately 12 percent of the population of the City of Troy resides in the 100-year floodplain.

Population in the 100-Year Floodplain			
Municipality	Total Population (Census 2010)	Estimated Population in the 100 year Floodplain	Percent of Population in the 100 year Floodplain
Troy, City of	50,129	5,933	12%

Critical Facilities. The following critical facilities (emergency facilities, critical infrastructure and utilities, and other key facilities, as presented in Section 3b) are located in the floodplain in the City of Troy.

Critical Facilities in the Floodplain			
Municipality	Type of Facility	Name of Facility	Flood Zone ⁷
Troy, City of	EOC	Rensselaer Emergency Operations Center	X500
Troy, City of	Freight Station	CPRS	A/AE/AO
Troy, City of	Freight Station	CSXT	A/AE/AO
Troy, City of	HAZMAT Facility	Ross Valve Mfg. Co. Inc.	X500
Troy, City of	Police Station	Rensselaer County Sheriff Department	A/AE/AO
Troy, City of	Police Station	Troy Police Court	X500
Troy, City of	Police Station	Troy Police Juvenile Division	X500
Troy, City of	Port	Clemente-Latham Concrete Corp.	A/AE/AO
Troy, City of	Port	U.S. Army Corps of Engineers Wharf	A/AE/AO

⁷ 100-year floodplain = A/AE/AO; 500-year floodplain = X500

Critical Facilities in the Floodplain			
Municipality	Type of Facility	Name of Facility	Flood Zone ⁷
Troy, City of	School	Ark Community Charter School (The)	A/AE/AO
Troy, City of	School	P.S. 12	A/AE/AO
Troy, City of	Shelter	Italian Community Center Charitable Foundation of Troy	X500
Troy, City of	Shelter	Troy - St. Augustine's Hall	X500
Troy, City of	Wastewater Facility	Combined Sewer Overflows	A/AE/AO

Historic and Cultural Resources. The following historic and cultural resources are located in the floodplain in the City of Troy.

Historic and Cultural Resources in the Floodplain			
Municipality	Historic Structure/Landmark/District	Location/Address	Flood Zone ⁸
Troy, City of	Burden Ironworks Office Building	Polk Street	A/AE/AO
Troy, City of	Central Troy Historic District	Roughly bounded by Grand Street, Fifth Avenue and Third, Adams, and First and River Streets	A/AE/AO
Troy, City of	McCarthy Building	255-257 River Street	A/AE/AO
Troy, City of	Melville, Herman, House	214 Fourth Street	A/AE/AO
Troy, City of	National State Bank Building	297 River Street	A/AE/AO
Troy, City of	Northern River Street Historic District	403-429 and 420-430 River Street	A/AE/AO
Troy, City of	Poesten Kill Gorge Historic District	Poesten Kill between Spring Avenue and NY 2	A/AE/AO
Troy, City of	Powers Home	819 3rd Avenue	A/AE/AO
Troy, City of	Public School No. 10	239 Third Street	A/AE/AO
Troy, City of	River Street Historic District	Both sides of River Street from Congress Street to junction with 1st Street	A/AE/AO
Troy, City of	Trinity Church	585 Fourth Avenue	A/AE/AO
Troy, City of	Troy Gas Light Company	NW corner of Jefferson Street and 5th Avenue	A/AE/AO
Troy, City of	Washington Park Historic District	Washington Park and adjacent properties on 2nd, 3rd, and Washington Streets and Washington Place	A/AE/AO

8.22.7 POTENTIAL FUTURE DAMAGES

Estimated annual losses provided in this section are based on best available data, and the methodologies applied result in an approximation of risk. Loss estimates should be used to understand relative risk from hazards.

Uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning natural hazards and their effects on the built environment. Uncertainties also result from approximations and simplifications that are necessary for a comprehensive analysis (i.e., incomplete inventories, demographics or economic parameters

⁸ 100-year floodplain = A/AE/AO; 500-year floodplain = X500

The following table provides estimated average annual losses from HAZUS-MH 4.0 runs, where available. For hazards for which HAZUS modules are not available, historic damages have been distributed across municipalities based on their proportion of improved property. It is important to note that this table reflects estimates of average annual damages. For any hazard, individual event damages could be substantially (orders of magnitude) higher.

For the City of Troy, the hazard with the highest estimated average annual losses is flooding.

Summary of Annual Loss Estimates – City of Troy ⁹													
Municipality	Replacement Cost Value of Improvements (\$)	Extreme Temperatures	Hurricane/ Tropical Storm - Wind	Hurricane/ Tropical Storm – Wind + Flood	Lightning	Tornado	Wind	Winter Storm (Ice Storm/ Snow Storm)	Drought	Flood	Earthquake	Landslide	Wildfire
		NOAA NCEI, 1996-2018	HAZUS	NOAA NCEI, 1996-2018	NOAA NCEI, 1996-2018	NOAA NCEI, 1996-2018	NOAA NCEI, 1996-2018	NOAA NCEI, 1996-2018	NOAA NCEI, 1996-2018	NOAA NCEI, 1996-2018	HAZUS	HAZUS	NOAA NCEI, 1996-2018
Troy, City of	\$11,211,809,000	\$471	\$1,770	\$29,048	\$3,608	\$159,383	\$40,370	\$11,315	\$0	\$638,590	\$33,536	\$0	\$31

⁹ * **It is important to note that this table reflects estimates of average annualized damages. For any hazard, individual event damages could be substantially higher.**

8.22.8 HAZARD RANKINGS AND KEY RISK FINDINGS

Hazard rankings for the City of Troy are provided in the table below. Hazard priorities are based on each hazard's likelihood of occurrence, potential consequences, relative risk and average annualized losses. Rows are shaded red for High Hazard Priority; yellow for Moderate Hazard Priority; and green for Low Hazard Priority.

Flooding is the City of Troy's highest priority hazard.

Hazard Rankings – City of Troy					
Hazard	Future Probability	Potential Consequence	Relative Risk	Hazard Priority	Average Annualized Losses ¹⁰
Extreme Temperatures (Coldwave/ Heat Wave)	Low	Low	Low	Low	\$471
Hurricane/ Tropical Storm	Low	High	Moderate	Moderate	\$1,770 Wind; \$29,048 Wind + Flood
Lightning	High	Low	Low	Low	\$3,608
Tornado	Low	High	High	High	\$159,383
Wind	High	Low	High	High	\$40,370
Winter Storm (Ice Storm/Snow Storm)	High	Moderate	Moderate	Moderate	\$11,315
Drought	Low	High	Low	Low	\$0
Flood	High	High	High	High	\$638,590
Earthquake	Low	High	Moderate	Moderate	\$33,536
Landslide	High	Low	Moderate	Moderate	\$0
Wildfire	Low	Low	Low	Low	\$31

Key risk findings identified by the City of Troy JAT as representing the highest local priorities for mitigation are:

- Tomhannock transmission lines that run from the reservoir to the water treatment plant need to be replaced to ensure continuous operation of water service to City's population.
- The dam that creates the Ida Lake in the Ida Cemetery is in danger of collapse. Residents live downstream of the dam.
- The main vault for the E-911 center is in the flood plain. During a high flood, the vault will become saturated, interrupting communications
- Transmission Pipelines- Repair/Replacement, protection and surveillance of two 30" diameter cast iron transmission mains that extend from the Tomhannock Reservoir to the water plant.

¹⁰ Source: NOAA NCEI, except as noted. \$0 in average annualized losses had no damages recorded for events between 1996 and 2018. Actual annual damages are unquantifiable but higher.

- Water Storage Tanks-Provide CCTV with DVD remote video surveillance of three water storage tanks. Monitoring shall be provided at the water plant operations console.
- Tomhannock Reservoir - Water Supply Protection, provide security fencing at accessible areas. Provide CCTV with DVD remote video surveillance with monitoring at the water plant.
- City of Troy High Hazard Dams - Inspection and mitigation of three high hazard dams: Tomhannock Reservoir Dam, Wright, and Bradley Lake Dams.
- Landslides in slope stability prone area - Provide slope stability mitigation and monitoring to critical landslide areas in the City of Troy including steep embankments along Spring Avenue, Thompson Street and the areas of Stow, Brickyard Road, and Old Mill Street.
- Bulkhead Wall at Hudson River - The City of Troy owns approximately 1.5 miles of seawall in varying states of deterioration. Mitigation is required that includes driving PZ 32 sheet pile with walers and dead men shall be driven at various locations to ensure and maintain the structural integrity of the existing seawall. A reinforced concrete cap shall be placed on top of the wall section. (est. length 2,000 feet)
- Natural gas distribution and transmission lines - The City of Troy has a network of existing cast iron transmission and distribution as lines that are corroded and need to be replaced. Some date back approximately 120-130 years. This includes replacement of services and valving.
- Underground Propane Storage Facility. John Ray and Son 30,000 gallon underground storage facility along with associated venting and leak detection. Citywide practice drills in conjunction with Rensselaer County Hazmat.
- Hazardous Material Transport Along Hoosick Street (NYS Route 7): Numerous tractor trailers carrying hazardous material access Hoosick Street on a daily basis. This mitigation task will involve pre-planning and practice drills in the event of a hazardous material spill.
- Floodplain management ordinance is outdated and needs to be updated.
- Floodplain administrator position turnover affects continuity and poses loss of institutional knowledge and presents a need for more frequent staff training.
- Floodplain manager would benefit from the training and certification regarding FEMA-480.

Mitigation projects to address these key risks are included as part of the City's overall hazard mitigation strategy.

8.22.9 OUTREACH TO THE PUBLIC AND OTHER STAKEHOLDERS

As part of this 2019 Plan Update, the City of Troy undertook various activities to: (a) alert the public and other stakeholders to the fact that the HMP Planning Committee was working to develop the update; and (b) provide the public and other stakeholders with a forum to ask questions and submit comments and suggestions on the process. Outreach activities undertaken by the City of Troy included:

Outreach Activities			
Date of Activity	Type of Activity	Activity Details	Lead Department and/or Staff Title Who Undertook Activity
December 12, 2018]	City council meeting open to the public]	City council- discussed the mitigation plan and passed a resolution to participate in the update]	Mayor and Eric McMahon, Fire Chief]

Outreach Activities			
Date of Activity	Type of Activity	Activity Details	Lead Department and/or Staff Title Who Undertook Activity
[1/18/2019]	[Stakeholder's meeting]	[Meeting with representatives from National Grid Power company to discuss the Hazard mitigation plan and how the plan affects National Grid operations. What steps is National Grid taking to mitigate the effects of a natural disaster.]	[Eric McMahon—TFD Jerry Stockman-National Grid Andy Prestigiacomo—National Grid Paul Marozzi—National Grid Kevin Krough—National Grid]
[1/30/2019]	[Community Outreach]	[Meeting with neighborhood community to inform them about the Hazard Mitigation Plan details]	[Eric McMahon-TFD Various community participants]
[3/27/2019]	[Stakeholder's Meeting]	[Meeting with representatives from the region to discuss possible interaction during a large-scale event. Side discussion during a USCG Port Security Meeting]	[Eric McMahon—TFD Albany FD Representatives USCG]
[4/16/2019]	[Community Outreach and Public Comment]	[Meeting with a neighborhood association about the Mitigation plan and the steps that are being taken to lessen the effects of a natural or manmade disaster.]	[Patrick Madden—Mayor Eric McMahon—TFD Sam-Chiappone—Little Italy Assoc.]
[5/12/2019]	[Stakeholder's Meeting]	[Meeting with fire chiefs from capital district to discuss the mitigation plan and get input on how to lessen the effects of natural disaster from a regional perspective]	[Eric McMahon—TFD CD Fire Chief's Association]
[August 2019]	[Fact Sheet Posting]	[Plan Update Project Fact Sheet was posted at the Troy Public Library, City Hall; and on City web site and City social media pages]	[Eric McMahon- Fire Chief]

The City of Troy has received no comments to date as a result of its outreach activities.

8.22.10 CAPABILITY ASSESSMENT

This section describes the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability;
- Fiscal capability;
- Community resiliency;
- Community political capability; and
- Community classification.

8.22.10.1 Legal and Regulatory Capability

The table below summarizes the regulatory tools that are available to the City of Troy. The City reviewed its responses from the 2011 HMP and has updated its prior feedback to reflect present-day conditions.

Legal and Regulatory Capability			
Regulatory Tools (Codes, Ordinances, Plans)	Do you have this? (Y or N)	Municipal Entity with Enforcement Authority	Code Citation (Section, Paragraph, Page Number, Date of Adoption)
a. Building code	Y	Director of Coed Enforcement	Administered under NYS Building Codes = Regs
b. Zoning ordinance	Y	Planning	Zoning Ordinance
c. Subdivision ordinance or regulations	Y	Planning	Zoning Ordinance
d. Special purpose ordinances (floodplain management, stormwater management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	DPU	Floodplain Mgmt., Stormwater Mgmt., Setback RQMTS
e. Growth management ordinances (also called "smart growth" or anti-sprawl programs)	Y	Planning	Planning Ordinance
f. Site plan review requirements	Y	Planning	Zoning Ordinance
g. General, comprehensive or master plan	Y	Planning	Realize Troy Comprehensive Plan 2018
h. A capital improvements plan	N		Submit as part of annual budget
i. An economic development plan	N		
j. An emergency response plan	Y	Chief Exec/ Mayor	City Disaster Preparedness Plan
k. A post-disaster recovery plan	Y	Chief Exec/ Mayor	City Disaster Preparedness Plan
l. A post-disaster recovery ordinance	Y	Chief Exec/ Mayor	City Disaster Preparedness Plan
m. Real estate disclosure requirements	Y	City Clerk	NYS FOIL
n. Other	Y		

8.22.10.2 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Troy. The City reviewed its responses from the 2011 HMP and has updated its prior feedback to reflect present-day conditions.

Administrative and Technical Capability		
Staff / Personnel Resources	Available (Y or N)	Department / Agency / Position
a. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	City engineer, Engineering Dept, Commissioner of Planning, Planning Dept.
b. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	City engineer, Engineering Dept, Building Inspector, Bldg. Dept.
c. Planners or Engineer(s) with an understanding of natural and/or human-caused hazards	Y	City engineer, Engineering Dept, DPU,
d. Floodplain manager	Y*	Director of Codes
e. Surveyors	N	

Administrative and Technical Capability		
Staff / Personnel Resources	Available (Y or N)	Department / Agency / Position
f. Staff with education or expertise to assess the community's vulnerability to hazards	Y	MBRS- Eng. Dept, Troy PD, Troy FD, and Water Dept.
g. Personnel skilled in GIS and/or HAZUS	Y	RENSCO Resources
h. Scientists familiar with the hazards of the community	N	
i. Emergency manager	N	
j. Grant writers	N	
k. Staff with expertise or training in benefit/cost analysis		
*All communities participate in the National Flood Insurance Program; as such, they are required by the regulations to have an appointed floodplain manager.		

8.22.10.3 Fiscal Capability

The table below summarizes financial resources available to the City of Troy. The City reviewed its responses from the 2011 HMP and has updated its prior feedback to reflect present-day conditions.

Fiscal Capability	
Financial Resources	Accessible or Eligible to use (Yes/No/Don't know)
a. Community Development Block Grants (CDBG)	Y
b. Capital improvements project funding	Y
c. Authority to levy taxes for specific purposes	Y
d. Fees for water, sewer, gas, or electric service	Y
e. Impact fees for homebuyers or developers for new developments/homes	Y
f. Incur debt through general obligation bonds	Y
g. Incur debt through special tax and revenue bonds	Y
h. Incur debt through private activity bonds	Don't know
i. Withhold spending in hazard-prone areas	N
j. State mitigation grant programs	Y
k. Other	

8.22.10.4 Overall Capabilities

The City of Troy's 2019 assessment of its overall capabilities to implement hazard mitigation strategies in each of the above categories, in addition to their local assessment of how these capabilities could be expanded and/or improved to reduce risk, is presented in the table below.

Overall Capabilities				
Overall legal and regulatory capability to implement hazard mitigation strategies	Overall technical capability to implement hazard mitigation strategies	Overall fiscal capability to implement hazard mitigation strategies	Overall administrative capability to implement hazard mitigation strategies	Community's willingness to enact policies and programs that reduce hazard vulnerabilities
Mod	Low	Low	Mod	Low
How these capabilities can be expanded and/or improved to reduce risk:				
In order to increase the community's capabilities a large financial interest must be taken by the administration and community. This would include equipment and personnel for the planning and response to hazards.				

8.22.10.5 Community Classifications

The table below summarizes classifications for community program available to the City of Troy.

Community Classifications		
Program	Classification	Date Classified
Community Rating System (CRS) *	None	
Building Code Effectiveness Grading Schedule (BCEGS)	None	
Public Protection	None	
Storm Ready	None	
FireWise	None	

Notes:

- = Unavailable

N/A = Not applicable

NP = Not participating.

* CRS Ranking as of April 2019

The classifications listed above relate to the City of Troy's ability to provide effective services to lessen its vulnerability to the natural hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS Class applies to flood insurance, while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with Class 1 being the best possible classification, and Class 10 representing no classification benefit. FireWise

classifications include a higher classification when the subject property is located beyond 1,000 feet of a creditable fire hydrant and is within five road miles of a recognized fire station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO's Public Protection website at <http://www.isomitigation.com/ppc/0000/ppc0001.html>
- The National Weather Service Storm Ready website at <http://www.weather.gov/stormready/howto.htm>
- The National FireWise Communities website at <http://firewise.org/>

8.22.11 PLAN FOR DISPLACED RESIDENTS

New York State requires that intermediate and long-term housing options must be available for relocating displaced residents to maintain post-disaster social and economic stability. Intermediate and long-term housing options for displaced residents was evaluated as part of the 2019 HMP Update. Additional information can be found in Appendix C.

8.22.12 PLAN FOR EVACUATION NEEDS AND SHELTERING

The City of Troy has an emergency response plan, a post-disaster recovery plan, and a post-disaster recovery ordinance¹¹. Rensselaer County has an existing Comprehensive Emergency Management Plan (CEMP) documenting the County's plan for evacuation and sheltering measures during hazard events. The Plan is posted online at: <http://www.rensco.com/wp-content/uploads/2019/07/Rensselaer-County-CEMP.pdf>. As part of this hazard mitigation plan update, the Rensselaer County reviewed their existing CEMP and determined that updates were necessary at this time. Updates to the CEMP are being completed at this time. Once finalized and approved, the County will post the updated CEMP at the same address and will follow procedures in its updated CEMP in all future disasters. The County BPS indicated that there are no designated evacuation routes.

Appendix B contains updated shelter data provided by the Red Cross in 2018. Shelter locations are not made public until facilities are actually opened for an event and therefore, pages of Appendix B that include shelter information are nonpublic. Since every possible shelter is not opened during every event, the data is not made public in order to ensure that individuals in need of shelter do not seek it at facilities which may remain closed during a particular event. The City of Troy has access to shelter data and will coordinate with the Red Cross as part of their standard operating procedures if and when a need is identified for local shelters to be opened in the community.

¹¹ Source: Local Capability Assessment

8.22.13 FUTURE NEEDS - RISK/VULNERABILITY

The City of Troy has identified no future needs to better understand risk/vulnerability in the community.

8.22.14 PLAN INTEGRATION

For a community to succeed in reducing risk in the long term, the information and recommendations of the hazard mitigation plan must be integrated into day-to-day local government operations. Throughout the planning process, partnerships are formed between departments and agencies, and sustained actions between these partners will increase the community's resilience to disasters. "Plan integration" can be thought of as the process whereby a local government incorporates the mitigation plan findings and projects into other planning mechanisms (governance structures that are used to manage local land use development and community decision making).

It is the intention of the City of Troy to incorporate mitigation planning as an integral component of daily municipal operations. The balance of this subsection describes local accomplishments over the last planning cycle (2011-2019), and targeted activities for the next planning cycle (2019-2024).

Demonstration of Progress over the Last Planning Cycle (2011-2019) – The City of Troy undertook the following plan integration mechanisms over the last planning cycle:

- CPG member (or predecessor) worked with the planning department to educate them on the Hazard Mitigation Plan and encourage that on the next update of the local master plan, general or comprehensive plan, hazard mitigation for natural hazards is addressed. Natural hazard risk/mitigation was incorporated into the updated document.
- CPG member (or predecessor) coordinated with the building department to ensure that they have adopted and are enforcing the minimum standards established in the current State-adopted IBC. The city of has adopted and follows the New York State version of the IBC codes
- City has a local zoning ordinance. CPG member (or predecessor) worked with the local zoning board to educate them on the Hazard Mitigation Plan and encourage consideration of low occupancy, low-density zoning in hazard areas, when practicable. Several buildings being constructed at this time are using the lowest level at-grade parking with the first livable space above it, with flooding in mind.
- The City does have a local comprehensive plan and it is believed to include hazard elements for natural hazards such as flooding, snow, storms, manmade hazards.
- Department of Public Works has adopted more rigorous procedures for inspecting and cleaning debris from streams and ditches. The City of Troy has a rigorous storm drain and culvert cleaning program to clear debris continuously.

- The Planning Department has added hazard vulnerability to subdivision and site plan review criteria. The Planning Department is aware of flood vulnerabilities and takes flooding into consideration when planning future development.
- The City has met at least once with local library staff members to discuss the mitigation plan, so they are well-versed in its purpose and understand where to direct interested parties for more information, to provide feedback, or to become involved. The City of Troy Public Library was given a fact sheet.

Targeted Plan Integration Activities for the Next Planning Cycle (2019-2024) – The City of Troy plans to implement the following plan integration mechanisms into local government operations from this point forward through the next planning cycle:

- CPG member will issue a letter to each department head to solicit their support and explore opportunities for further integration of hazard mitigation into the daily activities of the community as a whole.
- Incorporate hazard mitigation for natural hazards in the next update of your master, general or comprehensive plan.
- Add a specific hazard mitigation element to the next update of your master, general or comprehensive plan.
- Adopt and enforce the minimum building standards established in the current State-adopted IBC (NY edition).
- Maintain community participation in FEMA's National Flood Insurance Program.
- Modify work plans, policies or procedures to include hazard mitigation concepts/activities.
- Revise job descriptions to include mitigation-related duties to further institutionalize mitigation.
- Issue directives to require departments/agencies in the community to carry out certain hazard mitigation activities.
- Require the Department of Public Works to inspect and clean debris from streams and ditches more frequently.
- Add hazard vulnerability to subdivision and site plan review criteria.
- Perform inventories of historic sites in hazard areas in your community to identify where special treatment may be needed to protect them from specific natural hazards.
- Reach out to state agencies for assistance with natural hazard mitigation activities.
- Reach out to colleges and universities for technical assistance with natural hazard mitigation activities.
- Reduce the vulnerability of future development in high hazard areas by reviewing development regulations and modifying where needed.
- Use the risk assessment to inform future updates of the community emergency operations plan, evacuation plan, and/or post disaster recovery plan.
- Sponsor training on best practices for hazard mitigation for local government staff. (Note: this may be accomplished with other local governments.)

8.22.15 MITIGATION STRATEGY

This subsection sets forth the mitigation strategy for the City of Troy. It describes:

- Progress on 2011 HMP Initiatives
- Past Mitigation Accomplishments
- Proposed 2019 HMP Mitigation Initiatives
- Action Worksheets

8.22.15.1 Progress on 2011 HMP Initiatives

The following table was completed by the City of Troy HMP Committee Members. It summarizes the progress that was made on the local hazard mitigation initiatives that were set forth in the community's mitigation strategy from the initial HMP in 2011.

PROGRESS ON 2011 HAZARD MITIGATION PLAN INITIATIVES												
2011 HMP Initiative Number	Mitigation Initiative Description	2011 HMP Priority	Hazard(s) Mitigated	Lead and Support Agencies	Status				Status Details	Relevance		Relevance Details
					Completed	Initiated but Not Completed	Ongoing Type of Activity	Not Initiated		Still Relevant - Carry Forward to Updated Mitigation Strategy	No Longer Relevant - Omit from Updated Mitigation Strategy	
T-1	911 System - Relocate the reinforced concrete vault and telephone cables of the 911 call system situated along Main Street in South Troy, east of the Rensselaer County Jail to above-ground secure facility.	1	Flooding	City Engineering Department, and Rensselaer County Emergency Management				X	Lack of Funding	X		The need is still relevant. The cost of the project is prohibitive at this time.
T-2	Transmission Pipelines- Repair/Replacement, protection and surveillance of two 30" diameter cast iron transmission mains that extend from the Tomhannock Reservoir to the water plant.	2	Ensures security and continuous operation of the water supply	Department of Public Utilities			X		The city has received a \$10,000,000 grant and has secured \$30,000,000 in loan funding to complete this project	X		The project is moving forward
T-3	Water Storage Tanks-Provide CCTV with DVD remote video surveillance of three water storage tanks. Monitoring shall be provided at the water plant operations console.	3	Ensures security and continuous operation of the water supply	Department of Public Utilities			X		The city has received grant funding for a watershed protection program. Monitoring will begin once cameras are installed	X		The project is moving forward
T-4	Tomhannock Reservoir - Water Supply Protection, provide security fencing at accessible areas. Provide CCTV with DVD remote video surveillance with monitoring at the water plant.	4	Ensures security and continuous operation of the water supply	Department of Public Utilities			X		The city has received grant funding for a watershed protection program. Monitoring will begin once cameras are installed. Fencing has yet to be installed.	X		The project is moving forward
T-5	City of Troy High Hazard Dams - Inspection and mitigation of three high hazard dams: Tomhannock Reservoir Dam, Wright, and Bradley Lake Dams.	5	Dam failure, flooding	Engineering, Department of Public Utilities		X			Tomhannock Res. Dam re-built in 2015. Wright's Lake and Bradley Lake Dam in Planning Stages with a planned completion of 2021.	X		The project is moving forward
T-6	Landslides in slope stability prone area - Provide slope stability mitigation and monitoring to critical landslide areas in the City of Troy including steep embankments along Spring Avenue, Thompson Street and the areas of Stow, Brickyard Road, and Old Mill Street.	6	Landslides	Engineering, Department of Public Utilities		X			Completed on Brunswick Rd. Completed Brickyard Rd Projects. Thompson St. yet to be started	X		The project is moving forward
T-7	Bulkhead Wall at Hudson River - The City of Troy owns approximately 1.5 miles of seawall in varying states of deterioration. Mitigation is required that includes driving PZ 32 sheet pile with walers and dead men shall be driven at various locations to ensure and maintain the structural integrity of the existing seawall. A reinforced concrete cap shall be placed on top of the wall section. (est. length 2,000 feet)	7	flooding, ice jams	Engineering, Department of Public Utilities		X			Actively Being Completed	X		The project is moving forward

PROGRESS ON 2011 HAZARD MITIGATION PLAN INITIATIVES												
2011 HMP Initiative Number	Mitigation Initiative Description	2011 HMP Priority	Hazard(s) Mitigated	Lead and Support Agencies	Status				Status Details	Relevance		Relevance Details
					Completed	Initiated but Not Completed	Ongoing Type of Activity	Not Initiated		Still Relevant - Carry Forward to Updated Mitigation Strategy	No Longer Relevant - Omit from Updated Mitigation Strategy	
T-8	Natural gas distribution and transmission lines - The City of Troy has a network of existing cast iron transmission and distribution as lines that are corroded and need to be replaced. Some date back approximately 120-130 years. This includes replacement of services and valving.	8	Natural gas	National Grid working with City of Troy Engineering			X		National Grid is replacing gas lines on a continuous basis	X		The project is moving forward
T-9	Underground Propane Storage Facility. John Ray and Son 30,000 gallon underground storage facility along with associated venting and leak detection. Citywide practice drills in conjunction with Rensselaer County Hazmat.	9	Propane	Troy Fire Department			X		Review of 209-U reports annually	X		The project is a continuous type of activity.
T-10	Hazardous Material Transport Along Hoosick Street (NYS Route 7): Numerous tractor trailers carrying hazardous material access Hoosick Street on a daily basis. This mitigation task will involve pre-planning and practice drills in the event of a hazardous material spill.	10	Spill response planning	Troy Fire Department			X		Actively train on an annual basis with responders from neighboring fire departments to mitigate a major release	X		The project is a continuous type of activity.
T-CL-1	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/tv announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (public education)	High	All hazards	County-led action item. CPG Member, Mayor			x		Meet with various community groups and shareholders such as National Grid to plan updating infrastructure	x		County is carrying forward this County-led activity with no changes; our municipality will carry it forward as well.
T-CL-2	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/ amend the codes/ordinances as applicable. (prevention)	Medium	All hazards	County-led action item. CPG Member, Mayor			x		Ongoing evaluation of local ordinances. The city is seeking a Master Plan evaluation	x		County is carrying forward this County-led activity with no changes; our municipality will carry it forward as well.
T-CL-3	Code enforcement: Enforcement of NYS and Local Building Codes with Continual CEO training. (prevention)	Medium	All hazards	County-led action item. CPG Member, Mayor			x		Locally administered on an ongoing basis; our community did not have a need to go to the county for support/training.	x		County is carrying forward this County-led activity with no changes; our municipality will carry it forward as well.

PROGRESS ON 2011 HAZARD MITIGATION PLAN INITIATIVES												
2011 HMP Initiative Number	Mitigation Initiative Description	2011 HMP Priority	Hazard(s) Mitigated	Lead and Support Agencies	Status				Status Details	Relevance		Relevance Details
					Completed	Initiated but Not Completed	Ongoing Type of Activity	Not Initiated		Still Relevant - Carry Forward to Updated Mitigation Strategy	No Longer Relevant - Omit from Updated Mitigation Strategy	
T-CL-4	Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department (prevention)	High	All hazards	County-led action item. CPG Member, Mayor			x		The City has adopted a Comprehensive Plan in 2018 that was reviewed by the County Planning Department. The plan includes an LWRP that is being finalized now that will include mitigation information.	x		County is carrying forward this County-led activity with no changes; our municipality will carry it forward as well.
T-CL-5	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. (prevention)	Low	All hazards	County-led action item. CPG Member, Mayor			x		County- led activity. Municipality attends meetings/workshops as offered by the County whenever municipal staff members have schedule availability.	x		County is carrying forward this County-led activity with no changes; our municipality will carry it forward as well.
T-NFIP-1	Update/revise floodplain management ordinance to comply with latest FEMA regulations.	High	Flooding	Mayor's Office			x		Ordinance is dated 1980. The ordinance has not been updated.	x		Ongoing type of activity; will be carried forward with no changes.
T-NFIP-2	Designate/install a specific person to be your municipality's Floodplain Administrator.	High	Flooding	Mayor's Office			x		Director of Code Enforcement	x		Ongoing type of activity (with staffing changes); will be carried forward with no changes.
T-NFIP-3	Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances.	Medium	Flooding	Code Department			x			x		Ongoing type of activity (with staffing changes); will be carried forward with no changes.
T-NFIP-4	Update/revise floodplain management ordinance to be consistent with potential future new FIRMs	Medium	Flooding	Engineering Department			x		FEMA has not issued new FIRMs since the last hazard mitigation plan was prepared.	x		Ongoing type of activity; will be carried forward with no changes.
T-NFIP-5	Require staff involved in floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	Low	Flooding	Code Department / Engineering Department				x	Not agency required; municipality opted not to require CFM certification.	x		Will pursue further
T-NFIP-6	Join the Community Rating System (CRS)	High	Flooding	Mayor's Office				x	Municipality opted not to enter CRS.		x	Municipality reconsidered in 2019 and does not intend to explore further during next planning cycle.

8.22.15.2 Past Mitigation Accomplishments

NYS DHSES requires the documentation of local mitigation efforts and accomplishments since the previous hazard mitigation plan was prepared, regardless of funding source and regardless of whether the project was included in the prior plan. They note that the goal of this requirement is to provide a context for each jurisdiction's projects, act as a source of ideas for mitigation projects, and evaluate the accuracy of assumptions and engineering solutions to inform future projects, and to support future mitigation planning and its coordination with other planning, zoning, and environmental procedures within the jurisdiction.

The following table summarizes past mitigation accomplishments for the City of Troy, from the time the 2011 HMP was approved through its first update in 2019.

Past Mitigation Accomplishments					
Project Number	Project Name	Hazard(s) Addressed	Brief Summary of the Original Problem and the Solution (Project)	Evaluation of Success	
T-7	Seawall Stabilization Project	Flooding, ice jams	The seawall has deteriorated. The project is a redesign and replacement of the most severely damaged sections and installation of mitigation infrastructure in flood prone areas.	Cost	\$17,500,000
				Level of Protection	Moderate
				Damages Avoided; Evidence of Success	This is an ongoing project. The project is about 45% complete.
T-6	Replacement of Landslide Prone sections of embankment	Landslides	A large section of embankment has been properly removed and shored to mitigate further landslide potential. The section at Brunswick Rd. has been mitigated. Other areas have yet to be addressed.	Cost	\$1,835,000
				Level of Protection	Moderate
				Damages Avoided; Evidence of Success	No further landslides. Stable embankments

8.22.15.3 Proposed 2019 HMP Mitigation Initiatives

The process for selection and prioritization of mitigation actions is described in greater detail in Section 5 of the main text. The outcomes of that overall process are summarized here.

This plan proposes the actions determined to be the most appropriate for the resources and capabilities of the community based on the experience of local officials, with input from the public and other stakeholders. The relatively large number of flood mitigation actions reflects the fact that flooding is the hazard of greatest concern. Actions determined to be appropriate for the plan

were reviewed during public and committee meetings and there was consensus that those intended to mitigate the effects of flooding should be the highest priorities for most communities. As with the 2011 Plan, this 2019 Plan Update includes a series of County-led initiatives with municipal participation to address a wider range of hazards. In addition, each local mitigation strategy proposes actions reflecting the commitment of the County and local jurisdictions to compliance with requirements of the NFIP. Potential actions were reviewed relative to potential financial as well as administrative and legal costs and the degree to which they would be endorsed by the public. Potential actions were reviewed during the meetings relative to their potential benefit of effectiveness in saving lives, protecting the natural environment, and reducing disruption and damage. Actions selected by each jurisdiction include activities to protect existing and future structures and infrastructure and enhance community resilience.

Part of enhancing community resilience involves adapting to a changing climate. In accordance with NYS Mitigation Planning Standard 9, plans developed with NYS DHSES-administered funds must include information on climate change as part of the hazard vulnerability analysis and contain strategies/projects to address increased vulnerability that may result from climate change. This requirement was established to encourage jurisdictions to plan for and accommodate climate change and sea level rise. By developing mitigating strategies and/or projects for hazards that are exacerbated by climate change, jurisdictions will better protect residents, avoid, or reduce damage to property and public infrastructure, and reduce personal hardship. In accordance with this State Standard, previous sections of this plan have presented information on how climate change may affect jurisdictional vulnerability or increased frequency of occurrence and/or severity in exposure to flooding, wildfire, drought, and extreme temperatures. Climate change is addressed by mitigating the various hazards that it exacerbates. Rensselaer County and its communities have proposed a range of hazard mitigation initiatives to address their highest hazards including those hazards that are exacerbated by a changing climate. Additionally, as discussed further in the main text of this plan in Section 5, under New York State's Climate Smart Communities (CSC) program, the City of Troy is a Registered CSC and has passed a resolution adopting the CSC pledge which acknowledges climate change and documents the City's commitment to take steps to reduce its impacts.

Proposed 2019 HMP Mitigation Initiatives for City of Troy are shown in the following table. These include both new initiatives and initiatives that were carried forward from the 2011 HMP.

PROPOSED 2019 HMP MITIGATION INITIATIVES														
Initiative Number	Initiative Name	HMP Goal(s)/ Objective(s) Being Met	Hazard(s) to be Mitigated	Description of the Problem	Description of the Solution	CF ¹² ?	EHP ¹³ Issues?	Estimated Timeline	Project Lead (include relevant Department and Position Title)	Estimated Costs	Estimated Benefits	Potential Funding Sources ¹⁴	Priority ¹⁵	Action Worksheet Provided? ¹⁶
* NOTE: Projects related to Critical Facilities (CF) must protect the facility to the 500-year event or worst damage scenario, whichever is greater.														
1	Tomhannock transmission line replacement *NEW*	3	Ensure continuous operation of water service to city population	Aged infrastructure that needs to be replaced	Remove and replace the existing water lines from reservoir to water treatment plant to provide continuous water to residents	Yes	No	2 years	DPU-Chris Wheland	\$40,000,000	Incalculable but expected to exceed costs	Combination of grants and other funding	1	Yes
2	Ida Lake Dam Replacement *NEW*	3	Flooding	The dam that creates the Ida Lake in the Ida Cemetery is in danger of collapse. This project looks to replace the dam	Remove and replace the dam to provide protection for residents living downstream of the dam	Yes	No	18 Months	DPU-Chris Wheland	\$3,000,000	\$6,000,000	Local—FEMA Grant	2	Yes
3	Relocate the 911 communications vault (2011 T-1)	3	Dropped communication due to flooding	The main vault for the E-911 center is in the flood plain. During a high flood, the vault will become saturated, interrupting communications	Move communication vault	Yes	No	1 Year	City Engineering/RCBPS	In the millions of dollars; estimated to be in the range of \$1M to \$5M	Incalculable but expected to exceed costs	Combination of grants and other funding	High	No
4	Transmission pipeline repair and replacement. (2011 T-2)	3	Ensure continuous operation of water service to city population	Transmission Pipelines- Repair/Replacement, protection and surveillance of two 30" diameter cast iron transmission mains that extend from the Tomhannock Reservoir to the water plant.	Replace water lines	Yes	No	2 Years	DPU-Chris Wheland	Estimated to be on the order of between \$20M and \$40M	Incalculable but expected to exceed costs	Combination of grants and other funding	High	No
5	CCTV for water storage tanks (2011 T-3)	3	Ensure continuous operation of water service to city population	Water Storage Tanks-Provide CCTV with DVD remote video surveillance of three water storage tanks. Monitoring shall be provided at the water plant operations console.	Monitor water supply	Yes	No	2years	DPU-Chris Wheland	Estimated to be in the hundreds of thousands of dollars	Incalculable but expected to exceed costs	Combination of grants and other funding	High	No
6	Water supply protection (2011 T-4)	3	Ensure continuous operation of water service to city population	Tomhannock Reservoir - Water Supply Protection, provide security fencing at accessible areas. Provide CCTV with DVD remote video surveillance with monitoring at the water plant.	Monitor water supply	Yes	No	2 Years	DPU-Chris Wheland	Estimated to be several hundred thousand to \$1M	Incalculable but expected to exceed costs	Combination of grants and other funding	High	No
7	Dam mitigation (2011 T-5)	3,4	Flooding	City of Troy High Hazard Dams - Inspection and mitigation of three high hazard dams: Tomhannock Reservoir Dam, Wright, and Bradley Lake Dams.	Replace dam to mitigate a possible failure	Yes	No	2 Years	City Engineer	Estimated to be on the order of \$3M to \$5M	Incalculable but expected to exceed costs	Combination of grants and other funding	High	No

¹² CF – Critical Facility. Please respond “Y” (yes) if the project’s purpose is to protect a critical facility, or “N” (no) if not.

¹³ EHP – Environmental or Historic Preservation. Please respond “Y” (yes) if the project is expected to have environmental and/or historic preservation issues, or “N” (no) if not.

¹⁴ Potential Funding Sources – A list of Federal and State sources of funding for hazard mitigation projects can be found in the latest NYS Hazard Mitigation Plan online at <https://mitigateny.avilabs.org/capabilities/administerfunding>. Jurisdictions should identify additional funding opportunities you may be aware of that are not on the state list.

¹⁵ Priority – See “Prioritization Methodology” on the next page.

¹⁶ Action Worksheet Provided. Please respond “Y” (yes) if you have filled out a detailed Action Worksheet, or “N” (no) if not. NYS DHSES State Standard 7 recommends that further consideration be given to all proposed actions by completing a NYS DHSES Action Worksheet, the State requires completion of a minimum of two NYS DHSES Action Worksheets for the jurisdiction’s highest priority projects. For jurisdictions containing a Special Flood Hazard Area, at least one of these Action Worksheets must be for a project that addresses flooding. Action Worksheets have been prepared for a minimum of two proposed mitigation initiatives. Action Worksheets are included at the end of this section, following the prioritization methodology.

PROPOSED 2019 HMP MITIGATION INITIATIVES														
Initiative Number	Initiative Name	HMP Goal(s)/ Objective(s) Being Met	Hazard(s) to be Mitigated	Description of the Problem	Description of the Solution	CF ¹² ?	EHP ¹³ Issues?	Estimated Timeline	Project Lead (include relevant Department and Position Title)	Estimated Costs	Estimated Benefits	Potential Funding Sources ¹⁴	Priority ¹⁵	Action Worksheet Provided? ¹⁶
* NOTE: Projects related to Critical Facilities (CF) must protect the facility to the 500-year event or worst damage scenario, whichever is greater.														
8	Landslide slope stabilization (2011 T-6)	3	landslides	Landslides in slope stability prone area - Provide slope stability mitigation and monitoring to critical landslide areas in the City of Troy including steep embankments along Spring Avenue, Thompson Street and the areas of Stow, Brickyard Road, and Old Mill Street.	Slope land to mitigate a possible landslide	Yes	No	2 years	City Engineer	Estimated to be on the order of \$6M to \$10M	Incalculable but expected to exceed costs	Combination of grants and other funding	High	No
9	Bulkhead wall stabilization (2011 T-7)	3,4	Seawall failure	Bulkhead Wall at Hudson River - The City of Troy owns approximately 1.5 miles of seawall in varying states of deterioration. Mitigation is required that includes driving PZ 32 sheet pile with walers and dead men shall be driven at various locations to ensure and maintain the structural integrity of the existing seawall. A reinforced concrete cap shall be placed on top of the wall section. (est. length 2,000 feet)	Shore and replace portions of the seawall to make more resilient	Yes	No	2 years	City Engineer	Estimated to be on the order of approximately \$17.5M	Incalculable but expected to exceed costs	Combination of grants and other funding	High	No
10	Gas pipeline replacement (2011 T-8)	4	Explosions	Natural gas distribution and transmission lines - The City of Troy has a network of existing cast iron transmission and distribution as lines that are corroded and need to be replaced. Some date back approximately 120-130 years. This includes replacement of services and valving.	Repair and replace portions of cast iron gas line to prevent gas line failures and possible explosions	Yes	No	5 years	National Grid-City Engineer	Approximately in the millions of dollars	Incalculable but expected to exceed costs	Combination of grants and other funding	High	No
11	Propane gas farm drills (2011 T-9)	4	Explosions	Underground Propane Storage Facility. John Ray and Son 30,000 gallon underground storage facility along with associated venting and leak detection. Citywide practice drills in conjunction with Rensselaer County Hazmat.	Drill on events related to propane storage facility failure.	Yes	No	Continuous; happens periodically at least once a year	Fire Department	Staff time only	Incalculable but expected to exceed costs	Local budget covers staff time	High	No
12	Haz-Mat drills and pre-planning (2011 T-10)	2	Haz-Mat release in populated areas	Hazardous Material Transport Along Hoosick Street (NYS Route 7): Numerous tractor trailers carrying hazardous material access Hoosick Street on a daily basis. This mitigation task will involve pre-planning and practice drills in the event of a hazardous material spill.	Drill on possible Haz-Mat releases to be proactive and partner with other teams in the area	Yes	No	Continuous; happens periodically at least once a year often more than once a year	Fire Department	Staff time only	Incalculable but expected to exceed costs	Local budget covers staff time	High	No

PROPOSED 2019 HMP MITIGATION INITIATIVES														
Initiative Number	Initiative Name	HMP Goal(s)/ Objective(s) Being Met	Hazard(s) to be Mitigated	Description of the Problem	Description of the Solution	CF ¹² ?	EHP ¹³ Issues?	Estimated Timeline	Project Lead (include relevant Department and Position Title)	Estimated Costs	Estimated Benefits	Potential Funding Sources ¹⁴	Priority ¹⁵	Action Worksheet Provided? ¹⁶
* NOTE: Projects related to Critical Facilities (CF) must protect the facility to the 500-year event or worst damage scenario, whichever is greater.														
13	Participate in County-Led Hazard Mitigation Outreach (2011 T-CL-1)	1	All hazards	Residents could benefit from additional information on hazards, risks, and hazard mitigation measures they can take on their own properties to reduce damages and improve resident safety before, during and after a hazard event.	Public awareness program on Hazards, Prevention, and Mitigation: County will maintain a hazard mitigation and mitigation planning web presence (local municipal web sites to link up to this site, if they haven't already done so); all participating jurisdictions to support preparation of a joint annual hazard mitigation and mitigation planning fact sheet and its distribution; periodic discussion of hazard mitigation and the mitigation plan at other regular local meetings; use of annual flyers, newsletters, advertisements, or radio/to announcements, etc. at the discretion of each jurisdiction (incorporating as much free information as possible from the FEMA Publications Warehouse and other appropriate sources). (public education)	No	No	Regularly beginning 2019 and through next plan update	County-led action item. CPG Member, Mayor	Staff time only	An informed public will make better decisions in preparation, response, recovery, and mitigation; thus, improving overall community resiliency	Local budget covers staff time	Medium	No
14	Request code/ordinance review by County as needed (2011 T-CL-2)	4	All hazards	Communities are safer and more resilient when new construction and substantial improvements take into account the latest information on hazard vulnerabilities and measures to reduce risk.	Code update: Review existing local codes and ordinances against the identified hazards to determine whether there need to be any amendments to address identified hazards and, where a need is identified, modify/ amend the codes/ordinances as applicable. (prevention)	No	No	As needed beginning 2019 through next plan update	County-led action item. CPG Member, Mayor	Staff time only	County review can better inform the City if there are aspects of proposed new codes/ordinances that could be improved or modified to align better with latest information on hazard vulnerabilities and measures to reduce risk.	Local budget covers staff time	Medium	No
15	Send CEO to County-Led Training (2011 T-CL-3)	2	All hazards	There can be a loss of institutional knowledge with staff changes. Even when staff is the same, continual training improves local capabilities and allows officials to better regulate activities in hazard areas to protect lives and property.	Code enforcement: Enforcement of NYS and Local Building Codes with Continual CEO training. (prevention)	No	No	As offered by County through next plan update	County-led action item. CPG Member, Mayor	Staff time only	Regular training improves staff capabilities; better trained individuals enforcing codes will reduce the likelihood of errors and improve community resiliency	Local budget covers staff time	Medium	No

PROPOSED 2019 HMP MITIGATION INITIATIVES														
Initiative Number	Initiative Name	HMP Goal(s)/ Objective(s) Being Met	Hazard(s) to be Mitigated	Description of the Problem	Description of the Solution	CF ¹² ?	EHP ¹³ Issues?	Estimated Timeline	Project Lead (include relevant Department and Position Title)	Estimated Costs	Estimated Benefits	Potential Funding Sources ¹⁴	Priority ¹⁵	Action Worksheet Provided? ¹⁶
* NOTE: Projects related to Critical Facilities (CF) must protect the facility to the 500-year event or worst damage scenario, whichever is greater.														
16	Send Comprehensive Plan Update to County for Review by County Planning (2011 T-CL-4)	2,3,4	All hazards	A long term vision for the community that doesn't take into account hazard areas can put lives and property at risk. Taking into account natural hazards and hazard mitigation measures can make the community more resilient.	Ensure that local comprehensive plans incorporate natural disaster mitigation techniques through a courtesy review of draft plans by the County Planning Department (prevention)	No	No	As needed beginning 2019 through next plan update	County-led action item. CPG Member, Mayor	Staff time only	Courtesy review by County staff can provide feedback on potential missed opportunities as far as taking into account hazards and mitigation measures that foster resiliency	Local budget covers staff time	Medium	No
17	Attend County-Led Workshops on Natural Hazards and Hazard Mitigation (2011 T-CL-5)	2,4	All hazards	When municipal staff aren't armed with information on zoning and planning issues that sometimes arise regarding natural hazards and hazard mitigation, they may make decisions that don't foster community resiliency.	Hold periodic workshops for municipalities regarding zoning and planning issues that arise regarding natural hazards and hazard mitigation. (prevention)	No	No	As offered by County through next plan update	County-led action item. CPG Member, Mayor	Staff time only	An informed staff will make better decisions in preparation, response, recovery, and mitigation; thus, improving overall community resiliency	Local budget covers staff time	Medium	No
18	Update Floodplain Management Ordinance (2011 T-NFIP-1)	3,4	Flooding	Outdated ordinances mean that a community is not regulating to the latest codes and standards or hazard information, and that does not foster community resiliency.	Update/revise floodplain management ordinance to comply with latest FEMA regulations.	No	No	As needed beginning 2019 through next plan update	Mayor's Office	Staff time only	Regulating to current codes and standards reduces damages and improves resiliency. Also, Improved compliance with the requirements of the NFIP; maintain good standing with the program and eligibility of residents to purchase flood insurance	Local budget covers staff time	High	No
19	Designate a Floodplain Administrator (2011 T-NFIP-2)	2, 3, 4	Flooding	Staff changes	Designate/install a specific person to be your municipality's Floodplain Administrator.	No	No	2019	Code Enforcement	Staff time only	Improved compliance with the requirements of the NFIP; maintain good standing with the program and eligibility of residents to purchase flood insurance	Local budget covers staff time	High	No

PROPOSED 2019 HMP MITIGATION INITIATIVES														
Initiative Number	Initiative Name	HMP Goal(s)/ Objective(s) Being Met	Hazard(s) to be Mitigated	Description of the Problem	Description of the Solution	CF ¹² ?	EHP ¹³ Issues?	Estimated Timeline	Project Lead (include relevant Department and Position Title)	Estimated Costs	Estimated Benefits	Potential Funding Sources ¹⁴	Priority ¹⁵	Action Worksheet Provided? ¹⁶
* NOTE: Projects related to Critical Facilities (CF) must protect the facility to the 500-year event or worst damage scenario, whichever is greater.														
20	Staff Training in NFIP (2011 T-NFIP-3)	2	Flooding	Staff changes	Add/train sufficient members of staff to adequately enforce NFIP regulations/floodplain management ordinances.	No	No	2019	Code Enforcement	Staff time only	An informed staff will make better decisions in preparation, response, recovery, and mitigation; thus, improving overall community resiliency. They will also administer the NFIP better, maintain good standing with the program and eligibility of residents to purchase flood insurance	Local budget covers staff time	High	No
21	Update Floodplain Management Ordinance when new FIRMs are released (2011 T-NFIP-4)	2,3,4	Flooding	Substantial improvements of existing structures, and new construction, would be at risk if the city was regulating to old FIRMs	Update/revise floodplain management ordinance to be consistent with potential future new FIRMs	No	No	As needed beginning 2019 through next plan update	Code Enforcement	Staff time only	Improved compliance with the requirements of the NFIP; maintain good standing with the program and eligibility of residents to purchase flood insurance	Local budget covers staff time	High	No
22	Require CFM Certification (2011 T-NFIP-5)	2	Flooding	Floodplain manager would benefit from the training and certification regarding FEMA-480.	Require staff involved in floodplain management and ordinance enforcement to become Certified Floodplain Managers (CFMs)	No	No	2020	Code Enforcement	Cost couple thousand	Improved compliance with the requirements of the NFIP; maintain good standing with the program and eligibility of residents to purchase flood insurance	Local budget covers staff time	High	No
23	Mitigation of RLPs *NEW*	1	Flooding	Troy has five NFIP Repetitive Loss Properties	The City will support property owners who wish to undertake flood mitigation on private property.	No	TBD	5 Years	Mayor's Office and Code Enforcement	High	High	FEMA PDM or HMGP	Medium	No

Prioritization Methodology for Proposed 2019 HMP Mitigation Initiatives

To prioritize its mitigation initiatives, the community established a methodology to take into account several key factors. Priorities were determined by a qualitative prioritization process established by the community. A higher priority was assigned to projects where: the life/safety risk of taking no action was deemed to be unacceptably high; the project addresses one of the community's highest hazards and/or key risks; benefits were projected to equal or exceed project costs; critical facilities or key local assets were being protected; funding and staff resources were deemed to be sufficient and/or accessible for project implementation; negative impacts were not anticipated on environmental and/or historic resources or any segment of the population; and/or where there was overall support for the project from the local community (government officials, public, and stakeholders).

PRIORITIZATION METHODOLOGY FOR PROPOSED 2019 HMP MITIGATION INITIATIVES														Priority
Initiative Number	Initiative Name	Hazard(s) Addressed	Is the life/safety risk of taking no action deemed to be unacceptably high?	Does the project address one of the community's highest hazards and/or key risks?	Benefits	Costs	Are the project's benefits estimated to equal or exceed its costs?	Are critical facilities or key local assets being protected by the project?	Are funding resources sufficient and/or accessible for project implementation?	Are staff resources sufficient or available for project implementation?	Are negative impacts anticipated on environmental resources?	Are negative impacts anticipated on historic resources?	Are negative impacts anticipated on any segment of the population?	
1	Tomhannock transmission line replacement *NEW*	Continuous Water Supply to municipality	Yes	Yes	High	\$40,000,000	Yes	Yes	At this time	At this time	No	No	No	1
2	Ida Lake Dam Replacement *NEW*	Flooding	Yes	Yes	\$6,000,000	\$3,000,000	Yes	Residential Homes	Not at this time	Not at this time	No	Yes	No	2
3	Relocate the 911 communications vault (2011 T-1)	Communications	Yes	Yes	High	High	Yes	Yes	Not at this time	Not at this time	No	No	No	High
4	Transmission pipeline repair and replacement. (2011 T-2)	Continuous Water Supply to municipality	Yes	Yes	High	High	Yes	Yes	Not at this time	Not at this time	No	No	No	High
5	CCTV for water storage tanks (2011 T-3)	Continuous Water Supply to municipality	Yes	Yes	High	High	Yes	Yes	Not at this time	Not at this time	No	No	No	High
6	Water supply protection (2011 T-4)	Continuous Water Supply to municipality	Yes	Yes	High	High	Yes	Yes	Not at this time	Not at this time	No	No	No	High
7	Dam mitigation (2011 T-5)	Flooding	Yes	Yes	High	High	Yes	Yes	Not at this time	Not at this time	No	No	No	High
8	Landslide slope stabilization (2011 T-6)	Landslide	Yes	Yes	High	High	Yes	Yes	Not at this time	Not at this time	No	No	No	High
9	Bulkhead wall stabilization (2011 T-7)	Seawall Failure	Yes	Yes	High	High	Yes	Yes	Not at this time	Not at this time	No	No	No	High
10	Gas pipeline replacement (2011 T-8)	Possible explosion	Yes	Yes	High	High	Yes	Yes	Not at this time	Not at this time	No	No	No	High
11	Propane gas farm drills (2011 T-9)	Possible Explosions	Yes	Yes	High	High	Yes	Yes	Not at this time	Not at this time	No	No	No	High
12	Haz-Mat drills and pre-planning (2011 T-10)	Haz-Mat mitigation	Yes	Yes	High	High	Yes	Yes	Not at this time	Not at this time	No	No	No	High
13	Participate in County-Led Hazard Mitigation Outreach (2011 T-CL-1)	All hazards	No	Yes	Low	Moderate to High	Yes	No	Yes	Yes	No	No	No	Medium
14	Request code/ordinance review by County as needed (2011 T-CL-2)	All hazards	No	Yes	Low	Moderate to High	Yes	No	Yes	Yes	No	No	No	Medium
15	Send CEO to County-Led Training (2011 T-CL-3)	All hazards	No	Yes	Low	Moderate to High	Yes	No	Yes	Yes	No	No	No	Medium
16	Send Comprehensive Plan Update to County for Review by County Planning (2011 T-CL-4)	All hazards	No	Yes	Low	Moderate to High	Yes	No	Yes	Yes	No	No	No	Medium

17	Attend County-Led Workshops on Natural Hazards and Hazard Mitigation (2011 T-CL-5)	All hazards	No	Yes	Low	Moderate to High	Yes	No	Yes	Yes	No	No	No	Medium
18	Update Floodplain Management Ordinance (2011 T-NFIP-1)	Flooding	No	Yes	Low	Moderate to High	Yes	No	Yes	Yes	No	No	No	High
19	Designate a Floodplain Administrator (2011 T-NFIP-2)	Flooding	No	Yes	Low	Moderate to High	Yes	No	Yes	Yes	No	No	No	High
20	Staff Training in NFIP (2011 T-NFIP-3)	Flooding	No	Yes	Low	Moderate to High	Yes	No	Yes	Yes	No	No	No	High
21	Update Floodplain Management Ordinance when new FIRMs are released (2011 T-NFIP-4)	Flooding	No	Yes	Low	Moderate to High	Yes	No	Yes	Yes	No	No	No	High
22	Require CFM Certification (2011 T-NFIP-5)	Flooding	No	Yes	Low	Moderate to High	Yes	No	Yes	Yes	No	No	No	High
23	Mitigation of RLPs *NEW*	Flooding	No	Yes	High	High	Equal	No	Private/Grants	Yes	No	No	No	Medium

Action Worksheets

NYS DHSES State Standard 7 recommends that further consideration be given to all proposed actions by completing a NYS DHSES Action Worksheet, the State requires completion of a minimum of two NYS DHSES Action Worksheets for the jurisdiction's highest priority projects. Furthermore, for jurisdictions containing a Special Flood Hazard Area, at least one of these Action Worksheets must be for a project that addresses flooding.

Action Worksheets prepared by the City of Troy are included on the following pages.

Section 8.22 - Jurisdictional Annex, City of Troy

NYS DHSES Action Worksheet			
Project Name:	Tomhannock Transmission Line Replacement		
Project Number:	1		
Risk / Vulnerability			
Hazard of Concern:	Loss of water to city		
Description of the Problem:	Aged infrastructure that needs to be replaced		
Action or Project Intended for Implementation			
Description of the Solution:	Replace the transmission water lines from the reservoir to the water treatment plant		
Is this project related to a Critical Facility?	Yes * <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
* Projects related to critical facilities 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):	Continuous water supply to municipality
Useful Life:	50 years		
Estimated Cost:	\$40,000,000		
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Soon after planning
Estimated Time Required for Project Implementation:	2 years	Potential Funding Sources:	\$10,000,000 grant-- \$30,000,000 other funding sources
Responsible Party: (Department/ Organization)	DPU-Chris Wheland	Local Planning Mechanisms to be Used in Implementation, if any:	None
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Not viable- Complete loss of potable water for a significant chunk of Rensselaer County
	Continued patchwork	Hundreds of thousands of dollars each time they go in to patch something, which happens regularly.	Not viable- Continuous loss of service; unreliable water system with multiple failures; and not likely to be the best use of taxpayer funds to do continuous repairs on aging system
	Selected Alternative- complete replacement of the transmission lines	\$40M	Best option over the long term. Continuous water supplies
Progress Report (this section to be completed at next plan update-do not fill in now)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Section 8.22 - Jurisdictional Annex, City of Troy

NYS DHSES Action Worksheet			
Project Name:	Ida Lake Dam Replacement		
Project Number:	2		
Risk / Vulnerability			
Hazard of Concern:	Flooding from Dam failure		
Description of the Problem:	Downstream flooding as a result of a dam failure		
Action or Project Intended for Implementation			
Description of the Solution:	Remove and replace existing dam		
Is this project related to a Critical Facility?	Yes * <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
* Projects related to critical facilities 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):	Increased security to downstream homes
Useful Life:	50 years		
Estimated Cost:	\$3,000,000		
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	Soon after planning
Estimated Time Required for Project Implementation:	6 mos.	Potential Funding Sources:	Local funding and Grants
Responsible Party: (Department/ Organization)	Engineering-DPU	Local Planning Mechanisms to be Used in Implementation, if any:	Meeting with local neighborhood associations and public input.
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Not viable - Major flooding downstream of the dam; possible loss of lives and significant property damage.
	Removal of the dam	In the hundreds of thousands of dollars	Not viable - Loss of hydroelectric power, loss of a lake that the dam creates impacting property values upstream as people lose lakefront property; and there would be no control of the water during the spring thaw and heavy rains, as the dam acts as a reservoir/buffer.
	Complete dam replacement	\$3M	Best option. Develops resiliency by protecting downstream life and property.
Progress Report (this section to be completed at next plan update-do not fill in now)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			