

9.15 TOWN OF TIOGA

This section presents the jurisdictional annex for the Town of Tioga.

A.) HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact	Alternate Point of Contact
Name Lewis W. Zorn, Supervisor Address Phone Number 607-687-0241 Email address lzorn@verizon.net	Name Robert Strong, Deputy Supervisor Address Phone Number 607-699-3034 Email address

B.) PROFILE

Population

4,871 (estimated 2010 U.S. Census)

Location

The Town of Tioga is in Tioga County, New York. The town is in the southwest part of the county and lies between Elmira and Binghamton. According to the U.S. Census Bureau, the town has a total area of 59.5 square miles (154 km²), of which, 58.7 square miles (152 km²) of it is land and 0.8 square miles (2.1 km²) of it (1.31%) is water. The Susquehanna River forms the south town boundary; the Town and Village of Owego are to the east, the Town of Candor to the north, and the Town of Barton to the west. New York State Route 17C follows the course of the Susquehanna on its north bank.

Brief History

The Sullivan Expedition of 1779 during the American Revolutionary War passed through the area, destroying Seneca villages, as the Seneca and three other Iroquois nations sided with the British. Loyalist and allied Iroquois tribes had been raiding colonial settlements in the Mohawk Valley and related areas.

After the American Revolutionary War, those Iroquois nations who had sided with the British were forced to cede their lands to New York, although their treaties were not ratified by the US Congress. The first European-American settlers arrived around 1792.

Organized in 1788 before Tioga County was established, as part of the "Old Town of Chemung," the town was renamed "Owego" in 1791. That was the year Tioga County was created. In 1818 the town was renamed the "Town of Tioga" by switching names with the current Town of Owego. The Village of Owego was thus in the town of the same name.

Governing Body Format

The town is governed by the town supervisor and council members.

Growth/Development Trends

No major residential/commercial development and major infrastructure development have been identified for the next five (5) years in the municipality.



C.) NATURAL HAZARD EVENT HISTORY SINCE 2000

Tioga County has a history of natural hazard events as detailed in Volume I, Section 5 of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events affecting the County and its municipalities. Below is presented a summary of events dating from the year 2000 to indicate the range and impact of natural hazard events in this community. Specific damages have been indicated if available from reference or local sources. For details of events prior to 2000, refer to Volume I, Section 5 of this plan.

Type of Event	FEMA Disaster # (if applicable)	County Designated?	Date	Approximate Damage Assessment
Severe Storms / Flash Flood	DR-1335	Yes	May 3 – August 12, 2000	\$1.25 M in property damages County-wide.
Wind	N/A	N/A	December 12, 2000	Over \$64 K in property damage County-wide.
Drought	N/A	N/A	November 2001 – January 2002	Three month duration with the lowest PDSI of -3.28 in December.
Tornado F1	N/A	N/A	May 31, 2002	There were seven injuries and \$600 K in property damage County-wide.
Snowstorm	EM-3173	Yes	December 25, 2002	Snowfall totals in Tioga County ranged from 8.3 to 10.3.
Snowstorm	EM-3173	Yes	January 2-4, 2003	\$475 K in property damage County-wide.
Snowstorm	EM-3184	No	February 16-17, 2003	Snowfall totals in Tioga County ranged from 9.5 to 15 inches. The County had over \$152 K in property damage.
Severe Storm	N/A	N/A	July 21, 2003	Approximately \$50 K in property damage County-wide.
Wind	N/A	N/A	September 19, 2003	Approximately \$50 K in property damage County-wide.
Wind	N/A	N/A	October 15, 2003	Over \$58 K in property damage County-wide.
Wind	N/A	N/A	November 13, 2003	Over \$52 K in property damage County-wide.
Flood	N/A	N/A	March 1, 2004	\$40 K in property damages County-wide.
Flash Flood	N/A	N/A	July 7, 2004	The Town of Spencer had \$150 K in property damages.
Remnants of Hurricane Ivan	DR-1565	Yes	September 16-18, 2004	Approximately \$1M in property damage County-wide.
Flash Flood	N/A	N/A	March 28, 2005	Approximately \$70K in property damage County-wide.
Severe Storms and Flooding	DR-1589	Yes	April 2-4, 2005	Approximately \$500K in property damage County-wide.
Drought	N/A	N/A	Summer 2005	Not available.
Severe Storm	N/A	N/A	June 6, 2005	Approximately \$50 K in property damage County-wide.

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Type of Event	FEMA Disaster # (if applicable)	County Designated?	Date	Approximate Damage Assessment
Flash Flood	N/A	N/A	June 10, 2005	Approximately \$20K in property damage County-wide.
Flood	N/A	N/A	October 25, 2005	The Town of Waverly had \$20 K in property damages from the flooding event.
Flood	N/A	N/A	November 30 – December 1, 2005	The Town of Waverly had \$25 K in property damages from the flooding event.
Flood	N/A	N/A	January 18, 2006	Heavy rainfall caused minor flooding in Tioga County. The Town of Barton had \$10 K in property damages from the flooding event.
Severe Storm and Flooding	DR-1650	Yes	June 26-30, 2006	Over \$105M in property damage County-wide. A total of 5,000 homes were affected, with 500 homes damaged and 10 destroyed. Hardest hit areas were Tioga, Campville, Owego, Nichols, Barton and Apalachin.
Flash Flood	DR-1670	Yes	November 16-17, 2006	Approximately \$35 K in property damages County-wide.
Severe Winter Storm	N/A	N/A	February 13-14, 2007	Snowfall totals in Tioga County ranged from 12 to 18 inches.
Riverine Flood	N/A	N/A	March 15-16, 2007	The Town of Barton had approximately \$5 K in property damage.
Riverine Flood	N/A	N/A	March 25-30, 2007	Not available.
Drought	N/A	N/A	October – November 2007	Not available.
Winter Weather	N/A	N/A	November 17, 2007	Not available.
Heavy Snow	N/A	N/A	December 13, 2007	Not available.
Tornado	N/A	N/A	May 16, 2009	Approximately \$10 K in property damage County-wide.
Flash Flooding	N/A	N/A	September 30 – October 1, 2010	Approximately \$75 K in property damage County-wide.
Heavy Snow	N/A	N/A	March 6-7, 2011	In Tioga County, snowfall totals ranged from 13 to 18 inches.
Severe Storm, Flooding, Straight-Line Winds	DR-1993	Yes	April 27-28, 2011	Approximately \$3 M in property damages County-wide. \$348,059 in damages to the Town of Tioga.
Severe Storms	N/A	N/A	May 26, 2011	Approximately \$45 K in property damage County-wide.
Heat Wave	N/A	N/A	July 21-23, 2011	A record high of 100°F occurred.
Remnants of Tropical Storm Lee	DR-4031	Yes	September 7-12, 2011	Over \$477 M in property damage County-wide. \$1,144,661 in damages to the Town of Tioga.

Note: N/A = Not applicable



D.) NATURAL HAZARD RISK/VULNERABILITY RISK RANKING

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, c}	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking ^b
Flood	1% Annual Chance: \$201,510,000 0.2% Annual Chance: \$213,464,000	Frequent	45	High
Severe Winter Storm	1% of GBS: \$2,581,210 5% of GBS: \$12,906,050	Frequent	39	High
Severe Storm	100-Year MRP: \$0 500-Year MRP: \$43,565 Annualized Loss: \$895	Frequent	30	Medium
Earthquake	500-Year MRP: \$116,714 2,500-Year MRP: \$1,219,526 Annualized Loss: \$1,238	Occasional	20	Low
Drought	Not available	Frequent	18	Low

Building damage ratio estimates based on FEMA 386-2 (August 2001)

High = Total hazard priority risk ranking score of 38 and above

Medium = Total hazard priority risk ranking of 21-37

Low = Total hazard risk ranking 20 or below

The valuation of general building stock and loss estimates was based on the default general building stock database provided in HAZUS-MH 2.0 (RSMMeans 2006).

Loss estimates are structural values only; does not include the value of contents.

Loss estimates represent both structure and contents.

The HAZUS-MH earthquake model results are reported by Census Tract.

E.) CAPABILITY ASSESSMENT

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification.

E.1) Legal and Regulatory Capability

Regulatory Tools (Codes, Ordinances., Plans)	Do you have this?	Enforcement Authority	Code Citation (Section, Paragraph, Page Number, Date of adoption)
1) Building Code	Y	Local	
2) Zoning Ordinance	N	Local	N/A
3) Subdivision Ordinance	Y	Local	
4) NFIP Flood Damage Prevention Ordinance	Y	Local	
4a) Cumulative Substantial Damages	N	Local	
4b) Freeboard	N	Local	
5) Growth Management	N	Local	
6) Floodplain Management / Basin Plan	N	Local or Watershed	
7) Stormwater Management Plan/Ordinance	N	Local	
8) Comprehensive Plan / Master Plan/ General Plan	N	Local	
9) Capital Improvements Plan	N	Local or County	
10) Site Plan Review Requirements	N	Local	
11) Open Space Plan	N	Local or County	
12) Stream Corridor Management Plan	N	Local or Watershed	
13) Watershed Management or Protection Plan	N	Local or Watershed	
14) Economic Development Plan	N	County	
15) Comprehensive Emergency Management Plan	N	Local or County	
16) Emergency Response Plan	N	Local or County	
17) Post Disaster Recovery Plan	N	Local	
18) Post Disaster Recovery Ordinance	N	Local	
19) Real Estate Disclosure Requirement	N	State	
20) Other [Special Purpose Ordinances (i.e., critical or sensitive areas)]		Local or County	

E.2) Administrative and Technical Capability

Staff/ Personnel Resources	Available (Y or N)	Department/ Agency/ Position
1) Planner(s) or Engineer(s) with knowledge of land development and land management practices	N	
2) Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	N	
3) Planners or engineers with an understanding of natural hazards	N	Access to SWCD and Co. Planning Staff
4) NFIP Floodplain Administrator	Y	Robert Klosser, COE
5) Surveyor(s)	N	
6) Personnel skilled or trained in "GIS" applications	N	Access to County GIS Dept.
7) Scientist familiar with natural hazards	N	
8) Emergency Manager	N	
9) Grant Writer(s)	N	
10) Staff with expertise or training in benefit/cost analysis	N	

E.3) Fiscal Capability

Financial Resources	Accessible or Eligible to use (Yes/No/Don't know)
1) Community Development Block Grants (CDBG)	Y
2) Capital Improvements Project Funding	Y
3) Authority to Levy Taxes for specific purposes	Y
4) User fees for water, sewer, gas or electric service	N
5) Impact Fees for homebuyers or developers of new development/homes	Y
6) Incur debt through general obligation bonds	Y
7) Incur debt through special tax bonds	Y
8) Incur debt through private activity bonds	N
9) Withhold public expenditures in hazard-prone areas	N
10) State mitigation grant programs (e.g. NYSDEC, NYCDEP)	Y
11) Other	

E.4) Community Classifications

Program	Classification	Date Classified
Community Rating System (CRS)	NA	NA
Building Code Effectiveness Grading Schedule (BCEGS)	NA	NA
Public Protection	NA	NA
Storm Ready	NA	NA
Firewise	NA	NA

N/A = Not applicable. NP = Not participating. - = Unavailable.

The classifications listed above relate to the community’s effectiveness in providing services that may impact it’s 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 one (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 1000 feet of a creditable fire hydrant and is within 5 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/>

F.) MITIGATION STRATEGY

F.1) Past Mitigation Actions/Status

2006 Mitigation Project	Status	Action
Flood proofing of homes where Catatonk Creek and Owego Creek join. Occurs on a rare basis, suggest elevating homes or relocating utilities to higher locations in the house.	Complete	Flooding in this area was also caused by a severely eroding bank up stream on Owego Creek (North of Rte 96) that allowed water to leave the stream channel following along the RR tracks and flood properties on 96. In 2005 the stream bank was stabilized using EWP monies, had flooding has been significantly reduced to the area since this time.

2006 Mitigation Project	Status	Action
<p>Pipe Creek needs to be studied using the Rosgen method in order to stabilize sections of the stream. Flooding in this area was also caused by a severely eroding bank up stream on Owego Creek (North of Rte 96) that allowed water to leave the stream channel follow along the RR tracks and flood properties on 96. In 2005 the stream bank was stabilized using EWP monies, had flooding has been significantly reduced to the area since this time. Smaller projects on Pipe Creek in progress. Tioga County SWCD has secured funding for several stabilization projects to occur in the Pipe Creek Watershed. In 2007, 3000 feet of streambank on Pipe Creek was mitigated after improper maintenance of the stream occurred.</p>	<p>Smaller projects on Pipe Creek in progress.</p>	<p>Tioga County SWCD has secured funding for several stabilization projects to occur in the Pipe Creek Watershed. In 2007, 3000 feet of streambank on Pipe Creek was mitigated after improper maintenance of the stream occurred. Looking for additional funding sources to address lower stretch of Pipe Creek. Projects included in 2012 mitigation strategy below.</p>
<p>Pipe Creek- stream erosion and gravel deposition.</p> <ul style="list-style-type: none"> • Halsey Valley Road and 17C – road floods and makes it difficult for emergency vehicles to operate; also streambank erosion in this location. • Halsey Valley and Dubois Road – streambank erosion occurring along crop field believed to be major source of gravel deposition to the stream. 	<p>Incomplete</p>	<p>Recommendation – Have erosion issues evaluated by SWCD to determine appropriate course of action. Flooding of Route 17c is DOT’s jurisdiction, road is located in floodplain. Looking for funding after 2011 flood. Projects included in 2012 mitigation strategy.</p>
<p>Goodrich Settlement Area – flooding occurs in this area; residents concerned if Village of Owego were to increase berms on the eastern side of the creek.</p>	<p>Incomplete</p>	<p>Recommendation – Village of Owego will have to have proposal to increase berm height along Owego Creek evaluated by engineer to make sure it will not impact others. Concerns will be addressed by engineer review. Projects included in 2012 mitigation strategy.</p>

Past Project	Date	Action
<p>Allen Road</p>	<p>?</p>	<p>Emergency Route-completed \$ to widen and stone on to improve access</p>
<p>Bought out 4 houses in village</p>	<p>2007</p>	<p>Properties forever green, 1 Glen Mary</p>
<p>Whipple Hill Road</p>	<p>?</p>	<p>Widen through woods from Dry Brook to Top (want to use as emergency route)</p>
<p>Straits Corners Bridge</p>	<p>?</p>	<p>raised and widened to bridge-complete</p>
<p>Owego Creek</p>	<p>?</p>	<p>Work done in Owego Creek by Hyatts Farm and small creek (trib) - complete-removed debris</p>

Past Project	Date	Action
Bottom of Campbell (county)	?	
Bridge St. Dike	?	Done by Private (East)-complete- protect homes from flooding
Bridge Street	?	Work needs to be done on west side schedule to be done this summer-low/costs-protect homes from flooding
Schoonover Creek	?	on 17C - help site clean and remove gravel to fill ditches (done)
Allen Road by Fire Station	?	Culvert 2-4"rd pipes to be removed and replaced by boc culvert (check for PW) needed
Allen Road Bridge	?	needs retaining wall on North end rebuilt
Pipe Creek	?	from RR Bridge clear to S. Godder's
Railroad cuverts	?	Bud Snyders need Allen ?? (debris issue-culverts need to be mitigated)
Thorn Hollow Creek	?	West Beecher to Glenmary (gravel removal)
Goodrich Settlement	?	Old Lehigh needs bigger PrMM?-high tracks back up water need larger culvert.
Three elevation done in TC	?	private-complete
2 applied elevation with FEMA	?	2 applied for residential elevation with FEMA
Creek along Dubois Road	?	Halsey Valley Road east to Sluce still needs cleaning. Bridge to Pipecheck.
Culvert Spaulding Hill Road	?	water pooling behind culvert-need outlet protection (off from Buttermilk Falls)
debris above Allen Road bridge	?	needs to be looked at
watershed assessment of Pipe Creek	?	-check with USDA A Veg Card, ECP
debris in streams -high priority	?	debris in streams -high priority

F.2) Hazard Vulnerabilities Identified

It is estimated that in the Town of Tioga, 583 residents live within the 1% annual chance flood area (NFIP Special Flood Hazard Area). Of the municipality's total land area, 7.7% is located within the 1% annual chance flood area. \$201,510,000 (48.3%) of the municipality's general building stock replacement cost value (structure and contents) is located within the 1% annual chance flood area.

There are 42 NFIP policies in the community and there are 30 policies located within the 1% annual chance flood area. FEMA has identified 14 Repetitive Loss (RL) including 5 Severe Repetitive Loss (SRL) properties in the municipality.



NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Polices in 100-year Boundary (3)	# Polices in 500-Boundary (3)	# Policies Outside the 500-year Flood Hazard (3)
Tioga (T)	42	124	\$3,252,315	14	5	30	31	11

Source:

- (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA Region 2, in April 2012 using the "Comm_Name". These statistics are current as of January 31, 2012. Please note the total number of repetitive loss properties includes the severe repetitive loss properties.
- (2) Total building and content losses from the claims file provided by FEMA Region 2 (current as of January 31, 2012).
- (3) The policy locations used are based on the latitude and longitude provided by FEMA Region 2.

HAZUS-MH estimates that for a 1% annual chance flood, \$12676000 (3%) of the municipality's general building stock replacement cost value (structure and contents) will be damaged, 524 people may be displaced, 213 people may seek short-term sheltering, and an estimated 4622 tons of debris could be generated. HAZUS-MH estimates the following damage and loss of use to critical facilities in the community as a result of a 1% annual chance flood event:

Name	Type	Exposure		Potential Loss from 1% Flood Event	
		1% Event	0.2% Event	Structure Damage	Content Damages
Tioga County Public Works & Highway Dept.	UDF		X	6.82	22.94

Please refer to the Hazard Profiles for additional vulnerability information relevant to this jurisdiction.

F.3) PROPOSED HAZARD MITIGATION INITIATIVES

Note some of the identified mitigation initiatives in Table F are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Type
1	Pipe Creek needs to be studied using the Rosgen method in order to stabilize sections of the stream. Smaller projects on Pipe Creek in progress. Tioga County SWCD has secured funding for several stabilization projects to occur in the Pipe Creek Watershed. In 2007, 3000 feet of streambank on Pipe Creek was mitigated after improper maintenance of the stream occurred.	Existing	Flood	1-1, 4-1, 4-4	Town administration with support of SWCD	Medium	Medium	EWP/HMGP grants with local match	Short	High	SP
2	Pipe Creek- stream erosion and gravel deposition. • Halsey Valley Road and 17C – road floods and makes it difficult for emergency vehicles to operate; also streambank erosion in this location.	Existing	Flood	1-1, 4-1, 4-4	Town administration with support of SWCD	Medium	Medium	EWP/HMGP grants with local match	Short	High	SP
3	Halsey Valley and Dubois Road – streambank erosion occurring along crop	Existing	Flood	1-1, 4-1, 4-4	Town administration with support of SWCD	Medium	Medium	EWP/HMGP grants with local match	Short	High	SP

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	field believed to be major source of gravel deposition to the stream. Incomplete Recommendation – Have erosion issues evaluated by SWCD to determine appropriate course of action. Flooding of Route 17c is DOT’s jurisdiction, road is located in floodplain.										
4	Goodrich Settlement Area – flooding occurs in this area; residents concerned if Village of Owego were to increase berms on the eastern side of the creek. Village of Owego will have to have proposal to increase berm height along Owego Creek evaluated by engineer to make sure it will not impact others. Concerns will be addressed by engineer review.	N/A	Flood	1-1, 1-5, 1-7, 2-3	Town Administration with support of SWCD	Low	Low	Local Budget	Short	H	PP
5	Perform a study to evaluate the viability of building a dike wall on the west side of Pipe Creek from the existing rail road bridge on the north side of the Susquehanna River to the Route 17C bridge, then on northward to the	Existing	Flood	1-1, 1-5, 1-7, 2-3	Town Administration with support of SWCD	Low	Low	Local Budget	Short	H	PP



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	Allen Road bridge. This could protect approximately 25 homes along Route 17C. during 100 year flood events.										
6	Ransom Park-Rebuild and potentially elevate Barn located in Ransom Memorial Park. This park is a vital part of the community.	Existing	Flood	1-1, 1-2, 1-9	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from NYSOEM, FEMA	Medium	Medium	FEMA Mitigation Grant Programs and local budget (or property owner) for cost share	Short	Medium-	PP
7	Retrofit structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Address Tioga County Public Works. Phase 1: Identify appropriate candidates for retrofitting based on cost-effectiveness versus relocation. Phase 2: Where retrofitting is determined to be a viable option, work with property owners toward implementation of that action based on available funding from FEMA and local match availability.	Existing	Flood, Severe Storm, Earthquake	1-1, 1-2, 1-9	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from NYSOEM, FEMA	High	High	FEMA Mitigation Grant Programs and local budget (or property owner) for cost share	Long-term DOF	Medium-High*	PP



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8	<p>Purchase, or relocate structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority.</p> <p>Phase 1: Identify appropriate candidates for relocation based on cost-effectiveness versus retrofitting. Fifteen homes have been identified and included in the September 2011 HMGP LOI for property acquisitions in the following areas: State Route 17C, Halsey Valley Road, Maple Avenue, Higby Road, Lociust Lane, Waverly Road, Catatonk Creek Road, and Allyn Road.</p> <p>Phase 2: Where relocation is determined to be a viable option, work with property owners toward implementation of that action based on available funding from FEMA and local match availability.</p>	Existing	Flood, Severe Storm	1-2, 1-9, 3-2	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from NYSOEM, FEMA	High	High	FEMA Mitigation Grant Programs and local budget (or property owner) for cost share	Short	High	PP
9	Maintain compliance with and good-standing	New & Existing	Flood, Severe	1-1, 1-2, 1-3, 1-6, 1-7,	Municipality (via Municipal	High	Low - Medium	Local Budget	Ongoing	High	PP



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	in the NFIP including adoption and enforcement of floodplain management requirements (e.g. regulating all new and substantially improved construction in Special Hazard Flood Areas), floodplain identification and mapping, and flood insurance outreach to the community. Further, continue to meet and/or exceed the minimum NFIP standards and criteria through the following NFIP-related continued compliance actions identified as Initiatives 10 - 21 (below).		Storms	1-9	Engineer/NFIP Floodplain Administrator) with support from NYSOEM, ISO FEMA						
10	Begin the process to adopt higher regulatory standards to manage flood risk (i.e. increased freeboard, cumulative substantial damage/improvements).	New & Existing	Flood, Severe Storms	1-1, 1-7	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from NYSOEM, FEMA	Low	Low	Municipal Budget	Short	High	PP
11	Conduct and facilitate community and public education and outreach for residents and businesses to include, but not be limited to, the following to promote and effect natural hazard risk reduction: <ul style="list-style-type: none"> • Provide and maintain links to the HMP website, and regularly post notices on the County/municipal homepage(s) referencing the HMP webpages. • Prepare and distribute informational letters to flood vulnerable property owners and neighborhood associations, explaining the availability of mitigation grant funding to mitigate their properties, and instructing them on how they can learn more and implement mitigation. • Use email notification systems and newsletters to better educate the public on flood insurance, the availability of mitigation grant funding, and personal natural hazard risk reduction measures. • Work with neighborhood associations, civic and business groups to disseminate information on flood insurance and the availability of mitigation 										



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	grant funding.										
	See above.	NA	All Hazards	1-5, 1-7, 2-1, 2-2, 3-3, 3-4	Municipality with support from Planning Partners, NYSOEM, FEMA	Low - Medium	Low - Medium	Municipal Budget; HMA programs with local or county match	Short	High	PE
12	Determine if a Community Assistance Visit (CAV) or Community Assistance Contact (CAC) is needed, and schedule if needed.	NA	Flood, Severe Storms	1-6, 1-8	NFIP Floodplain Administrator with support from NYSDEC, NYSOEM, FEMA	Low	Low	Municipal Budget	Short (year 1)	Medium	PP
13	Have designated NFIP Floodplain Administrator (FPA) become a Certified Floodplain Manager through the ASFPM, and pursue relevant continuing education training such as FEMA Benefit-Cost Analysis.	N/A	Flood, Severe Storms	1-6, 1-8	NFIP Floodplain Administrator	Medium	Low	Municipal Budget	Short (DOF)	High	PP
14	Participate in the Community Rating System (CRS) to further manage flood risk and reduce flood insurance premiums for NFIP policyholders. This shall start with the submission to FEMA-DHS of a Letter of Intent to join	NA	Flood, Severe Storms	1-6, 1-8	NFIP Floodplain Administrator with support from NYSDEC, NYSOEM, FEMA	Low	Low	Municipal Budget	Short (year 1)	Medium	PP



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	CRS, followed by the completion and submission of an application to the program once the community's current compliance with the NFIP is established.										
15	Archive elevation certificates	NA	Flood, Severe Storm	1-3, 1-5, 1-6, 1-8, 2-3	NFIP Floodplain Administrator	Low	Low	Local Budget	On-going	High	PP
16	Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Section 7.0	New & Existing	All Hazards	All	Municipality (via mitigation planning point of contacts) with support from Planning Partners (through their Points of Contact), NYSOEM	High	Low – High (for 5-year update)	Local Budget, possibly FEMA Mitigation Grant Funding for 5-year update	Ongoing	High	PP
17	Complete the ongoing updates of the Comprehensive Emergency Management Plans – Include Tioga Central School District and the Tioga Fire District and use local media such as WEBO, WATS, and WBNG.	New & Existing	All Hazards	1-1, 1-7, 3-1, 5-1, 6-2, 6-3, 6-4	Municipality with support from NYSOEM	Low	Low	Local Budget	Ongoing	High	ES
18	Create/enhance/maintain mutual aid agreements with neighboring communities for continuity of operations.	New & Existing	All Hazards	5-3, 5-4	Municipality with support from Surrounding municipalities and County	Low	Low	Local Budget	Ongoing	High	PP
19	Identify and develop agreements with entities	NA	All Hazards	5-1, 5-2, 5-3	Municipality with support	Medium	Medium	Local budget	Short	Medium	PP



SECTION 9.15: TOWN OF TIOGA

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Type
	that can provide support with FEMA/SOEM paperwork after disasters; qualified damage assessment personnel – Improve post-disaster capabilities – damage assessment; FEMA/SOEM paperwork compilation, submissions, record-keeping				from County, NYSOEM, FEMA						
20	Work with regional agencies (i.e. County and SOEM) to help develop damage assessment capabilities at the local level through such things as training programs, certification of qualified individuals (e.g. code officials, floodplain managers, engineers).	NA	All Hazards	5-1, 5-2, 5-3	Municipality with support from County, NYSOEM	Medium	Medium	Local budget, FEMA HMA and HLS grant programs	Short – Long-term DOF	Medium	PP
21	Participate in local, county and/or state level projects and programs to develop improved structure and facility inventories and hazard datasets to support enhanced risk assessment efforts. Such programs may include developing a detailed inventory of critical facilities based upon FEMA's Comprehensive Data Management System (CDMS) which could be used for various planning and emergency management purposes including: <ul style="list-style-type: none"> • Support the performance of enhanced risk and vulnerability assessments for hazards of concern. • Support state, county and local planning efforts including mitigation (including updates to the State HMP), comprehensive emergency management, debris management, and land use. 										
	Improved structural and facility inventories could incorporate flood, wind and seismic-specific parameters (e.g. first floor elevations, roof types, structure types based on FEMA-154 "Rapid Visual Screening of Buildings for Potential Seismic Hazards" methodologies). It is recognized that these programs will need to be initiated and supported at the County and/or State level, and will require training, tools and funding provided at the county, state and/or federal level.	Existing	All Hazards	1-3, 1-6, 1-7, 2-3, 2-5	HMP Coordinator	Medium-High	Medium-High	Mitigation grant programs (PDM or HMGP) with	Long term DOF	Medium	PP
	See above.										



Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding local match	Timeline	Priority	Mitigation Type
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Notes:

*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (NA) is inserted if this does not apply.

Costs:

Where actual project costs have been reasonably estimated:

Low = < \$10,000

Medium = \$10,000 to \$100,000

High = > \$100,000

Where actual project costs cannot reasonably be established at this time:

Low = Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.

Medium = Could budget for under existing work-plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.

High = Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

Where possible, an estimate of project benefits (per FEMA’s benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low = < \$10,000

Medium = \$10,000 to \$100,000

High = > \$100,000

Where numerical project benefits cannot reasonably be established at this time:

Low = Long term benefits of the project are difficult to quantify in the short term.

Medium = Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.

High = Project will have an immediate impact on the reduction of risk exposure to life and property.

Potential Funding Sources:

ACOE = US Army Corps of Engineers

CBDG = Community Development Block Grants

DEC = NY Department of Environmental Conservation

DHSES=Department of Homeland Security Emergency Services

EMPG = Emergency Management Planning Grant

EWP = Emergency Watershed Protection Grants (NRCS)

FMA = Flood Mitigation Assistance Grant Program (FEMA)

HLS = Homeland Security Programs

HMGP= Hazard Mitigation Grant Program (FEMA)

HMA = Hazard Mitigation Assistance (FEMA)

NOAA= National Oceanic and Atmospheric Association

PDM = Pre-Disaster Mitigation Grant Program (FEMA)

RFC = Repetitive Flood Claims Grant Program

SHSP = State Homeland Security Program Grant



SRL = Severe Repetitive Loss Grant Program (FEMA)

WQIP = Water Quality Improvement Project Program (NYSDEC)

Timeline:

Short = 1 to 5 years. Long Term= 5 years or greater. OG = On-going program.

DOF = Depending on funding.

Notes (for Mitigation Type):

1. PP=Prevention and Property Protection: Government, administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations and acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
2. PE=Public Education and Awareness: Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.
3. NR=Natural Resource Protection: Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
4. SP=Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
5. ES=Emergency Services: Actions that protect people and property, during and immediately following, a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.

H.) PRIORITIZATION OF MITIGATION INITIATIVES

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits equal or exceed Costs? (Yes or No)	Is project Grant eligible? (Yes or No)	Can Project be funded under existing programs/budgets? (Yes or No)	Priority (High, Med., Low)
1	3	M	M	Y	Y	Y	H
2	3	M	M	Y	Y	Y	H
3	3	M	M	Y	Y	Y	H
4	4	L	L	Y	N	Y	H
5	4	L	L	Y	N	Y	H
6	3	M	M	Y	Y	Y	H
7	3	H	H	Y	Y	Y	M-H
8	3	H	H	Y	Y	Y	H
9	6	H	L-M	Y	Y	Y	H
10	2	M	L	Y	Y	Y	H
11	6	L-M	L-M	Y	Y	Y	H
12	2	L	L	Y	N	Y	M
13	2	M	L	Y	N	Y	H
14	2	L	L	Y	N	Y	M
15	5	L	L	Y	N	Y	H
16	All	H	L-M	Y	Y	Y	H
17	7	L	L	Y	N	Y	H
18	2	L	L	Y	N	Y	M
19	3	M	M	Y	Y	Y	M
20	3	M	M	Y	Y	Y	M
21	5	M-H	M-H	Y	Y	Y	M

Notes: H = High. L = Low. M = Medium. N = No. N/A = Not applicable. Y = Yes.

Explanation of Priorities

High Priority = A project that meets multiple objectives (i.e., multiple hazards), benefits exceeds cost, has funding secured or is an on-going project and project meets eligibility requirements for the Hazard Mitigation Grant Program (HMGP) or Pre-Disaster Mitigation Grant Program (PDM) programs. High priority projects can be completed in the short term (1 to 5 years).

Medium Priority = A project that meets goals and objectives, benefits exceeds costs, funding has not been secured but project is grant eligible under, HMGP, PDM or other grant programs. Project can be completed in the short term, once funding is completed. Medium priority projects will become high priority projects once funding is secured.

Low Priority = Any project that will mitigate the risk of a hazard, benefits do not exceed the costs or are difficult to quantify, funding has not been secured and project is not eligible for HMGP or PDM grant funding, and time line for completion is considered long term (1 to 10 years). Low priority projects may be eligible other sources of grant funding from other programs. A low priority project could become a high priority project once funding is secured as long as it could be completed in the short term.

Prioritization of initiatives was based on above definitions: Yes

Prioritization of initiatives was based on parameters other than stated above: Not applicable.

I.) FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

None at this time.

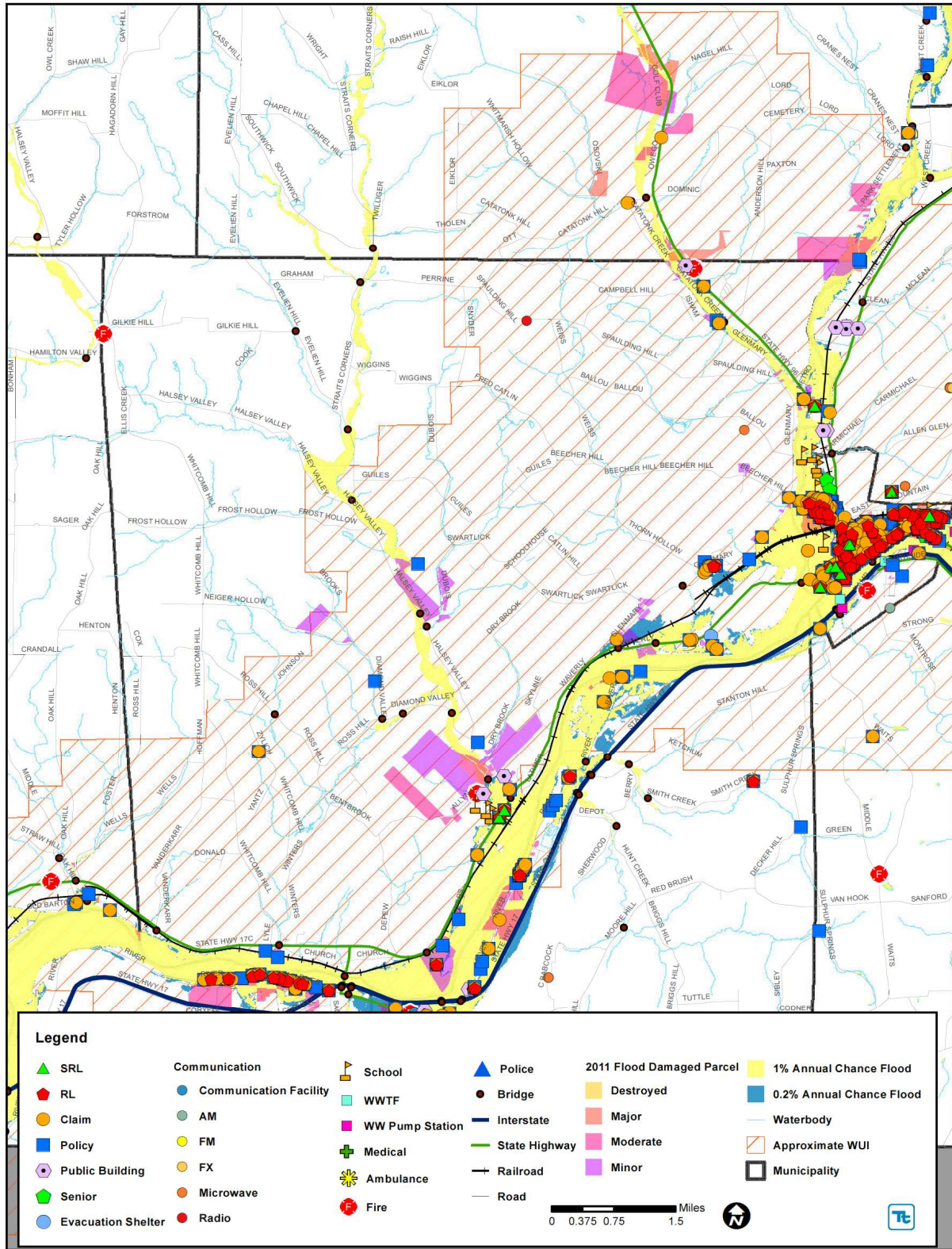
J.) HAZARD AREA EXTENT AND LOCATION

A hazard area extent and location map has been generated for the Town of Tioga to illustrate the probable areas impacted within the Town of Tioga and is provided on the next page. This map is based on the best available data at the time of the preparation of this Plan, and is considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Tioga has significant exposure. The Planning Area maps are provided in the hazard profiles within Section 5.4, Volume I of this Plan.

K.) ADDITIONAL COMMENTS

No additional comments at this time.

Figure 9.15-1. Town of Tioga Hazard Area Extent and Location Map



Sources: FEMA, 2011

Notes: NFIP = National Flood Insurance Program. RL = Repetitive Loss. SRL = Severe Repetitive Loss. The entire municipality is vulnerable to the following hazards: drought, earthquake, severe storm, and severe winter storm.