



Town of Shandaken

Flood Mitigation Plan Update

Draft Plan Review | June 18, 2019



Today's Topics

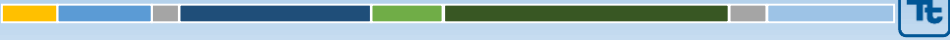
- Why Plan? (Benefits of the Plan)
- Plan Content – What is in the plan and how does it differ from the last plan?
- Planning Process – How did we plan?
- Risk Assessment – What are the flood impacts?
- Mitigation Strategy – What projects are identified?
- Progress Since Last Plan – What has been done?
- Repetitive Loss Area Analysis
- Next Steps





Why Plan?

- Understand flood risk
- Increase the safety and resiliency of your town!
- Provide a means to reduce flood impacts
- Provide a means to reduce flood insurance premiums
 - The Community Rating System



Why Plan?

“Mitigation”

Sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event.



“provides the blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and local ability...” (CFR).





The Community Rating System Program

- Administered under the National Insurance Program (NFIP)
- Provides incentives for higher floodplain management standards
- Helps reduce flood impacts
- It can provide economic relief for NFIP premiums



CRS Basics

Table 110-1. CRS classes, credit points, and premium discounts.

CRS Class	Credit Points (cT)	Premium Reduction	
		In SFHA	Outside SFHA
1	4,500+	45%	10%
2	4,000–4,499	40%	10%
3	3,500–3,999	35%	10%
4	3,000–3,499	30%	10%
5	2,500–2,999	25%	10%
6	2,000–2,499	20%	10%
7	1,500–1,999	15%	5%
8	1,000–1,499	10%	5%
9	500–999	5%	5%
10	0–499	0	0





How Does the Plan Provide Insurance Premium Relief?

- CRS Basics
- 500 points
 - CRS class
 - 5% discount in Flood Insurance Premiums in regulatory floodplain
- CRS Flood Mitigation Plan
 - Up to 382 points
- Repetitive Loss Area Analysis (RLAA)
 - Up to 140+ points



CRS Activity 510-Floodplain Management Planning

Table 510-1. Planning steps for mitigation and for the CRS.

Multi-hazard Mitigation Planning	CRS	Maximum
Phase I – Planning process		
§201.6(c)(1)	Organize	15
§201.6(b)(1)	Involve the public	120
§201.6(b)(2) & (3)	Coordinate	35
Phase II – Risk assessment		
§201.6(c)(2)(i)	Assess the hazard	35
§201.6(c)(2)(ii) & (iii)	Assess the problem	52
Phase III – Mitigation strategy		
§201.6(c)(3)(i)	Set goals	2
§201.6(c)(3)(ii)	Review possible activities	35
§201.6(c)(3)(iii)	Draft an action plan	60
Phase IV – Plan maintenance		
§201.6(c)(5)	Adopt the plan	2
§201.6(c)(4)	Implement, evaluate, revise	26
Total		382





Repetitive Loss Area Analysis (Additional)

- Detailed mitigation plan for a repetitive loss area
 - Map repetitive loss areas
 - Conduct an analysis of areas
- 5 Step Process
 - Advise property owners in the repetitive loss areas (aggregate data)
 - Contact agencies or organizations that could affect the cause or impacts of flooding
 - Review each repetitive loss area property to collect data
 - Survey/desktop review
 - Review Alternative Approaches to determine feasible property protection measures
 - Document the Findings
- Must be Adopted by the Town



Economic Impact of FMP/RLAA

CRS CLASS	CRS DISCOUNT	Total Savings Town-wide	Average Savings per policy in the regulatory floodplain	Average Savings Town-wide (per policy)	Available CRS Credits
10	None	None	None	None	Current
9	5%	\$13,243	\$133	\$67	500
8	10%*	\$24,307	\$267	\$122	1000
7	15%*	\$35,371	\$400	\$178	1500
6	20%*	\$48,614	\$533	\$244	2000

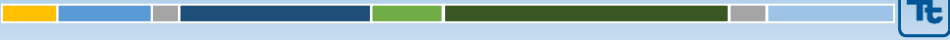
*in regulatory floodplain





What is in the Plan?

- Contents
- Changes from last plan
- RLAA
- Number and types of mitigation projects



Plan Content

- Introduction – Why Prepare this Plan?
- Planning Process - Involve the Public; Review of available new plans and resources
- Town Profile – Update of Population and Land Use
- Relevant Programs and Regulations
- Risk Assessment
 - Review and re-assessment of the flood hazard (including Repetitive Loss areas, Areas not mapped on the FIRM that have flooded in the past)
- Mitigation Strategy
 - Review and update plan goals
 - Review of mitigation action progress
 - Update of action plan
- Plan Maintenance Procedures
- Repetitive Loss Area Analysis (RLAA) Appendix



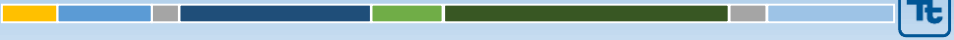


Plan Update Process Steps



Engage a Wide Range of "Stakeholders"

- Federal, State, Regional and Local Agencies
- Business and Civic Groups
- Academic Institutions
- Other "Local Governments"
- The Public



These are the Five Steps to Assess Risk



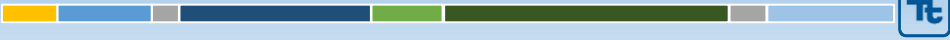


Who is Impacted by Flooding?

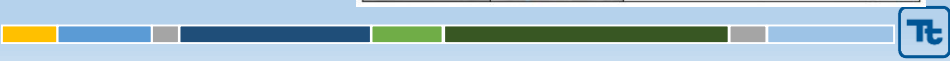
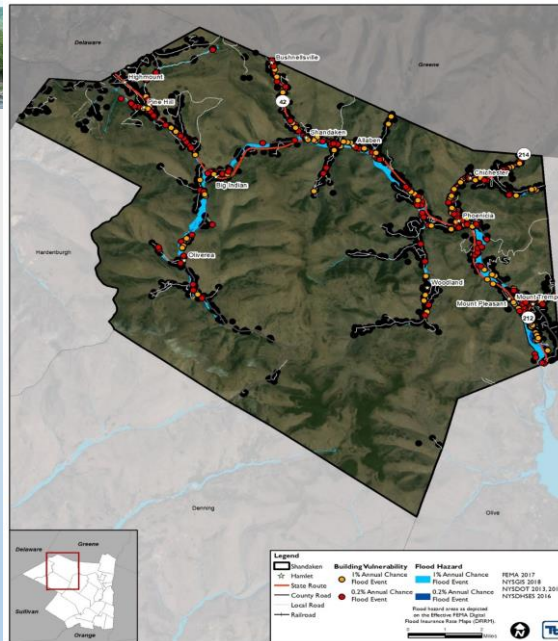
Change in Estimated U.S. Census 2010 Population Exposure to the 1- and 0.2-percent Annual Chance Flood Hazard Areas

Zip Code	2013 FMP		2018 FMP		Change in Exposure	
	1-Percent Flood	0.2-Percent Flood	1-Percent Flood	0.2-Percent Flood	Change in 1-Percent Exposure	Change in 0.2-Percent Exposure
Big Indian	69	69	77	108	8	39
Chichester	8	8	8	8	0	0
Mount Tremper	41	98	41	90	0	-8
Phoenicia	140	163	143	168	3	5
Pine Hill	4	4	49	49	45	45
Shandaken	62	73	63	64	1	-9
Total	324	415	381	487	57	73

*3085 = Town Total Population



Structures Exposed to Flooding





Where are the Severe Repetitive Loss Properties?



Identification and Analysis of Mitigation Actions

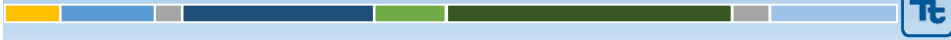
- What has changed?
 - Review Strengths, Weaknesses, Obstacles, and Opportunities
- Review Catalog of Mitigation Alternatives
 - Mitigation actions need to be realistic, achievable and action-oriented.
- Include both regional actions, as well as jurisdiction-specific.
- Address both public and private property.
- For each proposed mitigation strategy, identify:
 - Implementation timeline
 - Estimated cost
 - Estimated benefits (avoided losses)
 - Potential funding sources
 - Lead agency or department
 - Supporting agencies





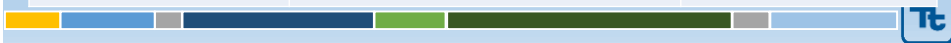
2018 Progress Report

- Ongoing action toward completion
 - 37 out of 86 initiatives (42%)
- Complete
 - 40 out of 86 initiatives (46%)
- No action taken
 - 11 out of 86 initiatives (12%)



2019 Update - What has Changed?

Item	2013 Plan	2019 Plan Update
Mitigation Strategy	86 Mitigation Actions	54 Mitigation Actions
Methodology Base Flood Data	Available Q3 floodplain boundaries, the Flood Insurance Rate Study (February 1989), the 2009 3-meter Light Detection and Ranging (LiDAR) Bare Earth Digital Elevation Model (DEM) (later the preliminary Ulster County FEMA Flood Insurance Rate Maps were made available in PDF to compare to the estimated flood boundaries HAZUS-MH generated	November 2016 DFIRM ; LFAs (Shandaken/Allaben, Esopus Creek, Bushnellsville Creek, Stony Clove Creek, Phoenicia/Mt. Tremper, Beaver Kill, Esopus Creek)
NFIP Update	22 Repetitive Loss Properties/2 Severe Repetitive Loss Properties	24 Repetitive Loss Properties/3 Severe Repetitive Loss Properties
Vulnerability Assessment (Building Stock Exposure in Regulatory Floodplain)	\$22.8 Million	\$37.9 Million





Mitigation Actions Refresher

- **Prevention.** Measures such as planning and zoning, open space preservation, land development regulations, building codes, storm water management.
- **Property Protection.** Measures such as acquisition, relocation, floodproofing, insurance, and structural retrofits.
- **Public Education and Awareness.** Measures such as outreach projects, real estate disclosure, hazard information centers, technical assistance.
- **Natural Resource Protection.** Measures such as erosion and sediment control, stream corridor protection, vegetative management, and wetlands preservation.
- **Emergency Services.** Measures such as hazard threat recognition, hazard warning systems, emergency response, protection of critical facilities, and health and safety maintenance.
- **Structural Projects.** Measures such as dams, berms, retaining walls, channel modifications, storm sewers, retrofitted buildings, up-sizing / right-sizing of bridges and culverts and elevated roadways.



Mitigation Success Stories

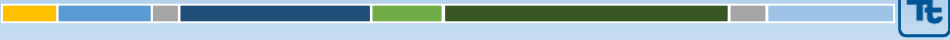
- **Local Flood Analysis Projects**
 - SAFARI, AWSMP, and NYC DEP development of additional Local Flood Analyses (LFAs) for the hamlets of Shandaken and Allaben, completion of the Phoenicia-Mt Tremper LFA; feasibility study completed to relocation the 38 Main Street building in Phoenicia, Mt Pleasant bridge removal this summer/fall; NYSDEC Flood Protection Project in Shandaken hamlet to be repaired next month
- **Town Hall Complex Relocation** –
 - The Town is working to relocate the Shandaken Town Hall Complex (Town Offices and Highway Garage) from its current location in the floodway to another parcel that is well outside the FEMA Special Flood Hazard Area.
- **Property Acquisitions**
 - There have been several buyouts of properties in the floodplain (16 through the FEMA Buyout process, one through NY Rising and 8 in process through the NYC Funded Voluntary Flood Buyout Program). Removal of these properties will keep others out of harm's way, allow for the natural flooding processes to occur, and provide recreational access to the Esopus Creek.
- **Bridge Replacements**
 - The NYS Department of Transportation replaced two bridges along State Route 28 and one on Route 42 in Shandaken and is replacing another bridge along Route 28 near Big Indian. In addition, they are replacing the bridge along in Route 28 in Mt Tremper with a much larger one in 2020. The Town has also up-sized several of its bridges and culverts over the last 5 years. SAFARI met with representatives from NYS DOT to encourage them to design a new bridge that will help to lower flood elevations, a recommendation that was outlined in the Phoenicia-Mount Tremper LFA.
- **Community Rating System**
 - The Town of Shandaken is in the process of entering into the Community Rating System (CRS) to apply stricter standards of floodplain management town-wide and thereby reduce premiums for flood insurance policy holders. At the time the Town of Shandaken is waiting on a Community Assistance Visit (CAV).





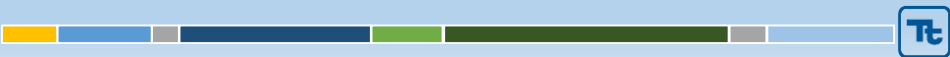
Progress-Transfer Projects to Ongoing Capabilities


- Maintain good standing in NFIP
- Emergency Notification in place
- Collaboration with AWSMP, NYS agencies, and NYSEG
- Local Flood Analysis process
- Funding eligible flood mitigation projects
- Development of prioritized list of road and bridge elevations
- Adoption of Higher Regulatory Standards
 - Cumulative substantial impact threshold, critical facilities must be located outside of 500-year floodplain, new floodplain development ordinance, and others








Updated Mitigation Strategy Examples

- Invest in flood prediction and forecast modeling
- Create an inventory and priority list for culvert replacements taking into account future conditions
- Update town-wide response plan
- Install permanent generators at all town buildings
- Relocate critical facilities required to be operable during flood events
- Replacement of Bridge Street Bridge and Floodplain Enhancement
- Conduct hydraulic assessment of Fox Hollow Bridge
- Support relocation of structures out of floodway




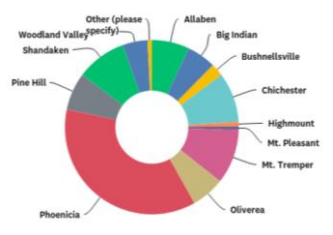


Outreach and Feedback









Public Survey Results

- 135 Responses (12/10/2018)
- Majority of respondents are not located in the floodplain
- Climate Change, Hurricanes, Nor'Easter, and Streambank Erosion are main concerns
- Majority believe the Town is working toward flood prevention and mitigation
- Cost is the main factor influencing mitigation investments
- Majority of respondents would invest in property elevation followed by relocation and buy-outs.

Township	Approximate Percentage
Shandaken	15%
Phoenicia	25%
Olivera	10%
Mt. Tremper	5%
Mt. Pleasant	5%
Highmount	5%
Chichester	5%
Bushnellsville	5%
Big Indian	5%
Allaben	5%
Other (please specify)	15%





Outcomes

- Adoption of Plan
- Increase understanding of flooding that the Town faces
- Reduce long-term impacts and damages (life safety, structures, infrastructure, and services)
- Develop a more sustainable and disaster-resistant community
- Support resilience
- ***Reduce flood insurance premiums [Community Rating System (CRS) compliant]***



Next Steps

- Update draft plan with feedback
- Finalize RLAA Outreach
- Perform RLAA analysis and include in plan
- Adopt plan
- Forward to FEMA/ISO (Insurance Services Office) for CRS scoring





Adjournment

Questions, input, comments?

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