

# ***Town of Shandaken, NY Flood Hazard Mitigation Plan Annual Progress Report***

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**Reporting Period:** (2022-2023)

**Background:** The Town of Shandaken developed a flood hazard mitigation plan to reduce risk from flooding by identifying resources, information, and strategies for risk reduction. To prepare the plan, the Town of Shandaken organized resources, assessed risks from flooding, developed planning goals and objectives, reviewed mitigation alternatives, and developed an action plan to address probable impacts from floods. The plan can be viewed on-line at:

<http://www.shandaken.us/flood-mitigation-plan/flood-mitigation-plan-post/>

**Summary Overview of the Plan's Progress:** The performance period for the Hazard Mitigation Plan became effective on August 2019, with the final approval of the plan by FEMA. The initial performance period for this plan will be 5 years, with an anticipated update to the plan to occur before December 2024. As of this reporting period, the performance period for this plan is considered to be 28% complete. The Flood Hazard Mitigation Plan has targeted 54\* flood hazard mitigation initiatives to be pursued during the 5-year performance period. As of the reporting period, the following overall progress can be reported:

24 out of 54 initiatives (44%) reported ongoing action toward completion.

15 out of 54 initiatives (28%) were reported as being complete.

14 out of 54 initiatives (28%) reported no action taken.

\*Please note that one initiative (FMI-29) was duplicative of an earlier initiative and is being listed as N/A from here on and not counted toward this total.

**Purpose:** The purpose of this report is to provide an annual update on the implementation of the action plan identified in the Town of Shandaken Flood Hazard Mitigation Plan. The objective is to ensure that there is a continuing and responsive planning process that will keep the Hazard Mitigation Plan dynamic and responsive to the needs and capabilities of the Town of Shandaken and stakeholders. This report discusses the following:

Flood events that have occurred within the last year

Changes in risk exposure within the planning area

Mitigation success stories

Review of the action plan

Changes in capabilities that could impact plan implementation

Recommendations for changes/enhancement.

**The Flood Hazard Mitigation Plan Steering Committee:** SAFARI, made up of stakeholders within the planning area, reviewed and conditionally approved this progress report at a regular meeting held on December 12, 2023. SAFARI usually holds monthly meetings on the second Tuesday of every month. It was determined through the plan’s development process that SAFARI would remain in service to oversee maintenance of the plan. At a minimum, SAFARI will provide technical review and oversight on the development of the annual progress report. It is anticipated that there will be turnover in the membership annually, which will be documented in the progress reports. For this reporting period, SAFARI membership is as indicated in Table 1.

<b>TABLE 1. SAFARI</b>		
<b>Name</b>	<b>Title</b>	<b>Jurisdiction/Agency</b>
Peter DiScifani	Town Supervisor & Floodplain Administrator	Town of Shandaken
Eric Hofmeister	Highway Superintendent	Town of Shandaken
Donna LeMoine	Town Building Inspector	Town of Shandaken
Kevin VanBlarcum	Town Board Member	Town of Shandaken
Mark Loete	Shandaken ZBA Member	Town of Shandaken
Heidi Emrich	Environmental Planner	Ulster County Department of Environment
Amanda LaValle*	Deputy Director of Planning	Ulster County Planning Department
Mike Madison	Deputy Director	Ulster County Emergency Services
Brendan Masterson	Commissioner	Ulster County Department of Public Works
Lyle Baker	Field Operations Manager	Ulster County Department of Public Works
Andrew Emrich	Senior Engineer	Ulster County Department of Public Works
Leslie Zucker	AWSMP Program Manager	Cornell Cooperative Extension Ulster Co.
Tim Koch	Stream Education Leader	Cornell Cooperative Extension Ulster Co.
Adam Doan	AWSMP Project Manager	Ulster County Soil & Water Cons. District
Beth Reichheld	Director, SMP	NYC Dept. of Environmental Protection
Dave Burns*	Project Manager, SMP	NYC Dept. of Environmental Protection
Aaron Bennett	Deputy Chief, WLCP	NYC Dept. of Environmental Protection
Adam Trescott**	Project Manager, SMP	NYC Dept. of Environmental Protection
John Mathiesen	Envi. Engineering Specialist	Catskill Watershed Corporation

**\*These individuals have retired or vacated their positions during this year’s planning period.**

**\*\* These individuals are new to their position during this year’s planning period.**

**Flood Events within the Planning Area:** During the reporting period, no significant flooding events occurred within the planning area. There were little-to-no measurable impacts on people or property.

There was, one near bankfull event which occurred December 23<sup>rd</sup>, 2022, which yielded no permanent damage to town infrastructure. Bankfull occurs when the water level (or stage) of a stream or river, is at the top of its banks and any further rise would result in water moving into the flood plain. The Town of Shandaken and collaborating agencies monitored the 1-day rain event closely. The local USGS stream gages reported peak flows as follows:

Gage	Peak Flow (cfs)	Flood Return Interval
Birch Creek at Big Indian	216 cfs	1.1 years
Esopus Creek at Allaben	1600 cfs	1.2 years
Woodland Creek above Phoenicia	851 cfs	1.1 years
Stony Clove Creek below Ox Clove	1300	1.1 years
Beaver Kill at Mount Tremper	1330	1.3 years
Little Beaver Kill Near Mount Tremper	940	1.5 years

**Changes in Risk Exposure in the Planning Area:** *(Insert brief overview of any flood event in the planning area that changed the probability of occurrence of flooding as presented in the flood hazard mitigation plan).*

The town's Highway Superintendent reports that the Stoney Clove is getting closer to Route 214 near Fitchner Road between Phoenicia and Chichester. The Highway Superintendent reports there is little-to-no vegetation between the stream and the road. He is concerned one big storm might undercut the or erode the roadway.

The Highway Superintendent also reports that Woodland Creek in Woodland Valley is also posing flood hazard and erosion risks to the road, between Baker and Fawn Hill.

**Mitigation Success Stories:** *(Insert brief overview of mitigation accomplishments during the reporting period)*

A single-family residence on Stony Clove Lane has been elevated after conversations with the Town's Local Flood Plain Administrator. Construction is currently underway.

The Ashokan Watershed Stream Management Program conducted a stream restoration project September of 2023. This work on the Pantherkill has significantly reduced erosion risk in the vicinity.

In December 2022, Town Officials adopted the Pine Hill Local Flood Analysis. During the reporting period, SAFARI committee members supported the town as leaders worked towards prioritizing Pine Hill flood mitigation projects and goals, including the rebuilding of several road stream crossings to be sized for improved hydraulic capacity and, combined with other select methods, creating flood reduction benefits to the local residents.

Ulster County Department of Public Works completed the Creekside Road embankment repair and road rehabilitation along the Esopus Creek. The county is expecting to replace the Creekside Road Bridge superstructure over the Esopus Creek in 2024. This is a county road and monitoring its maintenance is noted in FMI #46.

Pine Hill experiences stormwater runoff through the Main Street Parking Lot and down Main Street. In 2023, town officials met with CWC and DEP and town engineer SLR to revisit a proposed stormwater retrofit to mitigate localized flooding and treat stormwater on site. A design for retrofit is expected in 2024.

The Town of Shandaken received a feasibility study for property protection measures at the town hall (which is in a critical facility in the special flood hazard area). Wet floodproofing was a feasible action for the town hall, however the town would lose approximately 50% of its office space in doing so. Relocation was also determined to be feasible. Thus, the town applied for a grant from CWC to fund a feasibility study for the relocation of both the town hall and highway garage. See FMI #16 for further detail.

**Review of the Action Plan:** Table 2 reviews the action plan, reporting the status of each initiative. Reviewers of this report should refer to the Flood Hazard Mitigation Plan for more detailed descriptions of each initiative and the prioritization process.

*Address the following in the “status” column of the following table:*

*Was any element of the initiative carried out during the reporting period?*

*If no action was completed, why?*

*Is the timeline for implementation for the initiative still appropriate?*

*If the initiative was completed, does it need to be changed or removed from the action plan?*

TABLE 2. ACTION PLAN MATRIX				
Action Taken? (Yes or No)	Timeline	Priority	Status	Status (X, O, ✓)
<b>Initiative # FMI-1</b> —Invest in flood prediction and forecast modeling to support all facets of the Town of Shandaken floodplain management program, including but not limited to flood hazard identification, flood threat recognition in support of flood notification programs, climate change adaptation, and risk assessment.				
Yes	Short-term	L	The Town of Shandaken has completed a Climate Smart Resiliency Planning Tool (CSRPT) with the assistance of Cornell Cooperative Extension of Ulster County, which has earned them points in the NYS Climate Smart Communities Program. 2023: National Weather Service (Albany Area) has released forecast modelling which the Town can use in real time, along with local stream gage data, to monitor a storm’s potential impacts, and base the use of their text alert warning system called SWIFT REACH.	O

**TABLE 2.  
ACTION PLAN MATRIX**

Action Taken? (Yes or No)	Timeline	Priority	Status	Status (X, O, ✓)
<b>Initiative # FMI-2</b> --Create an inventory and establish a priority list for culvert replacements that takes into account flood depth reduction and future losses avoided.				
Yes	Short-term	H	AWSMP has conducted culvert assessments across the watershed utilizing the Multi-Objective Stream Crossing Assessment Protocol (MOSCAP), which addresses some of these concerns. In addition, a Local Flood Analysis (LFA) was completed in Pine Hill in 2022 and includes select road-stream crossing assessments. Big Indian and Chichester LFAs will likely follow in 2024. Highway Superintendent also maintains list of priority crossings for replacement.	O
<b>Initiative # FMI-3</b> —Develop a post-flood disaster action plan that establishes protocols for the Town such as substantial damage determination, the recording of perishable data (such as high-water marks), grant support, staffing, continuity of operations, and recovery.				
Yes	Short-term	H	This is in discussion but needs to be formalized through an official document. In 2023, the town participated in a Flood Table Top Exercise which was a low-stress scenario exercise which tested the town's unofficial plan. More could be done to train for assessing damages. With AWSMP support, town will explore FEMA damage assessment training.	O
<b>Initiative # FMI-4</b> —Update and adopt a town-wide Flood Response Plan				
No	Short-term	H	This is in discussion but needs to be formalized through an official document. In 2023, the town participated in a Flood Table Top Exercise which was a low-stress scenario exercise which tested the town's unofficial plan.	O
<b>Initiative # FMI-5</b> —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 CRS, followed by completion and submission of an application to the program once the community's current compliance with the NFIP is established.				
Yes	Short-term	H	Completed. Achieved CRS Level 8. Town officials continue to work towards CRS actions.	✓
<b>Initiative # FMI-6</b> —Integrate a strong emphasis on stream corridor management in the municipal comprehensive plan, site plan review laws, zoning and other appropriate local ordinances.				
Yes	Short-term	L/M	Comprehensive Plan update is underway. The Comp plan draft will be consistent with the hazard mitigation plan; the committee will share draft with AWSMP for technical advice as it relates to opportunities to coordinate stream corridor management	O
<b>Initiative # FMI-7</b> —Continue to support the implementation, monitoring, maintenance, and updating of Flood Plan				
Yes	Short-term	M	Town does an annual review and meets monthly to discuss flood issues in the municipality.	✓
<b>Initiative # FMI-8</b> —Update the Town of Shandaken's general building stock inventory in HAZUS-MH with the new assessor's data which was not available in electronic format at the time this plan was written.				
No	Short-term	L/M	Working towards inputting this electronically. This was completed as part of the 2023 UCMJHMP, of which Shandaken was a participant.	✓

**TABLE 2.  
ACTION PLAN MATRIX**

Action Taken? (Yes or No)	Timeline	Priority	Status	Status (X, O, ✓)
<b>Initiative # FMI-9</b> —Continue to work on improving municipal communications network to provide complete coverage of the Town. Ensure redundancy of Town communications capabilities. Review annually.				
Yes	Short-term	H	Ulster County is in the design phase for 4 new emergency communication towers (with potential optional space for cellular providers) throughout western part of county. Shandaken will be able to utilize this system when online. Towers are to be installed in Phoenicia (1), Big Indian (1), and Belleayre (2)	O
<b>Initiative # FMI-10</b> —Streamline procedure for updating County Emergency Management of emergency activities and infrastructure damages (power, phone, road closures etc.)				
No	Short-term	H	Shandaken Town Supervisor has a direct line of communication with the UC Emergency Manager & his department.	✓
<b>Initiative # FMI-11</b> —Ensure dedicated phone line for town emergency management communications.				
Yes	Short-term	H	Designated hardwired line in Town Hall. Even if power is lost communications are still available. 2023: There is no dedicated analog or satellite phone installed presently.	X
<b>Initiative # FMI-12</b> —Identify and develop agreements with entities that can provide support with FEMA/SOEM paperwork disasters; qualified damage assessment capabilities and personnel—Improve post-disaster capabilities—damage assessment; FEMA/SOEM paperwork compilation, submission, digital record-keeping.				
Yes	Short-term	L	Written support agreements for mutual aid with other municipalities.	✓
<b>Initiative # FMI-13</b> —Enable command center call-in capability to Birch Creek, Stony Clove, Woodland Valley, Allaben and any newly established USGS gages. Ensure that call in capability is maintained on existing gages (i.e. Coldbrook) during storm events.				
No	Short-term	H	Only have capability on Coldbrook. Town may prepare a written request to USGS/ NOAA to provide call-in capability for other stream gages.	X
<b>Initiative # FMI-14</b> —Explore funding for town-wide weather stations.				
Yes	Short-term	M/H	Installed new weather station at Town Hall. Looking to install additional weather stations in locations throughout Town.	O
<b>Initiative # FMI-15</b> —Maintain generators, hard wire installation at all town buildings especially EOC and all fire houses.				
Yes	Short-term	H	Fire houses are equipped. Town Hall and Highway Department do not have an operational generator connected to the buildings. Police and ambulance squad on Route 42 also have generators.	O
<b>Initiative # FMI-16</b> —Floodproof or relocate critical town facilities required to be operable during flood events.				
Yes	Short-term	L/M	Town received a floodproofing feasibility study, funded by CWC CWC for the Town Hall & Highway Garage and has submitted an application for feasibility of relocating the entire complex. That study is expected in early 2024.	O
<b>Initiative # FMI-17</b> —Create, and conduct an annual inventory of, an emergency equipment box including laptops, cell phones, walkie talkies, portable battery charger, list of emergency equipment and plan of attack should be on the computer and thumb drives. Explore funding—list items, cost out, apply for FEMA planning money.				

**TABLE 2.  
ACTION PLAN MATRIX**

Action Taken? (Yes or No)	Timeline	Priority	Status	Status (X, O, ✓)
No	Short-term	M		X
<b>Initiative # FMI-18</b> —Improve preparedness activities for care of town-sheltered dogs. Construct an emergency kennel on higher ground.				
No	Short-term	M		X
<b>Initiative # FMI-19</b> —Create strategy for pre-emergency parking to prevent storm isolation including designation of emergency parking locations to accommodate evacuee vehicles in town.				
No	Short-term	L/M		X
<b>Initiative # FMI-20</b> —Create priority list of emergency evacuation zones and a notification and action procedure.				
Yes	Short-term	H	Some places (such as campgrounds) are being asked to install Public Address system to alert people to evacuate. Firelight campgrounds will have a PA system installed. Since Flooding can be isolated, prioritization of evacuation zones may not be practical, however understanding what areas may need to be evacuated given certain flows is a goal; and the town will work on ascertaining a method for direct communication and notification of these areas.	O
<b>Initiative # FMI-21</b> —Identify and explore sheltering at government and non-government locations.				
Yes	Short-term	L/M	Belleayre Mountain is a regional shelter. Town Hall and Zen Mountain Monastery can also act as shelters. Mt. Tremper Fire House, Phoenicia Fire House and St. Francis De Sales Parish School are listed as American Red Cross Emergency Shelters.	✓
<b>Initiative # FMI-22</b> —Implement public outreach to floodprone property owners to document interests in participating in acquisition or elevation projects.				
Yes	Short-term, ongoing	L/M	Promoting NYC Funded Buy Out Program through website and annual mailings (for CRS) as well as Catskill Watershed Corporation and Local Flood Analysis funding. AWSMP may, in coordination with the town and CWC may provide a public meeting for information on Elevation funding assistance available in 2024.	O
<b>Initiative # FMI-23</b> —To support initiative # FMI1, undertake a Repetitive Loss Area Analysis to determine the following: <ul style="list-style-type: none"> <li>• Repetitive losses not captured by flood insurance data</li> <li>• Causes of the repetitive flooding</li> <li>• Assets impacted by the repetitive flooding (this would include assets such as livestock, out-buildings and rescue costs not already identified by FEMA)</li> <li>• Possible alternatives to remediate the repetitive flooding</li> </ul>				
Yes	Long-term, depends on funding	L	Repetitive Loss Area Analysis (RLAA) completed previously. This should be redone in 2024 as part of the 5-year update process. County has ascertained Repetitive Loss Data through FEMA's ISAA process in 2023. Shandaken will work to received ISAA data in 2024 to help conduct RLAA.	O
<b>Initiative # FMI-24</b> —Pursue demolition of vacant/abandoned structures in town that are subject to environmental hazards such as mold and becoming flood debris.				

**TABLE 2.  
ACTION PLAN MATRIX**

Action Taken? (Yes or No)	Timeline	Priority	Status	Status (X, O, ✓)
Yes	Long-term	M	Being done through buyout projects and homes are being renovated to remove these issues.	O
<b>Initiative # FMI-25</b> —Support the creation of and assist in utilizing a document that describes appropriate best stream management practices in the Ashokan watershed for emergency stream work.				
No	Short-term	L/M	In 2023, AWSMP presented a Post-Flood Intervention training which included documentation for best practices. Shandaken officials and staff supported this work, attended this training and keep the training materials on-hand.	✓
<b>Initiative # FMI-26</b> —Provide follow-up Community Emergency Response Team (CERT) coordination.				
Yes	Short-term	L	Have continually updated list of volunteers to call on in case of emergency.	✓
<b>Initiative # FMI- 27</b> —Address evacuation by planning, developing, and providing signage and information regarding evacuation routes.				
No	Short-term	L/M		X
<b>Initiative # FMI-28</b> —Coordinate/integrate and maintain a swift water rescue team with Ulster County Sherriff and local fire company				
Yes	Short-term	M	Fire Departments and ambulance squad have conducted several Swift Water training exercises and are prepared. They also continue to coordinate with Ulster County Sheriff's Department.	✓
<b>Initiative # FMI-29</b> —Update and adopt a town-wide Flood response Plan				
N/A	Short-term	H	This Initiative is duplicative of FMI-4.	N/A
<b>Initiative # FMI-30</b> —Develop and distribute floodplain best management practices newsletters to residents and businesses to flood-vulnerable population.				
Yes	Short-term	H	Flyer developed for distribution at Pine Hill Public Meeting No. 3 in 2022. This education and outreach will be expanded in 2023 with CRS efforts.	O
<b>Initiative # FMI-31</b> —Implement upgrades to Phoenicia Municipal Water System including a secondary main crossing Esopus Creek, back-up pumps.				
No	Short-term	H	In 2023, this is in the design phase as part of the Bridge Street Bridge construction project; project to be managed by the County and funded by local partners.	✓
<b>Initiative # FMI-32</b> —Support upgrades to Fire District including back-up generators and flood mitigation activities including possible relocation.				
Yes	Short-term	H	All have generators. In 2023, MF Whitney Firehouse anchored tanks with CWC funding. Continuing to looking for areas to relocate MF Whitney Firehouse.	O
<b>Initiative # FMI-33</b> —Support and implement upgrades to ambulance buildings including back-up generators, expansion of housing of personnel and equipment, and flood mitigation activities including possible relocation.				
Yes	Short-term	H	Generator installed for ambulance garage.	O
<b>Initiative # FMI-34</b> —Old Mount Tremper Bridge Removal				



**TABLE 2.  
ACTION PLAN MATRIX**

Action Taken? (Yes or No)	Timeline	Priority	Status	Status (X, O, ✓)
Yes	Short-term	M	This bridge was removed in 2020.	✓
<b>Initiative # FMI-35—Replacement of Bridge Street Bridge and Floodplain Enhancement</b>				
Yes	Long-term	M	UCDPW has contracted with SLR consulting to begin design for bridge replacement. Floodplain Enhancement design to be coordinated in conjunction with bridge replacement.	O
<b>Initiative # FMI-36—Plank Road Bridge Replacement</b>				
No	Long-term	M	County has jurisdiction. Bridge is not scheduled for replacement at this time.	X
<b>Initiative # FMI-37—Review and correct via AW-501 forms the FEMA Repetitive Loss (RL) list prior to submitting application to CRS</b>				
Yes	Short-term	H	Submitted to FEMA.	✓
<b>Initiative # FMI-38—Prioritize mitigation projects for local flood vulnerable roads (via flood vulnerable roadway analysis) and identify projects to ensure road viability and continuity or operations during 1% flood events.</b>				
Yes	Short-term	M	Several Local Flood Analyses are complete and assess criticality and vulnerability. Ulster County Criticality & Vulnerability Assessment was completed and published in 2023. Maps and tools are available for municipal desktop analysis.	✓
<b>Initiative # FMI-39—Develop and implement an ordinance to address the improvement of the bridge replacement program using climate informed science</b>				
No	Short-term	H	Consider looking at having a Town ordinance that all stream crossings need to be built to a specific standard. This is being explored by the comprehensive plan committee, which will be reviewed for technical advice from AWSMP.	O
<b>Initiative # FMI-40—Include the identification of base funding available from Cornell Coop Extension and CWC to match state and federal funds for flood mitigation solutions in the job description and responsibilities of the Town of Shandaken Floodplain Administrator.</b>				
No	Short-term	H	Ulster County provides Floodplain Administrator job description, and they control the way it is listed through Civil Service regulations. Would need to talk to Ulster County about amending job description.	X
<b>Initiative # FMI-41—Provide an annual update of the identification of areas where vulnerable populations may be exposed to danger during flood events that may need assistance and document.</b>				
Yes	Short-term	H	Town is aware of individuals who may need assistance. Coordinates with Ambulance Department.	O
<b>Initiative # FMI-42—Create and implement a public information strategy to nurture relationships with all stakeholders through regular communication.</b>				
Yes	Short-term	H	Done at monthly Town meetings with appropriate stakeholders. Town Clerk is also designated Public Information Officer (PIO).	O
<b>Initiative # FMI-43—Capture/survey high water marks after flood events.</b>				
No	Short-term	M	There have been no significant flood events since 2011. Plan to complete if a significant flood events occurs.	X

**TABLE 2.  
ACTION PLAN MATRIX**

Action Taken? (Yes or No)	Timeline	Priority	Status	Status (X, O, ✓)
<b>Initiative # FMI-44</b> —Retain a contractor to conduct a full hydraulic assessment for the County-owned Fox Hollow bridge over Esopus Creek to ensure that the bridge opening is adequately sized and that the new bridge spans the channel and floodplain when the bridge is scheduled for replacement.				
No	Short-term	H	County Jurisdiction. Will support a full study when County is considering replacing structure. Funding needed.	X
<b>Initiative # FMI-45</b> —Retain a contractor to conduct a full hydraulic assessment for the Town-owned bridge over Fox Hollow Creek-When this bridge is scheduled for replacement, or if it were to be damaged during a flood, it is recommended that a full hydraulic assessment be conducted to ensure that the replacement bridge is adequately sized.				
No	Short-term	H	Funding needed. This was a recommendation in the Shandaken-Allaben LFA. There are two town-owned bridges on Fox Hollow. The fourth bridge down fox hollow received a red-flag in 2023.	X
<b>Initiative # FMI-46</b> —Inspect the County-owned Creekside Drive (County Route 47) bridge over Bushnellsville Creek for sediment aggradation at least every 2 years and also immediately following flood events. Based on hydraulic analyses, maintenance actions may be warranted if 1 foot of aggradation were to occur at the bridge opening. In the event the channel aggrades 2 feet above present conditions, maintenance actions to remove the aggradation are strongly advised.				
No	Short-term	H	Maintenance is responsibility of Ulster County. County replaced superstructure in 2023. Did not increase span.	X
<b>Initiative # FMI-47</b> —Support the relocation of existing structures out of the FEMA-designated floodway where there is owner interest and programmatic funding available. Areas where structures are located within the floodway include the following: <ul style="list-style-type: none"> <li>a. Homes along the left bank of Esopus Creek, just upstream of the Fox Hollow Bridge</li> <li>b. Abandoned structures along the right bank of Esopus Creek, just downstream of the Fox Hollow Road Bridge</li> <li>c. At the Shandaken town hall facility along the left bank of the Esopus Creek, the Highway Department garage and dog pound (relocation of critical facilities is noted as an action item in the Ulster County Multi-Jurisdictional Natural Hazard Mitigation Plan)</li> <li>d. Homes along the left bank of Esopus Creek, just downstream of the town hall facility</li> </ul>				
Yes	Short-term	H	Several properties have been bought out and program will continue based on funding availability.	O
<b>Initiative # FMI-48</b> —Implement further evaluation of the flood control levee that currently lines the left bank of the Bushnellsville Creek and Esopus Creek confluence which was breached in 2011, resulting in significant damage. Since repairs were made in 2011, the levee has experienced erosion at the downstream end.				
Yes	Short-term	M	Erosion has been repaired. Armoring has been installed. Ongoing issue. Levee was repaired by the state in 2023.	✓
<b>Initiative # FMI-49</b> —Establish policy, effective signage, and road closure barriers to reduce risks associated with flooding by temporarily closing floodprone town roads during flooding events.				
No	Short-term	L	Consider establishing policy	X
<b>Initiative # FMI-50</b> —Review feasibility of floodplain enhancements in Mt. Tremper along the Esopus Creek channel near the bend just downstream of the Emerson Resort. This would involve lowering the elevation of the right bank and left bank floodplain and removal of the existing levee. Construction of the floodplain enhancement would require removal of sections of Mount Pleasant Road and Risely Road and relocation of some of the homes along these roads.				
No	Short-term	M		X

**TABLE 2.  
ACTION PLAN MATRIX**

Action Taken? (Yes or No)	Timeline	Priority	Status	Status (X, O, ✓)
<b>Initiative # FMI-51</b> —Support State efforts in the Mt. Tremper area to reduce flood risks, such as the expansion of Route 28 Bridge over the Esopus and elevation of State Route 212.				
Yes	Short-term	H	Complete	✓
<b>Initiative # FMI-52</b> —Support Ulster County in efforts to stabilize and reduce flood risks to residents along County Route 47.				
No	Short-term	H	Town supports anything the County is willing to do. On Oliverea Road at McKenley Hollow UCDPW has raised the road 1.5-2 feet, along approximately 1500 linear feet. Long-term goal is to relocate road away from creek.	O
<b>Initiative # FMI-53</b> —Anchoring of Fuel Tanks: Sources of man-made pollution should be reduced or eliminated through the relocation or securing of fuel oil and propane tanks.				
Yes	Short-term	H	Funding available through Catskill Watershed Corporation program. The town supports the tank anchoring program and efforts are ongoing. Tank anchoring was completed for the M.F. Whitney Hose Company (Phoenicia). There may be more to do in 2024.	O
<b>Initiative # FMI-54</b> —Facilitate biannual notification to landowners who have special flood hazard areas (SFHA) located on their property and provide best management practices and FEMA fact sheets.				
No	Short-term	H	AWSMP conducted streamside landowner survey. Educational materials to be developed and distributed after survey results are received.	X
<b>Completion status legend:</b> ✓ = Project Completed O = Action ongoing toward completion X = No progress at this time				

**Changes That May Impact Implementation of the Plan:** *(Insert brief overview of any significant changes in the planning area that would have a profound impact on the implementation of the plan. Specify any changes in technical, regulatory and financial capabilities identified during the plan's development)*

There have been no significant changes to the planning area and none that impact plan implementation.

As previously mentioned, the Local Flood Analysis (LFA) has been conducted for the hamlet of Pine Hill. Plan recommendations include 6 project areas, each with their own implementation strategy.

**Recommendations for Changes or Enhancements:** Based on the review of this report by SAFARI, the following recommendations will be noted for future updates or revisions to the plan:

The Town of Shandaken, with assistance from SAFARI and collaborating agencies, will need to seek funding to implement many of the mitigation projects that have been identified in the Local Flood Analyses (LFAs) for the Town including (but not limited to) the floodplain bench project in Phoenicia and the various projects recommended in Pine Hill. It is also recommended that the Town of Shandaken embark on Local Flood Analyses for the two remaining eligible hamlets of Big Indian and Chichester in 2024.

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***Public review notice:*** *The contents of this report are considered to be public knowledge and have been prepared for total public disclosure. Copies of the report have been provided to the Town of Shandaken governing board and to local media outlets and the report is posted on the Town of Shandaken Flood Hazard Mitigation Plan website. Any questions or comments regarding the contents of this report should be directed to:*

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