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

Reporting Period: (2021-2022)

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 15% 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:

25 out of 54 initiatives (47%) reported ongoing action toward completion.

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

20 out of 54 initiatives (38%) 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 approved this progress report at a regular meeting held on December 13, 2022. 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.

	TABLE 1. SAFARI	
Name	Title	Jurisdiction/Agency
Peter DiSclifani	Town Supervisor	Town of Shandaken
Eric Hofmeister	Highway Superintendent	Town of Shandaken
Donna LeMoine**	Town Building Inspector	Town of Shandaken
Rob Stanley	Town Floodplain Administrator	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.
Brent Gotsch*	Watershed Educator	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
John Mathiesen	Envi. Engineering Specialist	Catskill Watershed Corporation

^{*}These individuals have retired or vacated their positions 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, however, one at-or-near bankfull event which occurred between the days of April 7-8, 2022. Bankfull occurs when the water level (or stage) of a stream or river, is at the top of its

^{**} These individuals are new to their position during this year's planning period.

banks and any further rise would result in water moving into the flood plain. The Town of Shandaken and collaborating agencies monitored the 2-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	1220 cfs	1.8 years
Esopus Creek at Allaben	3930 cfs	2.2 years
Woodland Creek above Phoenicia	1860	1.8 years
Stony Clove Creek below Ox Clove	2470	1.5 years
Beaver Kill at Mount Tremper	2190	2.1 years
Little Beaver Kill Near Mount Tremper	1470	3.1 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).

In the hamlet of Chichester near Fitchner Road and Stony Clove Lane there were some changes in risk exposure reported. The Stony Clove Creek is shifting in that location and there is erosion along the streambank. The Stony Clove Creek is moving toward Route 214 and is now threatening the road. Town Highway Department staff first noticed this shift around the time of the December 25, 2020 flood.

Also, the Esopus Creek had avulsed in Oliverea along County Route 47 and a house became cut off (in essence an island). In addition, the road had been at enhanced risk of flooding and erosion damage. In 2022, the roadbed was raised by Ulster County DPW as an emergency action. A long-term plan is yet to be finalized.

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

During this reporting period, the Town of Shandaken contracted with SLR Consulting to prepare a Letter of Map Revision (LOMR) for the reach encompassing the modified floodplain along the Esopus Creek which flows underneath the raised and extended Route 28 Bridge in Mount Tremper, completed the previous year. SLR Consulting will continue to prepare and model the revised 0.1% annual chance flood area (special flood hazard area) and the 0.2% annual chance flood area (area of moderate flood hazard) based on as-built conditions. The proposed LOMR is expected to be submitted to FEMA for review in 2023 and may show a reduction in base flood elevation in areas upstream of the new Route 28 bridge.

The town also conducted a Local Flood Analysis (LFA) in the hamlet of Pine Hill along Birch Creek and its tributaries. This LFA, prepared by SLR Consulting in partnership with coordinating agencies such as Ashokan Watershed Stream Management Program and reviewed by the SAFARI committee, includes 6 project areas which recommend mitigation actions such as right-sizing stream channels, enhancing floodplains, raising roads and right-sizing bridges and culverts. Once the final report is adopted, the town will be able to pursue the design and eventual construction of selected recommended mitigation actions.

There continues to be buyouts of properties in the floodplain, predominantly through the voluntary NYC Department of Environmental Protection's Funded Flood Buyout Program.

Ulster County also made first steps towards the 5-year update of its Multi-jurisdictional Hazard Mitigation Plan that will include potential mitigation projects for the Town. Full plan review and hazard assessment, along with municipal participation is expected to occur throughout 2023.

During this period the Town of Shandaken continued its participation in the National Flood Insurance Program's Community Rating System (CRS). In 2021, The Town entered as a Level 8 community which led to a 10% reduction in NFIP flood insurance premiums town-wide for insured structures in the Special Flood Hazard Area (SFHA). CRS required documentation and maintenance is ongoing.

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, ✓)	
floodplain ma	Initiative # FM-1 —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.	O	
Initiative # FMI-2 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	Н	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) will be completed in Pine Hill in 2022 and will include select roadstream crossing assessments. Big Indian and Chichester LFAs will likely follow in 2023.	O	

			od disaster action plan that establishes protocols for the Town such	
	amage determin Coperations, and		cording of perishable data (such as high-water marks), grant suppor	t, starring,
Yes	Short-term	Н	This is in discussion but needs to be formalized through an official document.	О
Initiative # 1	FMI-4—Update	and adopt a	town-wide Flood Response Plan	
No	Short-term	Н	Shandaken plans to conduct a Virtual Table Top Exercise in early 2023 which will lead to the creation of a town-wide plan.	X
insurance projoin CRS, fo	emiums for NFI	P policyhold letion and su	ommunity Rating System (CRS) to further manage flood risk and relers. This shall start with the submission to FEMA-DHS of a Letter abmission of an application to the program once the community's community is community.	of Intent to
Yes	Short-term	Н	Currently under FEMA review.	✓
			mphasis on stream corridor management in the municipal comprehoppropriate local ordinances.	ensive plan,
Yes	Short-term	L/M	Comprehensive Plan is due to be reviewed. Committee is being formed with hopes to start process in January 2023. Zoning and other ordinances are being enforced.	О
Initiative # 1	FMI-7—Contin	ue to suppor	t the implementation, monitoring, maintenance, and updating of Flo	od Plan
Yes	Short-term	M	Town does an annual review and meets monthly to discuss flood issues in the municipality.	О
			f Shandaken's general building stock inventory in HAZUS-MH wit n electronic format at the time this plan was written.	h the new
No	Short-term	L/M	Working towards inputting this electronically.	X
			on improving municipal communications network to provide complety of Town communications capabilities. Review annually.	ete
Yes	Short-term	Н	Ulster County published a Request For Proposals for a feasibility study looking into 4 new emergency communication towers (with optional space for cellular providers) throughout western part of county.	О
		-	lure for updating County Emergency Management of emergency acoustic country is a construction of the country is a construction of th	tivities and
No	Short-term	Н		X
Initiative # 1	FMI-11—Ensur	e dedicated	phone line for town emergency management communications.	
Yes	Short-term	Н	Designated hardwired line in Town Hall. Even if power is lost communications are still available.	√
paperwork d	isasters; qualifie	d damage as	lop agreements with entities that can provide support with FEMA/S ssessment capabilities and personnel—Improve post-disaster capabir rwork compilation, submission, digital record-keeping.	
Yes	Short-term	L	Written support agreements for mutual aid with other municipalities.	О
Allaben and		lished USG	center call-in capability to Birch Creek, Stony Clove, Woodland Va S gages. Ensure that call in capability is maintained on existing gag	
No	Short-term	Н	Only have capability on Coldbrook. Need to get USGS to	X

Initiative # 1	F MI-14 —Explo	re funding f	or 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. Hope to install additional stations in Phoenicia and Mount Tremper in 2023.	О
Initiative # 1 houses.	F MI-15 —Maint	ain generato	ors, hard wire installation at all town buildings especially EOC and a	all fire
Yes	Short-term	Н	Fire houses are equipped. Town Hall and Highway Department have a generator but not installed. Police and ambulance squad on Route 42 also have generators.	О
Initiative # 1	F MI-16 —Flood	proof or rela	ocate critical town facilities required to be operable during flood eve	ents.
Yes	Short-term	L/M	Town has made application to CWC for the feasibility of floodproofing the Town Hall and has prepared application for feasibility of relocating the entire complex. If awarded, feasibility studies to be completed in 2023.	О
phones, walk	tie talkies, portal	ble battery c	ect an annual inventory of, an emergency equipment box including laborates that generally equipment and plan of attack should be ording—list items, cost out, apply for FEMA planning money.	
No	Short-term	M		X
Initiative # I		ve prepared	ness activities for care of town-sheltered dogs. Construct an emerge	ency kennel
No	Short-term	M		X
			r pre-emergency parking to prevent storm isolation including design odate evacuee vehicles in town.	nation of
No	Short-term	L/M		X
Initiative # 1	FMI-20—Create	e priority lis	t of emergency evacuation zones and a notification and action proce	dure.
Yes	Short-term	Н	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	О
Initiative # 1	FMI-21—Identi	fy and explo	ore 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.	✓
	F MI-22 —Imple n or elevation pr	-	outreach to floodprone property owners to document interests in pa	rticipating
Yes	Short-term, ongoing	L/M	Promoting NYC Funded Buy Out Program through website and annual mailings as well as Catskill Watershed Corporation and Local Flood Analysis funding.	О
following: Rep Cau Ass resc	petitive losses no uses of the repeti ets impacted by the costs not alre	ot captured be tive flooding the repetitive ady identifi	ive # FMI1, undertake a Repetitive Loss Area Analysis to determine y flood insurance data g ve flooding (this would include assets such as livestock, out-building ed by FEMA)	
Yes	Long-term,	L L	te the repetitive flooding Repetitive Loss Area Analysis (RLAA) completed previously.	0

	funding		letters to all property owners in RLAA areas in 2023	
			of vacant/abandoned structures in town that are subject to environ	mental
nazards suc	h as mold and bed	coming floor		
Yes	Long-term	M	Being done through buyout projects and homes are being renovated to remove these issues.	О
			on of and assist in utilizing a document that describes appropriate batershed for emergency stream work.	est stream
No	Short-term	L/M	Document does not exist yet. Would need to be done by NYS Department of Environmental Conservation and NYC Department of Environmental Protection.	X
Initiative #	FMI-26—Provid	de 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.	✓
Initiative #		ess evacuation	on by planning, developing, and providing signage and information	regarding
No	Short-term	L/M		X
Initiative # local fire co		linate/integra	ate and maintain a swift water rescue team with Ulster County Sher	riff and
Yes	Short-term	M	Town will create its own swift water rescue team. Will be buying cold water wetsuits. Also continue to coordinate with Ulster County Sheriff's Department.	✓
Initiative #	FMI-29—Updat	e and adopt	a town-wide Flood response Plan	
N/A	Short-term	Н	This Initiative is duplicative of FMI-4.	N/A
	FMI-30—Devel to flood-vulnerab		bute floodplain best management practices newsletters to residents 1.	and
Yes	Short-term	Н	Flyer developed for distribution at Pine Hill Public Meeting No. 3	О
	FMI-31—Imple		es to Phoenicia Municipal Water System including a secondary ma	in crossing
No	Short-term	Н	Need to secure funding. Information supplied to Governor's Office of Storm Recovery for possible grant to be awarded in 2023.	X
	FMI-32—Suppossible relocation	. –	to Fire District including back-up generators and flood mitigation a	ctivities
Yes	Short-term	Н	All have generators. Looking for areas to relocate MF Whitney Firehouse.	О
			ement upgrades to ambulance buildings including back-up generato uppenent, and flood mitigation activities including possible relocations.	
Yes	Short-term	Н	Generator installed for ambulance garage.	О
Initiative #	FMI-34—Old M	Iount Tremp	er Bridge Removal	
Yes	Short-term	M	This bridge was removed in 2020.	✓
<u>Initiati</u> ve #	FMI-35—Repla	cement of B	ridge Street Bridge and Floodplain Enhancement	
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.	О

	# FMI-36 —Plank		·	37
No	Long-term	M	Need county assistance because it is a County bridge	X
Initiative # application		w and correc	et via AW-501 forms the FEMA Repetitive Loss (RL) list prior to st	ubmitting
Yes	Short-term	Н	Submitted to FEMA.	✓
			on projects for local flood vulnerable roads (via flood vulnerable road viability and continuity or operations during 1% flood events.	adway
Yes	Short-term	M	Pine Hill Local Flood Analysis underway. Ulster County Vulnerability Assessment to be completed in 2023. Tools to be available for municipal desktop analysis.	О
	# FMI-39 —Devel sing climate inform		ement an ordinance to address the improvement of the bridge replace	ement
No	Short-term	Н	Consider looking at having a Town ordinance that all stream crossings need to be built to a specific standard. This can be explored by the comprehensive plan committee.	X
match state		s for flood m	ication of base funding available from Cornell Coop Extension and itigation solutions in the job description and responsibilities of the	
No	Short-term	Н	Ulster County provides Floodplain Administrator job description and they control the way it is list through Civil Service regulations. Would need to talk to Ulster County about amending job description.	X
			update of the identification of areas where vulnerable populations rat may need assistance and document.	nay be
Yes	Short-term	Н	Town is aware of individuals who may need assistance. Coordinates with Ambulance Department.	О
	# FMI-42 —Create gular communicat		nent a public information strategy to nurture relationships with all st	akeholder
Yes	Short-term	Н	Done at monthly Town meetings with appropriate stakeholders.	О
Initiative #	# FMI-43 —Captu	re/survey hig	gh water marks after flood events.	
No	Short-term	M	There have been no significant flood events since 2011. Plan to complete if a significant flood events occurs.	X
bridge ove	r Esopus Creek to	ensure that t	r to conduct a full hydraulic assessment for the County-owned Fox he bridge opening is adequately sized and that the new bridge spans scheduled for replacement.	
No	Short-term	Н	Funding needed.	X
Hollow Cr	eek-When this bri	dge is schedu	r to conduct a full hydraulic assessment for the Town-owned bridge aled for replacement, or if it were to be damaged during a flood, it is ment be conducted to ensure that the replacement bridge is adequate	S
No	Short-term	Н	Funding needed.	X
for sedime analyses, n	nt aggradation at l	east every 2 is may be wa	y-owned Creekside Drive (County Route 47) bridge over Bushnells years and also immediately following flood events. Based on hydra arranted if 1 foot of aggradation were to occur at the bridge opening present conditions, maintenance actions to remove the aggradation are	ulic . In the
No	Short-term	Н	Maintenance is responsibility of Ulster County.	X
		<u> </u>		<u> </u>

Initiative # FMI-47—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:

- a. Homes along the left bank of Esopus Creek, just upstream of the Fox Hollow Bridge

c. At the and d Juriso	e Shandaken to og pound (relo lictional Natura	wn hall facil cation of crit al Hazard Mi	ity along the left bank of the Esopus Creek, the Highway Departme ical facilities is noted as an action item in the Ulster County Multitigation Plan) opus Creek, just downstream of the town hall facility	_
Yes	Short-term	Н	Several properties have been bought out and program will continue based on funding availability.	О
Bushnellsville	Creek and Eso	pus Creek co	evaluation of the flood control levee that currently lines the left ban onfluence which was breached in 2011, resulting in significant dama experienced erosion at the downstream end.	
Yes	Short-term	M	Erosion has been repaired. Armoring has been installed. Ongoing issue.	О
			ffective signage, and road closure barriers to reduce risks associated at town roads during flooding events.	with
No	Short-term	L	Consider establishing policy	X
near the bend j left bank flood	just downstrear plain and remo	n of the Eme	of floodplain enhancements in Mt. Tremper along the Esopus Creekerson Resort. This would involve lowering the elevation of the right isting levee. Construction of the floodplain enhancement would requad and Risely Road and relocation of some of the homes along thes	bank and uire
No	Short-term	M		X
			ts in the Mt. Tremper area to reduce flood risks, such as the expansitation of State Route 212.	ion of
Yes	Short-term	Н	Complete	✓
Initiative # FI Route 47.	MI-52—Suppo	rt Ulster Cou	anty in efforts to stabilize and reduce flood risks to residents along (County
No	Short-term	Н	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
		_	Tanks: Sources of man-made pollution should be reduced or eliminoil and propane tanks.	nated
Yes	Short-term	Н	Funding available through Catskill Watershed Corporation program.	О
			notification to landowners who have special flood hazard areas (SF management practices and FEMA fact sheets.	HA)
No	Short-term	Н	AWSMP conduction streamside landowner survey. Educational materials to be developed and distributed after survey results are received.	X
Completion st $\checkmark = P$	t atus legend: roject Complet	ed		

- 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 it's own implementation strategy. Implementation actions may be added herein as additional hazard mitigation actions, upon adoption of the LFA report.

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 2023.

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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