2024 | Hazard Mitigation Plan
Broome County, New York

Volume III: Appendices



December 2024

TETRA TECH

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Parsippany, NJ 07054

APPENDIX A: ADOPTION RESOLUTIONS

The Broome County and municipal adoption resolutions will be included in this appendix upon receipt of the Federal Emergency Management Agency (FEMA) Approval Pending Adoption (APA) status. Please refer to Section 2 Planning Process for additional information on plan adoption procedures.

This appendix also includes an example resolution to be submitted by Broome County and participating jurisdictions authorizing the adoption of the Broome County Hazard Mitigation Plan Update.

RESOLUTION NO. XXXX-XX

A RESOLUTION OF THE GOVERNING BODY OF THE BROOME COUNTY

AUTHORIZING THE ADOPTION OF THE

2024 BROOME COUNTY, NY HAZARD MITIGATION PLAN UPDATE

WHEREAS, all jurisdictions within Broome County have exposure to natural hazards that increase the risk to life, property, environment, and the County and local economy; and

WHEREAS; pro-active mitigation of known hazards before a disaster event can reduce or eliminate long-term risk to life and property; and

WHEREAS, The Disaster Mitigation Act of 2000 (Public Law 106-390) established new requirements for pre and post-disaster hazard mitigation programs; and

WHEREAS; a coalition of Broome County municipalities with like planning objectives has been formed to pool resources and create consistent mitigation strategies within Broome County; and

WHEREAS, the coalition has completed a planning process that engages the public, assesses the risk and vulnerability to the impacts of natural hazards, develop a mitigation strategy consistent with a set of uniform goals and objectives, and creates a plan for implementing, evaluating, and revising this strategy;

NOW, THEREFORE, BE IT RESOLVED that the [jurisdiction name]:

1) Adopts in its entirety, the 2019 Broome County Hazard Mitigation Plan Update (the "Plan") as the jurisdiction's Natural Hazard Mitigation Plan, and resolves to execute the actions identified in the Plan that pertain to this jurisdiction.
2) Will use the adopted and approved portions of the Plan to guide pre- and post-disaster mitigation of the hazards identified.
3) Will coordinate the strategies identified in the Plan with other planning programs and mechanisms under its jurisdictional authority.
4) Will continue its support of the Mitigation Planning Committee as described within the Plan.
5) Will help to promote and support the mitigation successes of all participants in this Plan.
6) Will incorporate mitigation planning as an integral component of government and partner operations.
7) Will provide an update of the Plan in conjunction with the County no less than every five years.

PASSED AND ADOPTED on this _____ day of MONTH, YEAR, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:_____

Mayor, Town/Village of _____

ATTEST: _____

Clerk, Town/Village of _____

APPENDIX B: PARTICIPATION MATRIX

The matrix in Appendix B is intended to give a broad overview of FEMA, New York State, county, municipal, and stakeholder personnel that participated in the Broome County HMP update planning process. Meeting attendees and input provided are also included. All participants were encouraged to attend the kick-off meeting and mitigation workshop. During the planning process, the consultant contacted each participant to offer support, explain the process, and facilitate the submittal and review of critical documents.

The participating jurisdictions agreed to abide by the Planning Partner Expectations and Planning Committee Guidelines which established a Steering Committee. Letters of Intent to Participate indicating municipal planning efforts are included in this appendix. The Steering Committee served as the core of the working group. Participation is defined as having input to the hazard analysis (providing critical facility, hazard event, vulnerability data), and as having participated in the mitigation workshop or alternate annex meetings as described in the HMP for the purpose of creating a mitigation strategy to be included in each municipalities annex in Section 9.

Table B-1. Jurisdictions Notified of the Mitigation Plan Development

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Broome County	Stephanie Brewer	Broome County Planning	sbrewer@co.broome.ny.us	X	6/23	Email	X	X	X	X	X
Broome County	Aimee Dailey	Senior Planner	aimee.dailey@broomecountyny.gov	X	6/23	Email		X	X	X	
Broome County	Beth Lucas	Director	-	X	6/23	Email		X		X	
Broome County	Gillian Sloan	Planner	gillian.sloan@broomecountyny.gov	X	6/23	Email		X	X	X	
Broome County	Marty Haley	Engineer	-	X	6/23	Email		X		X	
Broome County	Amy Fassold	Emergency Prep. Fellow	chester.kupiec@broomecountyny.gov	X	6/23	Email		X		X	
Broome County	Chet Kupiec	Deputy Commissioner	-	X	6/23	Email					
Broome County	Cortni Brienza	EM Associate	county.executive@broomecountyny.gov	X	6/23	Email		X		X	
Broome County	Jason Garnar	County Executive	clerkinfo@broomecountyny.gov	X	6/23	Email					
Broome County	Joseph Mihalko	County Clerk	-	X	6/23	Email					
Broome County	Joyce Collier	Emergency Manager	Jpuglisi@broomeswcd.org	X	6/23	Email		X		X	

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Broome County	Justin Puglisi	District Manager	-	X	6/23	Email		X		X	
Broome County	Katie Pierce	EM Associate	-	X	6/23	Email		X	X	X	
Broome County	Kerby Sainclair	Public Safety Coordinator	lboulton@co.broome.ny.us	X	6/23	Email		X		X	
Broome County	Leslie Boulton	Dep Comm of Engineering	-	X	6/23	Email					
Broome County	Michael Bender	Public Health Program Coordinator	michael.ponticiello@broomecountyny.gov	X	6/23	Email		X		X	
Broome County	Michael Ponticiello	Deputy County Executive	nazar.logvis@broomecountyny.gov	X	6/23	Email					
Broome County	Nazar Logvis	Engineer	Patrick.Dewing@BroomeCountyNY.Gov	X	6/23	Email					
Broome County	Patrick Dewing	Director	Roger.Brown@broomecountyny.gov	X	6/23	Email		X	X	X	
Broome County	Roger Brown	Interim Director	-	X	6/23	Email					
Broome County	Jean Westcott	-	-	X	6/23	Email		X			
Broome County	Isabella Paulley	-	-	X	6/23	Email		X			
American Red Cross	Cynthia Mcinerney	-	-	X	6/23	Email		X			

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Barker (T)	David Mackey	Public Works/Highway	tobhiway@stny.rr.com	X	6/23	Email	X				
Barker (T)	Jim Dedrick	Building Department/Code Enforcement	barkercode@stny.rr.com	X	6/23	Email	X	X			X
Barker (T)	Carol Poklemba	Other Representative	barkertown@stny.rr.com	X	6/23	Email	X				
Barker (T)	Julie Scott	Municipal Clerk	barkerclerk@stny.rr.com	X	6/23	Email	X				
Binghamton (C)	Chris Schleider	Building Department/Code Enforcement	cjschleider@cityofbinghamton.gov	X	6/23	Email	X				
Binghamton (C)	Dan Maerkl	Public Works/Highway	demaerkl@cityofbinghamton.gov	X	6/23	Email	X				
Binghamton (C)	Franco Incitti	City of Binghamton Engineering	faincitti@cityofbinghamton.gov	X	6/23	Email	X	X		X	
Binghamton (C)	Giovanni Scaringi	Elected Official/Administrator	gscaringi@cityofbinghamton.gov	X	6/23	Email	X				
Binghamton (C)	Janine Faulkner	Municipal Clerk	jfaulkner@cityofbinghamton.gov	X	6/23	Email	X				
Binghamton (C)	Jared Kraham	-	jmkraham@cityofbinghamton.gov	X	6/23	Email	X				
Binghamton (C)	Juliet Berling	Planning	jmberling@cityofbinghamton.gov	X	6/23	Email	X	X		X	X
Binghamton (C)	Megan Heiman	Deputy Mayor	mjheiman@cityofbinghamton.gov	X	6/23	Email	X				

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Binghamton (C)	Patrick McGinnis	Parks & Recreation	prmcginnis@cityofbinghamton.gov	X	6/23	Email	X				
Binghamton (C)	Ron Lake, P.E.	City of Binghamton Engineering	rblake@cityofbinghamton.gov	X	6/23	Email	X	X		X	
Binghamton (C)	Tito Martinez	Lead Planner	tlmartinez@cityofbinghamton.gov	X	6/23	Email	X				
Binghamton (T)	Nick Pappas	Primary POC	code@townofbinghamton.com	X	6/23	Email	X	X			X
Binghamton (T)	Zachary Soboleski	Alternate POC	codeassist@townofbinghamton.com	X	6/23	Email	X	X			
Binghamton (T)	David Chase	Engineer	dchase@cplteam.com	X	6/23	Email	X				
Binghamton (T)	Elizabeth Rounds	Elected Official/Administrator	supervisor@townofbinghamton.com	X	6/23	Email	X				
Binghamton (T)	Mark Leighton	Public Works/Highway	highway@townofbinghamton.com	X	6/23	Email	X				
Binghamton (T)	Michael Donahue	Other Representative	deputysupervisor@townofbinghamton.com	X	6/23	Email	X				
Binghamton (T)	Tracy Tokos	Municipal Clerk	townclerk@townofbinghamton.com	X	6/23	Email	X				
Binghamton University	Dave Hubeng	OEM	Executive Director	X	6/23	Email	X	X			
Binghamton YMCA	Collin Elliot	-	-	X	6/23	Email	X	X			

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Broome County Health Department	Mary McFadden	-	-	X	6/23	Email	X	X			
Broome County Parks, Recreation, and Youth Services	Brenda Gowe	-	-	X	6/23	Email	X	X			
Chenango (T)	Joyanne Kasmarcik	-	highway@townofchenangony.gov	X	6/23	Email	X	X			
Chenango (T)	Aex Urda	Engineer	alex@urdaengineering.com	X	6/23	Email	X	X			
Chenango (T)	Derin Kraack	Highway	derin.kraack@townofchenangony.gov	X	6/23	Email	X	X			
Chenango (T)	Gavin Stiles	Building Department/Code Enforcement	Gavin.Stiles@townofchenangony.gov	X	6/23	Email	X	X			
Chenango (T)	Greg Burden	Public Works	greg.burden@townofchenangony.gov	X	6/23	Email	X	X			
Chenango (T)	Lizanne Tiesi-Koriek	Municipal Clerk	-	X	6/23	Email	X	X			
Chenango (T)	Michael Lumsden	-	-	X	6/23	Email					
Chenango Valley Central School District	Andrew Burlingame	-	-	X	6/23	Email		X			
Chenango Valley Central School District	Elizabeth Donahue	-	-	X	6/23	Email		X			

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Colesville (T)	Bradford McAvoy	-	colesvilleenforcement@echoes.net	X	6/23	Email		X			
Colesville (T)	Glenn WInsor	-	colesvillesupervisor@echoes.net	X	6/23	Email					X
Colesville (T)	James Bulger	Public Works/Highway	colesvillehighway@echoes.net	X	6/23	Email					
Community Foundation for South Central New York	Stacy Mastrogiacomo	-	-	X	6/23	Email		X			
Conklin (T)	John Mastronardi, PE	Alternate POC	jmastronardi@griffithsengineering.com	X	6/23	Email			X		
Conklin (T)	Nick Pappas	Building Department/Code Enforcement	code@townofconklin.org	X	6/23	Email			X		X
Conklin (T)	Brian Coddington	Public Works/Highway	highway@townofconklin.org	X	6/23	Email			X		
Conklin (T)	Sherrie Jacobs	Municipal Clerk	townclerk@townofconklin.org	X	6/23	Email					
Conklin (T)	Teresa Bamber	Other Representative	bookkeeper@townofconklin.org	X	6/23	Email					
Conklin (T)	William Dumian, Jr.	Emergency Management	supervisor@townofconklin.org	X	6/23	Email		X			
Deposit (V)	Bryan Moore	Primary POC	Vod.Mayor1@gmail.com	X	6/23	Email		X			X

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Deposit (V)	Karen Budine	Alternate POC	VOD.K.Budine@gmail.com	X	6/23	Email					
Deposit (V)	Peter Hathaway	NFIP POC	Vod.code.hathaway@gmail.com	X	6/23	Email					
Deposit (V)	Ken Ellsworth	Engineer	kellsworth@keyscomp.com	X	6/23	Email					
Deposit (V)	Sarah Evans	Lead Planner	smeva1231@aol.com	X	6/23	Email		X			
Deposit (V)	Steve Evans	Public Works/Highway	vod.supervisor.evans@gmail.com	X	6/23	Email					
Deposit (V)	Shaun Rynearson	Emergency Management	vod.fire.chief22@gmail.com	X	6/23	Email					
Deposit (V)	Henry Warner	Elected Official/Administrator	vod.trusteehwarner@gmail.com	X	6/23	Email					
Deposit (V)	Peter Hathaway	Building Department/Code Enforcement	Vod.code.hathaway@gmail.com	X	6/23	Email		X			
Deposit (V)	Karen Budine	Municipal Clerk	VOD.K.Budine@gmail.com	X	6/23	Email		X			
Deposit (V)	Beverly Shirkey	Other Representative	vod.b.shirkey@gmail.com	X	6/23	Email		X			
Dickinson (T)	Dan Morabito	Alternate POC	dmorabito@townofdickinson.com	X	6/23	Email					
Dickinson (T)	Kyle Doyle	Building Department/Code Enforcement	kdoyle@townofdickinson.com	X	6/23	Email		X			

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Dickinson (T)	Michael A. Marinaccio	Elected Official/Administrator	mmarinaccio@townofdickinson.com	X	6/23	Email		X			X
Dickinson (T)	Ron Lake, P.E.	Engineer	Ronald Lake <ronbert18@stny.rr.com>	X	6/23	Email		X			
Dickinson (T)	Joel Kie	Public Works/Highway	jkie@townofdickinson.com	X	6/23	Email					
Dickinson (T)	Wendy Evans	Municipal Clerk	wevans@townofdickinson.com	X	6/23	Email					
Endicott (V)	Anthony Bates	-	abates@endicottny.com	X	6/23	Email					X
Endicott (V)	Cameron Williams	Engineer	engineer2@endicottny.com	X	6/23	Email		X			
Endicott (V)	Brian Botsford	Building Department/Code Enforcement	firemarshal@endicottny.com	X	6/23	Email		X			
Endicott (V)	Janice Orlando	Deputy Clerk-Treasurer	assttreas@endicottny.com	X	6/23	Email					
Endicott (V)	Joe Griswold	Emergency Management	joseph.griswold@broomecountyny.gov	X	6/23	Email					
Endicott (V)	Nick Burlingame	Elected Official/Administrator	NBURLINGAME@endicottny.com	X	6/23	Email		X			
Endicott (V)	Phillip Grayson	Chief Operator, WWTP	pgrayson@endicottny.com	X	6/23	Email					
Endicott (V)	Rob Kaczynski	Public Works/Highway	lorlando@endicottny.com	X	6/23	Email					

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Facilities at Achieve	Dennis Lange	-	-	X	6/23	Email		X			
FEMA Region II	Paul Hoole	-	-	X	6/23	Email		X			
Fenton (T)	Gary Holcomb	-	supervisor@townoffenton.com	X	6/23	Email					X
Fenton (T)	John Mastronardi	Town of Fenton	jmastronardi@griffithsengineering.com	X	6/23	Email		X			
Fenton (T)	Anthony Citriniti	Alternate POC	engineer@townoffenton.com	X	6/23	Email					
Fenton (T)	David Gunster	Other Representative	gunsterd@townoffenton.com	X	6/23	Email					
Fenton (T)	Matthew Banks	-	bldinsp@townoffenton.com	X	6/23	Email		X			
Fenton (T)	Melodie Bowersox	Municipal Clerk	townclerk@townoffenton.com	X	6/23	Email		X			
Fenton (T)	Randy Ritter	Public Works/Highway	hwysupv@townoffenton.com	X	6/23	Email					
Fenton (T)	Tim Brown	Lead Planner	planning@townoffenton.com	X	6/23	Email					
Fenton (T)	Tom Moss	Elected Official/Administrator	mosst@townoffenton.com	X	6/23	Email					
Four County Library System	Steve Bachman	-	-	X	6/23	Email					

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Good Shepherd Communities	Terry Cortese-Green	-	-	X	6/23	Email					
Greater Binghamton Chamber of Commerce	Mina Hoblitz	-	-	X	6/23	Email					
Greenlight Network	Patrick Amering	-	-	X	6/23	Email					
Johnson City (V)	Joshua Holland	Engineer	jcdops@villageofjc.com	X	6/23	Email					X
Johnson City (V)	Stephanie Yezzi	Village of Johnson City Planning	planningdirector@villageofjc.com	X	6/23	Email					
Johnson City (V)	Bob Blakeslee	Building Department/Code Enforcement	fire-marshal@villageofjc.com	X	6/23	Email					
Johnson City (V)	Clark Giblin	Other Representative	cgiblin@villageofjc.com	X	6/23	Email					
Johnson City (V)	Jackson Bailey II	Municipal Clerk	clerk-treasurer@villageofjc.com	X	6/23	Email					
Johnson City (V)	Martin Meaney	Elected Official/Administrator	JCMayor@villageofJC.com	X	6/23	Email					
Johnson City (V)	Randy Shear	-	codeofficer@villageofjc.com	X	6/23	Email					
Johnson City (V)	Tim Sherman	Public Works/Highway	dpwsupr@villageofjc.com	X	6/23	Email					

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Johnson City School District	Elisa Eaton	-	-	X	6/23	Email		X			
Kirkwood (T)	John Mastronardi	Griffiths Engineering	jmastronardi@griffithsengineering.com	X	6/23	Email		X			
Kirkwood (T)	Katie Legg	Alternate POC	katie@townofkirkwood.org	X	6/23	Email					
Kirkwood (T)	Kelley Diffendorf	Municipal Clerk	kelley@townofkirkwood.org	X	6/23	Email		X			
Kirkwood (T)	Chad Moran	Code Enforcement Officer	chad@townofkirkwood.org	X	6/23	Email					
Kirkwood (T)	John Finch	Public Works/Highway	john@townofkirkwood.org	X	6/23	Email					
Kirkwood (T)	Lew Grubham	Supervisor	lgrubham@townofkirkwood.org	X	6/23	Email					X
Lisle (V)	Gerald Mackey	Primary POC	jmmackey@yahoo.com ; jmm@yahoo.com	X	6/23	Email		X			X
Lisle (V)	Terry Lynch	Alternate POC	tbert1168@gmail.com	X	6/23	Email					
Lisle (V)	Eric Hughes	NFIP POC	ehughes23@yahoo.com	X	6/23	Email					
Lisle (V)	Fran Peterson	Municipal Clerk	petersonfrn@gmail.com	X	6/23	Email					
Maine (T)	Doug Barton	Primary POC	barton@townofmaine.org	X	6/23	Email					X

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Maine (T)	Joseph Dohnalek	Alternate POC	dohnalek@townofmaine.org; MaineHwy1@Hotmail.com	X	6/23	Email					
Maine (T)	Robert Lawler	NFIP POC	lawler@townofmaine.org	X	6/23	Email		X			
Maine (T)	James Tokos	Supervisor	tokos@townofmaine.org	X	6/23	Email					
Nanticoke (T)	Robert Hoag	Public Works/Highway	highwaysuperintendent@townofnanticokeny.com	X	6/23	Email		X			
Nanticoke (T)	Roy Willis	Supervisor	supervisor@townofnanticokeny.com	X	6/23	Email		X			X
Nanticoke (T)	Scott Whittaker	Alternate POC	whittfarm@aol.com	X	6/23	Email		X			
Nanticoke (T)	Nicholas Collyer	Emergency Management	gafire47@gmail.com	X	6/23	Email					
Nanticoke (T)	Renny Zanker	Municipal Clerk	nanticokeclerk@stny.twcbc.com	X	6/23	Email					
Nanticoke (T)	Shaun Oliver	Building Department/Code Enforcement	olivershaun74@gmail.com	X	6/23	Email		X			
Nanticoke (T)	Sue Williams	Other Representative	nanticokeclerk@stny.twcbc.com	X	6/23	Email					
NYSDHSES	John Wilkinson	-	-	X	6/23	Email		X			
NYSDHSES	Kevin Clapp	-	-	X	6/23	Email		X			

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
NYSDHSES	Roland Paperman	-	-	X	6/23	Email		X			
NYSDHSES	Michael Tarasoff	-	-	X	6/23	Email		X			
Port Dickinson (V)	Gene Hulbert Jr.	Engineer	ghh@hulberteng-ls.com	X	6/23	Email		X			
Port Dickinson (V)	John Broughton	Building Department/Code Enforcement	jbroughton1@stny.rr.com	X	6/23	Email		X			
Port Dickinson (V)	Kevin Burke	-	kburke7@stny.rr.com	X	6/23	Email					X
Port Dickinson (V)	Robert Moss	-	rmoss@stny.rr.com	X	6/23	Email		X			
Port Dickinson (V)	Ron Lake, P.E.	Engineer	ronbert18@stny.rr.com	X	6/23	Email					
Port Dickinson (V)	James DeGennaro	Elected Official/Administrator	joedegennaro089@gmail.com	X	6/23	Email					
Port Dickinson (V)	Michael Cashman	Public Works/Highway	cash288@gmail.com	X	6/23	Email					
Port Dickinson (V)	Rachelle Tokos	Hulbert Engineering and Land Surveying, DPC	rlt@hulberteng-ls.com	X	6/23	Email					
Port Dickinson (V)	Robert Warholic	Lead Planner	rwarholic@gmail.com	X	6/23	Email					
Port Dickinson (V)	Scott McDonald	Emergency Management	pdp@stny.rr.com	X	6/23	Email					

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Port Dickinson (V)	Sue Fox	Municipal Clerk	pdclerk@stny.rr.com	X	6/23	Email					
Sanford (T)	Kenneth Wist	-	supervisor@townofsanfordny.com	X	6/23	Email		X			X
Sanford (T)	Paul VanSlyke	Other Representative	pvanslyke555@gmail.com	X	6/23	Email		X			
Sanford (T)	Shane Lester	-	slester@deposit.stier.org	X	6/23	Email					
Sanford (T)	Alison Lang	Municipal Clerk	clerk@townofsanfordny.com	X	6/23	Email					
Sanford (T)	John Russell	Elected Official/Administrator	jcmdruss@aol.com	X	6/23	Email					
Sanford (T)	Kermit Mott	Lead Planner	kermitmott@tds.net	X	6/23	Email					
Sanford (T)	Leo Shew	Public Works/Highway	highwaysuperintendent@townofsanfordny.com	X	6/23	Email					
Sanford (T)	Peter Hathaway	-	code@townofsanfordny.com	X	6/23	Email					
Southern Tier 8	Ashley Seyfried	-	-	X	6/23	Email		X			
Southern Tier 8	Sophia Pappas	-	-	X	6/23	Email		X			
Triangle (T)	Charles Manasse	Primary POC	supervisor@townoftriangle.org	X	6/23	Email		X			X

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Triangle (T)	Mark Mesceda	Alternate POC		X	6/23	Email					
Triangle (T)	Daniel McGowan	Public Works/Highway	trianglehighwaydept@frontier.com	X	6/23	Email					
Triangle (T)	Mark See	Building Department/Code Enforcement	buildinginspector@townoftriangle.org	X	6/23	Email		X			
Triangle (T)	Sandra Martin	Municipal Clerk	clerk@townoftriangle.org	X	6/23	Email					
Union (T)	Christopher Kylor	Planning	ckylor@townofunion.com	X	6/23	Email			X		X
Union (T)	Marrina Lane	-	M.Lane@townofunion.com	X	6/23	Email			X		
Union (T)	Daniel Schofield	-	dschofield@townofunion.com	X	6/23	Email			X		
Union (T)	Brian Lucas	Building Department/Code Enforcement	blucas@townofunion.com	X	6/23	Email					
Union (T)	Leonard Perfetti	Municipal Clerk	lperfetti@townofunion.com	X	6/23	Email					
Union (T)	Lou Caforio	Public Works/Highway	lcaforio@townofunion.com	X	6/23	Email					
Union (T)	Rob Mack	Supervisor	rmack@townofunion.com ; supervisor@townofunion.com	X	6/23	Email					
Union (T)	San Schofield	Emergency Management	dschofield@townofunion.com	X	6/23	Email					

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Union (T)	Conor Johns		-	X	6/23	Email		X			
Union (T)	Thomas Augostini	Elected Official/Administrator	taugostini@townofunion.com	X	6/23	Email					
Upper Susquehanna Coalition	Wendy Walsh	-	-	X	6/23	Email		X			
Vestal (T)	Maria Sexton	Elected Official/Administrator	msexton@Vestalny.gov	X	6/23	Email					X
Vestal (T)	Vern Myers	Alternate POC	vmyers@vestalny.gov	X	6/23	Email			X		
Vestal (T)	Craig Hiller	Public Works/Highway	chiller@vestalny.gov	X	6/23	Email					
Vestal (T)	Debra Wallace	Municipal Clerk	dwallace@vestalny.gov	X	6/23	Email					
Vestal (T)	Lincoln Ellis	Building Department/Code Enforcement	lellis@vestalny.gov	X	6/23	Email					
Vestal (T)	Maria Sexton	Supervisor	msexton@vestalny.gov	X	6/23	Email			X		
Vestal (T)	Sue Bailey	Other Representative	-	X	6/23	Email					
Vestal (T)	Marina Lane	-	-	X	6/23	Email					
Vestal (T)	Tom McCartney	Emergency Management	emc32@vestalny.gov	X	6/23	Email					

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Whitney Point (V)	Adam Wells	Primary POC	wpdpw@frontiernet.net	X	6/23	Email					X
Whitney Point (V)	Jason Somers	Mayor	mayor@whitneypoint.org	X	6/23	Email		X			
Whitney Point (V)	Linda Murphy	Alternate POC	clerk@whitneypoint.org	X	6/23	Email					
Whitney Point (V)	Mark See	NFIP POC	code@whitneypoint.org	X	6/23	Email					
Windsor (T)	Elizabeth Pfister	-	windsortc1@echoes.net	X	6/23	Email		X			
Windsor (T)	Mark Odell	-	supervisor.tow@gmail.com	X	6/23	Email		X			X
Windsor (T)	Craig Terrell	-	chief28@tds.net	X	6/23	Email					
Windsor (T)	Dan Griffiths	Engineer	dan@griffithsengineering.com	X	6/23	Email					
Windsor (T)	Jerry Launt	Other Representative	jlaunt@gmail.com	X	6/23	Email					
Windsor (T)	Michael Kithcart	Public Works/Highway	windsorgarage@echoes.net	X	6/23	Email					
Windsor (T)	Richard Osborne	-	windsorcode@echoes.net	X	6/23	Email					
Windsor (T)	Shelly Bennett	Lead Planner	shelly.johnson@co.delaware.ny.us	X	6/23	Email					

Jurisdiction	Name	Title/Position	Email	Invited to Participate	Date of Invitation	Method of Invitation	Agreed to Participate	Attended Meetings	Provided Feedback	Steering Committee Member	Designated Project Point of Contact
Windsor (V)	Courtney Decker	--	office@villageofwindsor.org	X	6/23	Email		X			
Windsor (V)	David Decker	Public Works/Highway	Office@villageofwindsor.org	X	6/23	Email					
Windsor (V)	Ron Harting	Elected Official/Administrator	Office@villageofwindsor.org	X	6/23	Email					X
Windsor (V)	Richard Osborne	Building Department/Code Enforcement	Office@villageofwindsor.org	X	6/23	Email					

Source:

APPENDIX C: MEETING DOCUMENTATION

Appendix C includes meeting agendas, sign-in sheets and minutes (where applicable and available) for meetings convened during the development of the Broome County Hazard Mitigation Plan Update.

Broome County HMP Update
Pre-Kick-Off Meeting - Agenda
June 12, 2023

Meeting Goals: Agree on draft workplan and schedule; confirm SOW and additional items; agree on areas to expedite; agree on schedule drivers; confirm County and Tt responsibilities

1. **Introductions**

2. **Core Planning Team**
   - Broome County Planning
   - NYS DHSES
   - Tetra Tech

3. **Steering Committee**
   - To maximize CRS credits, we suggest the following members:
     - Broome County Soil & Water Conservation District
     - Broome-Tioga Stormwater Coalition
     - County Engineering Division
     - Department of Emergency Services
     - Department of Geographic Information Systems
     - Department of Health
     - Department of Public Works
     - Department of Parks, Recreation & Youth Services
     - Transportation - Binghamton Metropolitan Transportation Study and B.C. Transit
     - Utility and infrastructure providers
     - Non-profit and non-governmental organizations
     - Members of the general public
     - Representatives from public information/communications
     - Representatives from those involved with building codes
   - Kick-off meeting – date/time (virtual or in-person)

4. **Planning Partnership**
   - Letters of Intent to Participate – Stephanie sent out on May 22nd
   - Updated contact information for each municipality
   - Kick-off meeting – date/time (virtual or in-person)

5. **Stakeholders**
   - Elected or appointed officials from all 24 municipalities
   - Emergency response agencies (fire, police, and EMS)
   - School districts and other public or private schools
   - Colleges and universities, hospitals, congregate care centers, nursing homes, prisons, and other institutions with resident populations
   - Daycare centers and pre-schools
   - Chambers of commerce, business leaders, and major employers
   - Historic districts and historical preservation organizations
   - Community leaders

- Neighborhood groups and housing organizations
- Groups that advocate for socially vulnerable populations (e.g., United Way of Broome County, Catholic Charities of Broome County)
- Groups representing infrastructure that runs through the County (e.g., New York State Department of Transportation)
- Local representatives from New York State (e.g., NYS DHSES, NYSDEC Dam Safety) and federal (e.g., FEMA, USACE) agencies, especially those with installations or offices in the County
- Residents of Broome County
- Officials from neighboring counties of Chenango, Cortland, Tioga, and Delaware in New York State, and Susquehanna and Wayne Counties in Pennsylvania

6. Data Collection

- FEMA Plan Review Tool from previous plan *Tt has on file*
- Stakeholder contact information
- County and municipal contact information for all participants
- Information gathering worksheets/online forms
- Critical Facility Inventory via Survey123
- Data Wish List *Tt to provided to Stephanie and Doug on May 18th*
- NFIP Data Request *Tt to provide details to County on how to request*
- FEMA CAV request *Tt to provide details to the County on how to request*
- If there are high hazard dams in the County, we will need to review EAPs for each to incorporate into the plan. This will help the County meet the HHPD requirements for HMPs. *There are 23 high hazard dams (as per USACE) – to meet HHPD requirements, we need dam inundation areas, copies of the EAPs, etc.*
- HMP website *Tt to provide updated text for County to update webpage on HMP*
- StoryMap *Tt set up draft StoryMap – Heather to review and will let County know when ready for their review/input*

7. Hazards of Concern Identification

- Tt suggests the following (but will confirm with the Planning Team during their kick-off meeting):

2019 HMP	2019 State HMP	2024 County HMP Update (suggested hazards)
-	Avalanche	-
-	Coastal Hazards	-
Included in Extreme Temperature	Coldwave	-
-	-	Dam Failure
Drought	Drought	Drought
-	Earthquake	-
-	-	Disease Outbreak
Extreme Temperature (heat and cold)	-	Extreme Temperature

Broome County HMP Update
Pre-Kick-Off Meeting - Agenda
June 12, 2023

2019 HMP	2019 State HMP	2024 County HMP Update (suggested hazards)
Flood	Flooding	Flood
	Hail	-
Included in Extreme Temperature	Heat Wave	-
-	Hurricane	-
Included in Severe Winter Storm	Ice Storm	-
Invasive Species	-	Invasive Species
-	Landslide	-
Included in Severe Storm	Lightning	-
Severe Storm	-	Severe Storm (lightning, hail, wind, thunderstorm, tornado)
Severe Winter Storm	-	Severe Winter Storm (snow, blizzard, ice)
Included in Severe Winter Storm	Snow Storm	-
-	Tsunami/Seiche	-
Included in Severe Storm	Tornado	-
-	Volcano	-
Wildfire	Wildfire	Wildfire
Included in Severe Storm	Wind	-

8. **Work Plan/Schedule**
   - Current plan expires in August 21, 2024
   - Kick-Off Meetings – proposed schedule to be revised, everything pushed back by two months
     - Core Planning Team – today
       - How often should we meet? Monthly? Every other week?
     - Steering Committee
     - Planning Partnership
   - Goals and Objectives
   - Risk Assessment Workshop
   - Mitigation Strategy Workshop
   - Plan Maintenance Procedures
   - Public Review Period
   - Draft to NYS DHSES – draft to DHSES by May 31, 2024
   - Draft to FEMA – June 2024
   - Tentative APA – July/August 2023

9. **Next Steps**
   - Finalize meeting dates
   - Set up OneDrive for file sharing
   - Determine style guide of HMP update

Broome County | Hazard Mitigation Plan 2024 Update
Meeting Sign-In Sheet

Meeting Date: Wednesday, July 19, 2023
Meeting Location: Chenango Community Center
Meeting Topic: Steering Committee Kick-Off Meeting

Name	Jurisdiction	Title	Email
Kevin Clapp	NYS DHSES	Supervisor - Hmplng	Kevin.Clapp@dhses.ny.gov
John Wilkinson	NYS DHSES	Env. Spec.	john.wilkinson@dhses.ny.gov
Gillian Sloan	Broome County	Planner	gillian.sloan@broomecountyny.gov
Stephanie Brewer	Broome County	Sr. Planner	stephanie.brewer@broomecountyny.gov
Joyce Collier	BC OES	EM	joyce.collier@broomecounty.
Kerby Sainclair	BC OES	Public Safety Coordinator	Kerby.sainclair@Broomecountyny.gov
Michael Bender	BC Health	Public Health Program Coord.	Michael.bender@BroomeCountyNy.gov
Katie Pierce	BC OES	EM Associate	katie.pierce@Broomecountyny.gov
Cortni Brienza	BC OES	EM Associate	Cortnianne.Brienza@broomecountyny.gov
Dave Hubeny	Binghamton University	Executive Director, OEM	dhubeny@binghamton.edu

Name	Jurisdiction	Title	Email
Aimee Dailey	Broome County	Sr. Planner	aimee.dailey@broomecountyny.gov
RON LAKE	CITY OF BING. TOWN OF DICK	ENGR	rblake@cityofbinghamton.com
Patricia Dunlop	BCOES	Director	Patricia.Dunlop@broomecountyny.gov
Justin Puglisi	Broome County SWCD	District Manager	jpuglisi@broomeswcd.org
Amy fassold	Broome county Health Dept.	Emergency Prep fellow	amy.fassold@broomecountyny.gov
JOHN MASTRONARDI	CONKLIN, KIRKWOOD (T) FENTON, WINDSOR	ENGINEER	jmastronardi@griffithengineering.com
Marty Haley	Broome County DPW	ENGINEER	MARTIN.HALEY@BROOMECOUNTYNY.GOV
Beth Lucas	Broome County Planning	Director	beth.lucas@broomecountyny.gov
Josh Holland	JC	Director	jcdops@villageofjc.com
Juliet Berling	City of Binghamton	Director Planning	Jmberling@cityofbinghamton.gov

Broome County Multi-Jurisdictional Hazard Mitigation Plan 2024 Update



Steering Committee Kick-Off Meeting
July 19, 2023 | 11:00 am

1



Today's Agenda

1. Welcome and Introductions
2. Hazard Mitigation Planning Overview
3. Project Organization
4. Steering Committee Responsibilities
5. Planning Process Overview
6. Schedule
7. Questions/Next Steps/Wrap Up



2



Hazard Mitigation Overview

Mitigation planning happens before a disaster strikes. It results in safer, more resilient communities – reducing risk for the residents, businesses, and critical services in Broome County.

3

Hazard Mitigation Planning Overview

TETRA TECH



- ✓ Authorized by the Disaster Mitigation Act of 2000
- ✓ Provides an overview of the impacts of natural hazards on communities
- ✓ Provides a roadmap to reducing the impact of these hazards
- ✓ Requires a FEMA-approved natural hazard mitigation plan to be eligible for Pre-Disaster Mitigation Funding
- ✓ 5-year updates required to maintain eligibility

1) What is hazard mitigation?
2) Why update the plan?
3) What's new for the 2024 HMP?
4) What is the process?

Broome County Hazard Mitigation Plan 2024 Update

4

What is Hazard Mitigation?

TETRA TECH

Mitigation is a sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event

-or-

Any action taken to reduce future disaster losses



"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)

5

Why Update?

TETRA TECH

- The mitigation plan update will:
  - Help prepare for and mitigate hazards
  - Eligibility for pre- and post-disaster mitigation funding
    - Since 2005, Broome County received over $32 million in FEMA funding
  - Incorporate new FEMA requirements
  - Support CRS participation/rating
- What is at risk in Broome County?
- Which hazard do you think occurred the most since 2019?
  - **Scan this code to vote!**

January 2019 – July 2023	
Hazard	**Occurrences**
Drought Conditions	41
Earthquake	0
Extreme Temperature (heat/cold)	2
Flood	35
Severe Weather	213
Severe Winter Weather	12
Wildfire	9
TOTAL	**312**

Sources: NOAA NCEI 2023; NYSDEC 2023; USGS 2023; USDM 2023

6

Differences from the 2019 Planning Process

TETRA TECH

- Involvement – engaged and actively participating
- Public and stakeholder outreach
- Socially vulnerable and underserved communities
- Climate change
- Mitigation actions for every hazard of concern

7



Project Organization

Working with individuals, agencies, neighboring jurisdictions, businesses, and other partners for a successful mitigation planning process.

8

Project Organization

TETRA TECH

Core Planning Team
Broome County Planning
Tetra Tech

Steering Committee

Planning Partnership

Stakeholders

FEMA
Homeland Security & Emergency Services

NYSDHSES and FEMA

9

Steering Committee Roles and Responsibilities

TETRA TECH

- **Guide the Planning Partnership**
- **Actively Participate**
- **Oversee the Planning Process**
- **Review, Update, and Provide Input**

10



Planning Process Overview

A well-defined planning process is essential to the success of Broome County's HMP Update.

11

Planning Process Overview

TETRA TECH

1 Organizing the Planning Effort
2 Profile the Community and Existing Conditions
3 Select, Profile, and Evaluate Impacts of Hazards of Concern
4 Assess Capabilities and Integrate Resources
5 Develop the Mitigation Strategy
6 Establish the Plan Maintenance Process
7 Draft and Submit the Plan
8 Adopt the Plan

12

Phase 1 – Organizing Planning Effort

TETRA TECH

Core Planning Team
Broome County Planning
Tetra Tech

Steering Committee

Planning Partnership

Stakeholders

NYS DHSES and FEMA

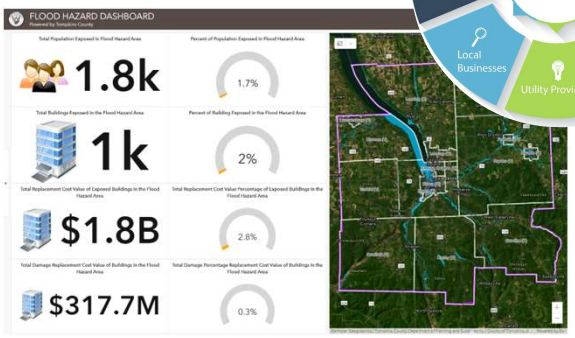
13

Public Involvement Strategy

TETRA TECH

- Public Outreach Toolkit
  - Social media templates and posts
  - Press release templates
  - Printable materials
- Surveys
  - Stakeholders
  - Neighboring communities
  - Public
- County Website
- StoryMap





14

Phase 2 - Profile the Community and Existing Conditions

TETRA TECH

- **Data collection and inventory assets**
- **Update critical facility/community lifeline inventory**
  - Critical Facilities provide essential services to the community, especially before, during, and after a disaster.
  - Community Lifelines provide services that allow continuity of operations of critical business and government functions, and crucial to health and safety of residents.

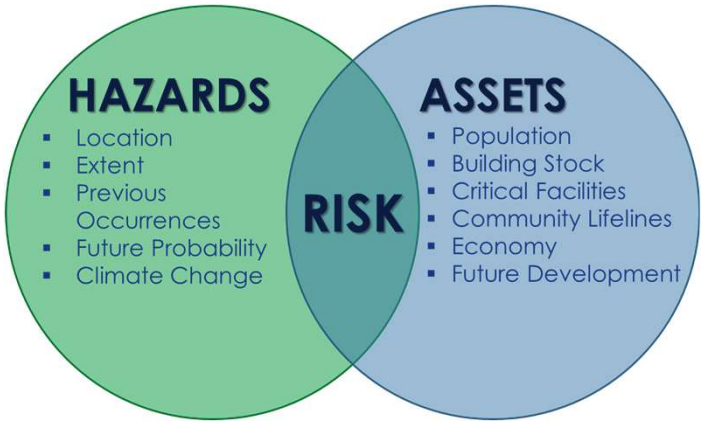


A lifeline enables the continuous operation of critical government and business functions and is essential to human health and safety or economic security.

15

Phase 3 - Risk Assessment

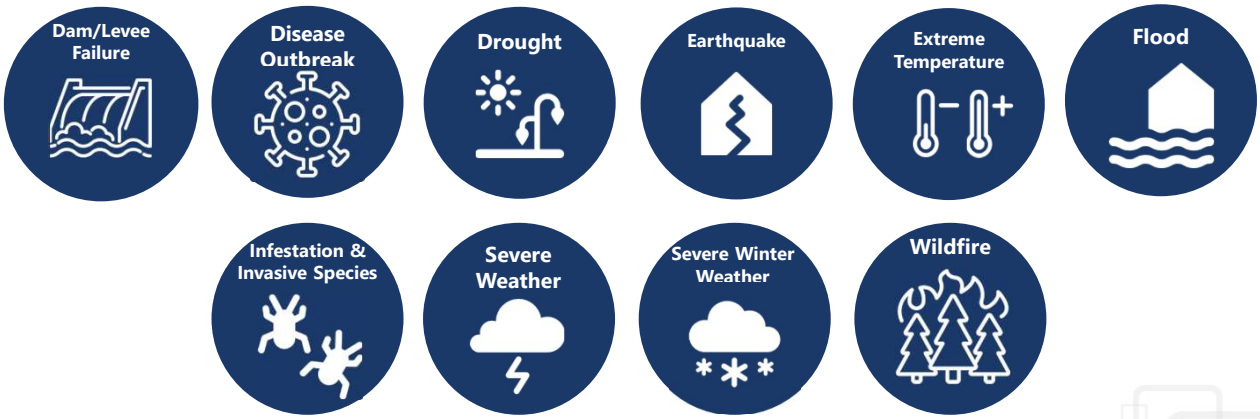
TETRA TECH



- Review and update list of hazards of concern
- Update hazard profiles
- Complete risk assessment
- Review risk assessment results with Steering Committee and Planning Partnership

16

Hazards of Concern



17

EXERCISE Confirming Hazards of Concern

- **Looking at the hazards included in the 2019 plan…**
  - Have additional hazards impacted the County since 2019?
  - Have hazards been mitigated and no longer cause damage?
  - Should hazards be regrouped to align with the current NYS HMP?
  - Should additional hazards be included?
- **How have hazards affected the county?**
- **Where are your problem areas?**
- **Input needed!**
  - Refer to the worksheet we provided at the start of the meeting. Complete the worksheet or the online form.w

18

Phase 4 – Capabilities and Integration

TETRA TECH

- Review existing capabilities and identify how each reduces risk and if it incorporates elements of the HMP
- Describe current and future integration process for the County and each jurisdiction

Regulatory
- Current ordinances that integrate mitigation (e.g., local flood damage prevention ordinance, stormwater management, wetlands protection, etc.).

Operational and Administrative
- County/community boards/departments that integrate mitigation in their current processes and how.

Funding
- Funding sources at the local level that may be used to fund mitigation projects.

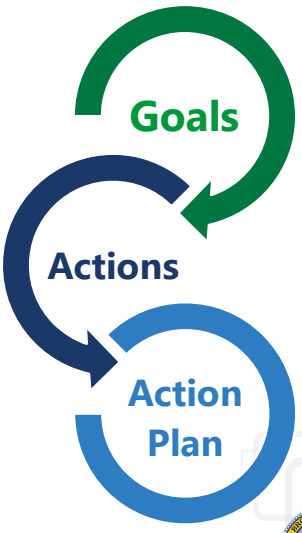
Education/Outreach
- Current action the County/community is taking to integrate mitigation in their outreach and notifications to residents.

Adaptive Capacity
- Review the County and municipalities' adaptive capacity to deal with the potential impacts of climate change.

Phase 5 – Mitigation Strategy

TETRA TECH

- Review 2019 mitigation actions
- Review and update goals/objectives
- Problem statements and potential solutions
  - What specific actions will be taken to reduce hazard risk?
- Develop an action plan
  - How will the actions be prioritized and implemented?
  - One mitigation action for every hazard of concern!



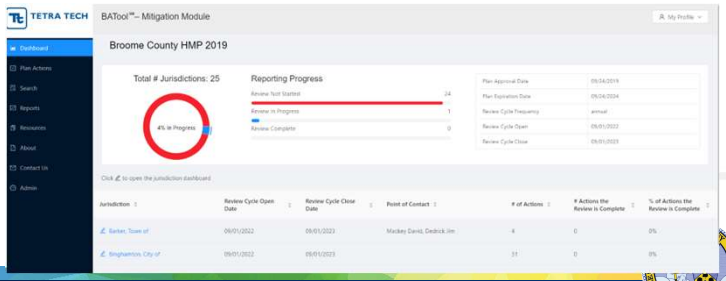
Review Your Previous Mitigation Strategy

BATool[SM] Program

TETRA TECH

- Update the 2019 mitigation actions through the BATool[SM] – less paperwork!
- Refresher training for planning partners
- Populate 2024 mitigation actions





Phase 6 – Plan Maintenance

TETRA TECH

- Develop a game plan for maintaining the 2024 HMP over the next 5 years
  - How often will you meet to discuss progress on the HMP?
  - How will the County and jurisdictions integrate the HMP?
  - How will you monitor progress on the 2024 mitigation actions?

Phase 7 – Draft and Submit the HMP

TETRA TECH

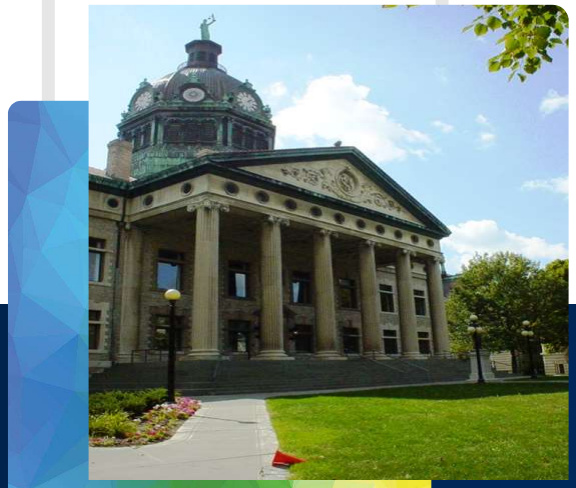
Volume I	AppendicesA	Volume II
Table of Contents	Sample Adoption Resolution	Planning Team
Executive Summary	Participation Matrix	Jurisdictional Annexes (25)
Introduction	Meeting Documentation	
Planning Process	Public and Stakeholder Outreach	
County Profile	Risk Assessment Information	
Risk Assessment	Mitigation Strategy Support Documentation	
Capability Assessment	Plan Maintenance Tools	
Mitigation Strategies	Linkage Procedures (if applicable)	
Plan Maintenance	Critical Facilities	
Acronyms and Abbreviations	High Hazard Potential Dam (HHPD)	
Glossary		
References		

Phase 8 - Plan Adoption & Integration

TETRA TECH

- Once FEMA approves the HMP, the County and each jurisdiction will need to adopt the plan
- Begin plan implementation and integration





Project Schedule

Upcoming meetings and key milestones throughout the HMP update process

25

Schedule

TETRA TECH

1 Organizing the Planning Effort
- Kick-Off Meetings – TODAY!

2 Profile the Community and Existing Conditions
- Data collection – by end of August

3 Select, Profile, and Evaluate Impacts of Hazards of Concern
- Through November 2023

4 Assess Capabilities and Integrate Resources
- Through November 2023

5 Develop the Mitigation Strategy
- Review 2019 actions by August 2023
- Finalize goals by November 2023
- Identify 2024 actions by January 2024

6 Establish the Plan Maintenance Process
- Finalize by January 2024

7 Draft and Submit the Plan
- Draft by April 2024
- Draft to NYSDHSES by May 2024
- Draft to FEMA by June 2024

8 Adopt the Plan

26



Questions?

27



28

Broome County, NY – Hazard Mitigation Plan 2025 Update
Planning Partnership Kick-Off Meeting | Meeting Minutes

Purpose of Meeting:	Planning Partnership Kickoff
Location of Meeting:	Chenango Town Hall, Binghamton, NY
Date of Meeting:	July 19, 2023 | 11:00AM – 12:00PM

Attendees:

- **Sussex County**
  - Robert Haffner, Sussex County Division of Emergency Management
  - Jen Van Der Wende, Sussex County Division of Emergency Management
  - Ashley Havens, Division of Public Works; Office of Roads
  - David Kunz, Manager, GIS Management
  - Scott House, Division of Public Works; Office of Roads
- **Andover (Twp)**
  - Chief Eric Danielson, Emergency Management Coordinator
  - Stephanie Pizzulo, Land Use Administrator
- **Byram (Twp)**
  - Joseph Sabatini, Township Manager
  - Mike Orgera, Superintendent - DPW
  - Phil Crosson, Deputy Manager
- **Hampton (Twp)**
  - Edward Hayes, Emergency Management Coordinator
  - Jessica M. Caruso, Township Administrator
- **Hardyston (Twp)**
  - Michael Vreeland, Engineer
- **Lafayette (Twp)**
  - Jim Ando, Lafayette DPW
  - Michael Vreeland, Engineer
  - Richard Hughes, Committeeman/EMC
  - Stephanie Pizzulo, Land Use Administrator
- **Montague (Twp)**
  - Dave Coss, OEM Coordinator
  - Kyle Gottemoller, OEM
- **Wantage (Twp)**
  - Michael Restel, Administrator
- **Newton (T)**
  - Dan Finkle, Deputy OEM Coordinator
  - Kimberly Williams, Community Development Director
- **Ogdensburg (B)**
  - Michael Vreeland, Engineer
- **Sandyston (Twp)**
  - Scott House, OEM
- **Sparta (Twp)**
  - James Zepp, Director of Public Works
  - Tom McIntyre, Deputy OEM Coordinator
- **Stanhope (B)**
  - Brian McNeilly, Borough Administrator
- **Stillwater (Twp)**
  - Michael Vreeland, Engineer
- **Sussex (B)**
  - Floyd Southard, OEM Coordinator
  - Mario Poggi, Economic Development Committee
- **Vernon (Twp)**
  - Dan Young, Police Chief/Deputy OEM Coordinator
  - Ed Babcock, Director of Public Works
  - Howie lazier
- **Walpack (Twp)**
  - Michael Vreeland, Engineer
- **NJSP**
  - Clinton Pagano, SFC, NJOEM North Region
- **Tetra Tech**
  - Alison Miskiman, Tetra Tech
  - Heather Apgar, Tetra Tech

Agenda Summary: The purpose of the meeting was to introduce the Planning Partnership and contract consultant, provide an overview of the hazard mitigation planning process, and to begin the information gathering processes and update the hazards of concern.

Item No.	Description	Action item(s):
1	**Introductions** – • Each person on the call was asked to include their name and municipality in the meeting chat.	-

2	**Hazard Mitigation Overview** • Mitigation is a sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event • A Hazard Mitigation Plan (HMP) provides an overview of the impacts of natural hazards on communities and is a roadmap to reducing the impact of these hazards. ○ Attendees were asked to take a quick poll related to the hazards occurring the most in the County since 2021; majority indicted severe storms and winter storms • For the 2024 update, we will be following the revised April 2023 FEMA guidance for local plans	-

3	**Project Organization** –
	• To complete the HMP update, we will work with individuals, agencies, neighboring jurisdictions, businesses, and other partners
	• The project is organized by the following –
	  ○ Core Planning Team - made up of Sussex County OEM and Tetra Tech. This is a small group that will meet frequently to ensure the project stays on schedule and that we meet all State and FEMA requirements.
	  ○ Steering Committee - responsible for providing guidance and leadership throughout the planning process. They will actively contribute, review and provide feedback on plan sections, update the plans' goals and objectives, finalize the list of hazards of concern, and identify mitigation actions.
	  ○ Planning Partnership – represents the participating jurisdictions. They will attend meetings, provide information, identify mitigation actions, and adopt the HMP.
	  ○ Stakeholders - must be engaged throughout the planning process. At a minimum, this group should include neighboring counties, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and nonprofit organizations. We will put together a draft list of stakeholders and ask for your input.
	  ○ NJOEM - provide the County guidance throughout the HMP update and will review/approve the plan before it is submitted to FEMA.
		-

4	**Planning Process Overview**
	• Following an 8-phase approach to update the HMP
	  1. Planning Process – ongoing throughout the update
	  2. Risk Assessment – identifies the risks of each hazard included in the plan
	  ▪ Dam Failure
	  ▪ Disease Outbreak
	  ▪ Drought
	  ▪ Earthquake
	  ▪ Extreme Temperature
	  ▪ Flood
	  ▪ Geologic Hazards
	  ▪ Hurricane & Tropical Storm
	  ▪ Infestation & Invasive Species
	  ▪ Nor'Easter
	  ▪ Severe Weather
		Tetra Tech –
		• Provide survey link for input on critical facilities and lifelines
		• Provide outreach materials
		• Provide tools to Planning Partnership to collect input on jurisdictional annexes
		
		Planning Partnership –
		• Provide input on the hazards of concern (https://www.surveym

	▪ Severe Winter Weather ▪ Wildfire 3. Public Involvement Strategy – ongoing throughout the plan update; we will use the County's website and StoryMap to help with outreach 4. Mitigation Strategy – review/finalize goals/objectives for 2024 HMP; review existing capabilities; review 2021 mitigation strategies and provide status; identify new strategies for the 2024 update 5. Plan Maintenance – determine the maintenance schedule of the 2024 HMP 6. Plan Update and Deliverables – update all sections of the HMP; provide to NJOEM and FEMA for review and approval 7. Plan Adoption – the County and each participating municipality will adopt the plan after the HMP is approved by FEMA 8. Project Management and Coordination – ongoing throughout the update	onkey.com/r/SussexHMPHOCs) • Assist with public outreach using materials provided by Tetra Tech • Provide input on 2021 mitigation actions
5	**Project Schedule** • Steering Committee Kick-Off – March 15, 2023 • Planning Partnership Kick-Off – March 15, 2023 • Finalize goals, objectives, and hazards of concern – mid-summer • Risk Assessment Meeting – late-summer • Mitigation Strategy Meeting – mid-late fall • Plan maintenance – end of 2023 • Public Draft – February 2024 • Draft to State for Review – May 2024 • Final Draft to FEMA – August 2024 • Plan Adoption – September-October 2024	-
6	**Next Steps** – • Steering Committee and Planning Partnership to provide input on problem areas and new development ○ Problem areas - https://survey123.arcgis.com/share/18182eea337346b1ae69abfb9240ff58 ○ New Development - https://survey123.arcgis.com/share/1428c68aac87457e920c55a569b61241 • Departments and Municipalities to share outreach materials and links to surveys/HMP website ○ Please send screenshots/links to Tetra Tech so we can document in the plan	**Tetra Tech** • N/A **Planning Partnership** – • Provide input on problem areas - https://survey123.arcgis.com/share/18182eea337346b1ae69abfb9240ff58 • Provide input on new development - https://survey123.arcgis.com/share/1428c68aac87457e920c55a569b61241

Meeting Date: Wednesday, July 19, 2023
Meeting Location: Chenango Community Center
Meeting Topic: Planning Partnership Kick-Off Meeting

Name	Jurisdiction	Title	Email
Robert Hoag	Nanticoke	Highway Supervisor	nanticokehighway@stny.rr.com
Bob Lawler	Town of Maine	Code Enforce	lawler@townofmaine.org
Ron Henderson	Town of Lisle	Highway Supt.	Lislehwy@outlook.com
Gerald Mackey	Village of Lisle	Mayor	JMMACKEY@YAHOO.COM
Paul VanSlyke	Town of Sanford	Planning Board	PVANSLYKE555@GMAIL.COM
David Decker	Village of Windsor	Public Works Supt	Deck43vow@gmail.com
Marina A. Lane	Town of Union	Sr. Planner	m.lane@townofunion.com
Jim Dedrick	Town of Barker	Code Enforcement	barkercode@stny.rr.com
Jo Ann Klenovic	Town of Chenango	Supervisor	Supervisor@Townofchenango NY.GOV
Joyanne Kasmarcik	Town of Chenango	Secretary Highway	highway@townofchenango NY.GOV
Jason Somers	Village of Whitney Point	Mayor	mayor@whitneypoint.org
Kyle Doyle	Town of Dickinson	Code Enforcement	kdoyle@townofdickinson.com

Name	Jurisdiction	Title	Email
Ron Lake	City T/O Dickinson	Eng	rblake@cityofbinghamton.gov
JOHN MASTRONARDI	CONKLIN, KIRKWOOD (T) FENTON, WINDSOR	ENGINEER	jmastronardi@griffithsengineering.com
John Wilkinson	NYS DHSES	Env. Spec.	john.wilkinson@dhses.ny.gov
Kevin Clapp	NYS DHSES	Supervisor - Hm Planning	kevin.clapp@dhses.ny.gov

Name	Jurisdiction	Title	Email
John Broughton	Village of Port Dickinson	CEO	JBroughton1@stny.rr.com
Franco A. Incitti	City of Binghamton	Assistant City Engineer	fainciitti@cityofbinghamton.gov
Elizabeth Pfister	Town of Windsor	Town Clerk	windsortc1@echoes.net
Martin Haley	County Broome	Engineer	martin.haley@[illegible].gov
Roy Willis	Nanticoke	Supervisor	rwillis@Allegiancetrucks.com
Scott Whittaker	Nanticoke	Town Board	
Gene Hulbert Jr	Village Port Dickinson	Engineer	ghhe@hulberteng-ls.com
Bradford McAuley	Town of Colesville	Enforcement	Colesvilleenf@frontiernet.net
Charles Monasse	Town of Triangle	Supervisor	supervisor@townoftriangle.org
Vernon Myers	Town of Vestal	Engineer	vmyers@vestalny.gov
Nick Poppa	Town of Binghamton Council	C/O	COPE@townofbinghamton.org
Zach Soboleski	Town of Binghamton	Code	codeassist@townofbinghamton.com

Broome County Multi-Jurisdictional Hazard Mitigation Plan 2024 Update



Planning Partnership
Kick-Off Meeting
July 19, 2023 | 1:00 pm

1



Today's Agenda

1. Welcome and Introductions
2. Hazard Mitigation Planning Overview
3. Project Organization
4. Planning Partnership Responsibilities
5. Planning Process Overview
6. Schedule
7. Questions/Next Steps/Wrap Up



2



Hazard Mitigation Overview

Mitigation planning happens before a disaster strikes. It results in safer, more resilient communities – reducing risk for the residents, businesses, and critical services in Broome County.

3

Hazard Mitigation Planning Overview

TETRA TECH



- ✓ Authorized by the Disaster Mitigation Act of 2000
- ✓ Provides an overview of the impacts of natural hazards on communities
- ✓ Provides a roadmap to reducing the impact of these hazards
- ✓ Requires a FEMA-approved natural hazard mitigation plan to be eligible for Pre-Disaster Mitigation Funding
- ✓ 5-year updates required to maintain eligibility

1) What is hazard mitigation?
2) Why update the plan?
3) What's new for the 2024 HMP?
4) What is the process?

Broome County Hazard Mitigation Plan 2024 Update

4

What is Hazard Mitigation?

TETRA TECH

Mitigation is a sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event

-or-

Any action taken to reduce future disaster losses



"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)

5

Why Update?

TETRA TECH

- The mitigation plan update will:
  - Help prepare for and mitigate hazards
  - Eligibility for pre- and post-disaster mitigation funding
    - Since 2005, Broome County received over $32 million in FEMA funding
  - Incorporate new FEMA requirements
  - Support CRS participation/rating
- What is at risk in Broome County?
- Which hazard do you think occurred the most since 2019?
  - **Scan this code to vote!**

January 2019 – July 2023	
Hazard	**Occurrences**
Drought Conditions	41
Earthquake	0
Extreme Temperature (heat/cold)	2
Flood	35
Severe Weather	213
Severe Winter Weather	12
Wildfire	9
TOTAL	**312**

Sources: NOAA NCEI 2023; NYSDEC 2023; USGS 2023; USDM 2023

6

Differences from the 2019 Planning Process

TETRA TECH

- Involvement – engaged and actively participating
- Public and stakeholder outreach
- Socially vulnerable and underserved communities
- Climate change
- Mitigation actions for every hazard of concern

7



Project Organization

Working with individuals, agencies, neighboring jurisdictions, businesses, and other partners for a successful mitigation planning process.

8

Project Organization

TETRA TECH

Core Planning Team
Broome County Planning
Tetra Tech

Steering Committee

Planning Partnership

Stakeholders

FEMA
Homeland Security & Emergency Services

NYSDHSES and FEMA

9

Planning Partnership Roles and Responsibilities

TETRA TECH

- Actively participate throughout the process –
  - Coordinate and facilitate local efforts
  - Attend meetings
  - Provide information and feedback (e.g., complete municipal worksheets)
  - Involve the public and community stakeholders in the planning process
  - Identify mitigation actions for your community
  - Adopt the plan
  - Implement the plan and monitor its progress
- Return your Letter of Intent to participate to let the County know you will be participating in the 2024 process

10

Letters of Intent to Participate

TETRA TECH

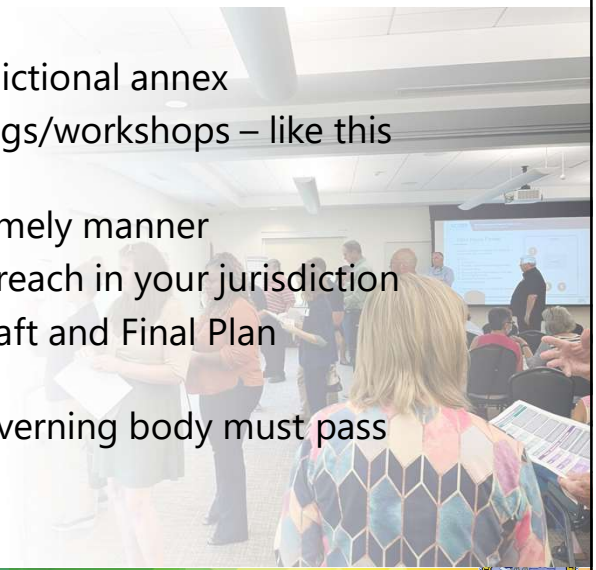
Jurisdiction	LOIP Received?	Jurisdiction	LOIP Received?
Barker	X	Lisle (T)	
Binghamton (C)	X	Lisle (V)	
Binghamton (T)	X	Maine	
Chenango	X	Nanticoke	X
Colesville	X	Port Dickinson	X
Conklin	X	Sanford	X
Deposit	Not Participating	Triangle	
Dickinson		Union	X
Endicott	X	Vestal	X
Fenton	X	Whitney Point	
Johnson City	X	Windsor (T)	X
Kirkwood		Windsor (V)	X

11

How Do You Participate?

TETRA TECH

- Assist with the update of your jurisdictional annex
- Attend planning partnership meetings/workshops – like this one!
- Provide data and information in a timely manner
- Support public and stakeholder outreach in your jurisdiction
- Review and provide feedback on Draft and Final Plan documents
- Facilitate the adoption process – governing body must pass an Adoption Resolution
- Implement and Maintain the Plan



12



Planning Process Overview

A well-defined planning process is essential to the success of Broome County's HMP Update.

13

Planning Process Overview

TETRA TECH

1 Organizing the Planning Effort
2 Profile the Community and Existing Conditions
3 Select, Profile, and Evaluate Impacts of Hazards of Concern
4 Assess Capabilities and Integrate Resources
5 Develop the Mitigation Strategy
6 Establish the Plan Maintenance Process
7 Draft and Submit the Plan
8 Adopt the Plan

14

Project Organization

TETRA TECH

Core Planning Team
Broome County Planning
Tetra Tech

Steering Committee

Planning Partnership

Stakeholders

FEMA
Homeland Security & Emergency Services

NYSDHSES and FEMA

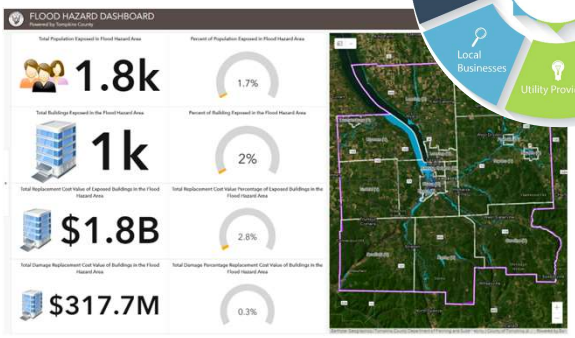
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Public Involvement Strategy

TETRA TECH

- Public Outreach Toolkit
  - Social media templates and posts
  - Press release templates
  - Printable materials
- Surveys
  - Stakeholders
  - Neighboring communities
  - Public
- County Website
- StoryMap





16

Phase 2 - Profile the Community and Existing Conditions

TETRA TECH

- **Data collection and inventory assets**
- **Update critical facility/community lifeline inventory**
  - Critical Facilities provide essential services to the community, especially before, during, and after a disaster.
  - Community Lifelines provide services that allow continuity of operations of critical business and government functions, and crucial to health and safety of residents.



A lifeline enables the continuous operation of critical government and business functions and is essential to human health and safety or economic security.

New and Future Development

TETRA TECH

- Where is development occurring in your municipality?
  - Provide input online - https://arcg.is/1K5LKz
- How many NEW building permits have you issued since 2019?
  - Complete the worksheet you received today

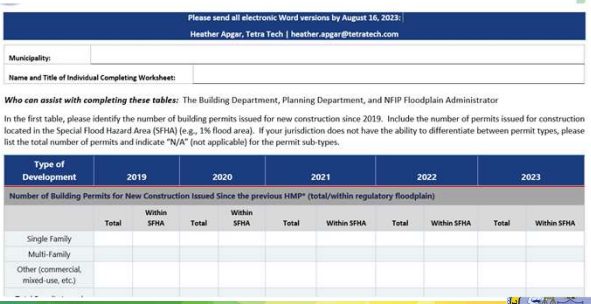

BROOME COUNTY - New Development Survey

Name*

Your Agency/Department/Municipality*

To add more than one new development project entry to this survey, select the (+) below and answer the required questions.

To delete a new development project entry, select the number that represents the new development project you want to delete and click on the garbage can.


Please send all electronic Word versions by August 16, 2023:
Heather Apgar, Tetra Tech | heather.apgar@tetratech.com

Municipality:

Name and Title of Individual Completing Worksheet:

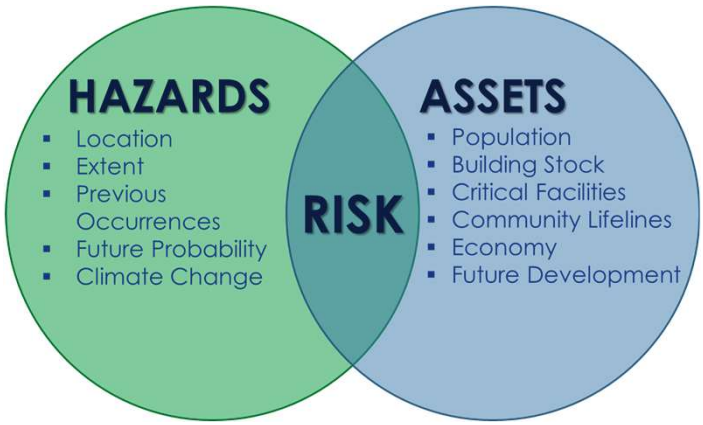
Who can assist with completing these tables: The Building Department, Planning Department, and NFIP Floodplain Administrator

In the first table, please identify the number of building permits issued for new construction since 2019. Include the number of permits issued for construction located in the Special Flood Hazard Area (SFHA) (e.g., 1% flood area). If your jurisdiction does not have the ability to differentiate between permit types, please list the total number of permits and indicate "N/A" (not applicable) for the permit sub-types.

Type of Development	2019		2020		2021		2022		2023	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family										
Multi-Family										
Other (commercial, mixed-use, etc.)										

Phase 3 - Risk Assessment

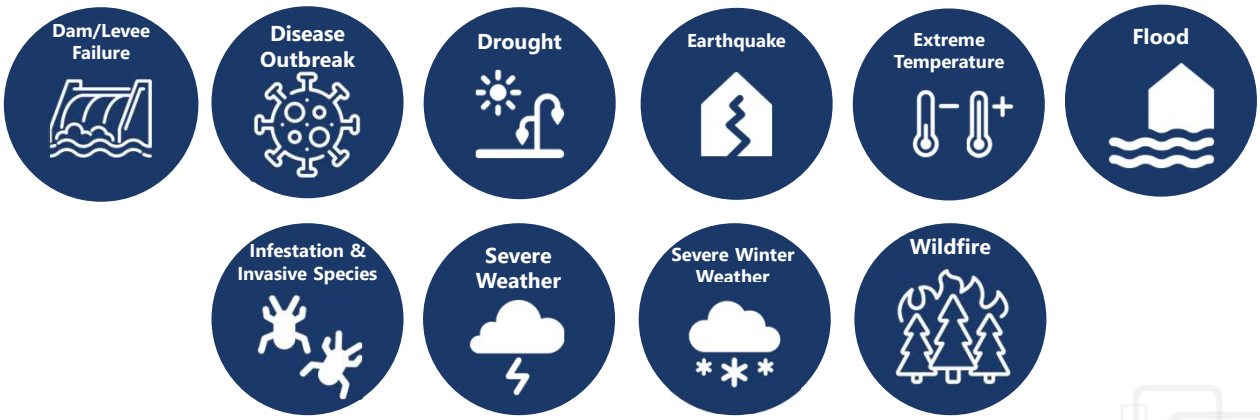
TETRA TECH



- Review and update list of hazards of concern
- Update hazard profiles
- Complete risk assessment
- Review risk assessment results with Steering Committee and Planning Partnership

Hazards of Concern

TETRA TECH



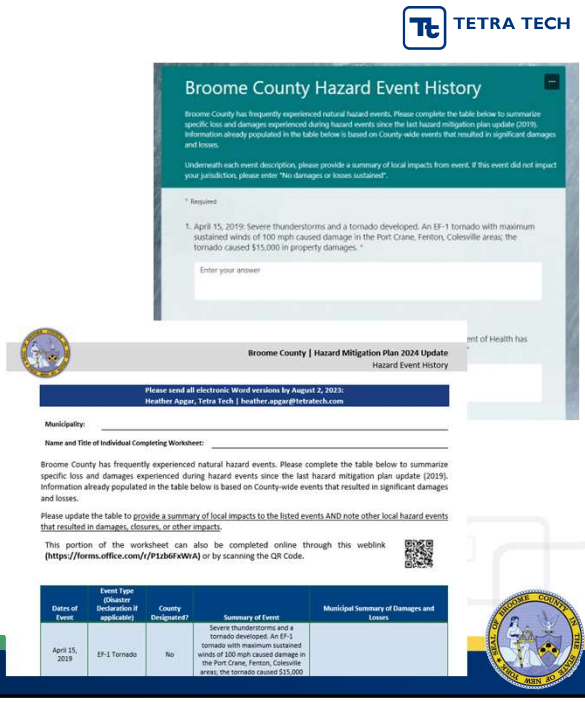
EXERCISE Confirming Hazards of Concern

- **Looking at the hazards included in the 2019 plan…**
  - Have additional hazards impacted the County since 2019?
  - Have hazards been mitigated and no longer cause damage?
  - Should hazards be regrouped to align with the current NYS HMP?
  - Should additional hazards be included?
- **How have hazards affected the county?**
- **Where are your problem areas?**
- **Input needed!**
  - Refer to the worksheet we provided at the start of the meeting. Complete the worksheet or the online form.

21

Hazard Event History

- We need to know how events have impacted your community over the last 5 years
- Where are your problem areas?
- Complete the worksheet or the online form
- Input due by <u>August 16th</u>



Broome County Hazard Mitigation Plan 2024 Update

22

Phase 4 – Capabilities and Integration

TETRA TECH

- Review existing capabilities and identify how each reduces risk and if it incorporates elements of the HMP
- Describe current and future integration process for the County and each jurisdiction

Regulatory
- Current ordinances that integrate mitigation (e.g., local flood damage prevention ordinance, stormwater management, wetlands protection, etc.).

Operational and Administrative
- County/community boards/departments that integrate mitigation in their current processes and how.

Funding
- Funding sources at the local level that may be used to fund mitigation projects.

Education/Outreach
- Current action the County/community is taking to integrate mitigation in their outreach and notifications to residents.

Adaptive Capacity
- Review the County and municipalities' adaptive capacity to deal with the potential impacts of climate change.

NFIP Questionnaire

TETRA TECH

- FEMA requires any municipality that participates in the NFIP to provide details on how they implement the NFIP
- Complete the handout or the online form
- Input due by <u>August 16th</u>



Phase 5 – Mitigation Strategy

- Review 2019 mitigation actions
- Review and update goals/objectives
- Problem statements and potential solutions
  - What specific actions will be taken to reduce hazard risk?
- Develop an action plan
  - How will the actions be prioritized and implemented?
  - One mitigation action for every hazard of concern!

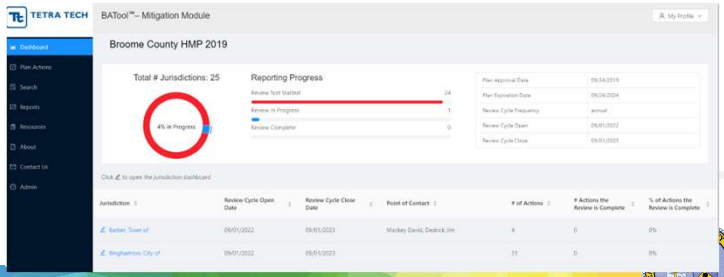


Review Your Previous Mitigation Strategy

BATool[SM] Program

- Update the 2019 mitigation actions through the BATool[SM] – less paperwork!
- Refresher training for planning partners
- Populate 2024 mitigation actions





Phase 6 – Plan Maintenance

TETRA TECH

- Develop a game plan for maintaining the 2024 HMP over the next 5 years
  - How often will you meet to discuss progress on the HMP?
  - How will the County and jurisdictions integrate the HMP?
  - How will you monitor progress on the 2024 mitigation actions?

Phase 7 – Draft and Submit the HMP

TETRA TECH

Volume I	Appendices	Volume II
Table of Contents	Sample Adoption Resolution	Planning Team
Executive Summary	Participation Matrix	Jurisdictional Annexes (25)
Introduction	Meeting Documentation	
Planning Process	Public and Stakeholder Outreach	
County Profile	Risk Assessment Information	
Risk Assessment	Mitigation Strategy Support Documentation	
Capability Assessment	Plan Maintenance Tools	
Mitigation Strategies	Linkage Procedures (if applicable)	
Plan Maintenance	Critical Facilities	
Acronyms and Abbreviations		
Glossary		
References		

Phase 8 - Plan Adoption & Integration

- Once FEMA approves the HMP, the County and each jurisdiction will need to adopt the plan
- Begin plan implementation and integration



29



Project Schedule

Upcoming meetings and key milestones throughout the HMP update process

30

Schedule

TETRA TECH

1 Organizing the Planning Effort
2 Profile the Community and Existing Conditions
3 Select, Profile, and Evaluate Impacts of Hazards of Concern
4 Assess Capabilities and Integrate Resources
5 Develop the Mitigation Strategy
6 Establish the Plan Maintenance Process
7 Draft and Submit the Plan
8 Adopt the Plan

Kick-Off Meetings – TODAY!

Data collection – by end of August

Through November 2023

Through November 2023

Finalize by January 2024

- Draft by April 2024
- Draft to NYSDHSES by May 2024
- Draft to FEMA by June 2024

- Review 2019 actions by August 2023
- Finalize goals by November 2023
- Identify 2024 actions by January 2024

31



Questions?

32


Broome County Project Contacts
Stephanie Brewer, Senior Planner
607-778-2390 | Stephanie.Brewer@broomecountyny.gov
Tetra Tech Project Contacts
Heather Apgar, CFM
(973) 630-8046 | heather.apgar@tetratech.com
Thank You!

33

2019 Goal	Update Suggestion for 2023 HMP	Keep As-Is, Use Update Suggestion, Other?
Protect Life, Property, and Economy	Protect local communities, property, and the economy, ensuring that socially vulnerable and underserved populations are prioritized in all mitigation activities and decisions.	
Increase Public Awareness and Preparedness	Increase, develop and implement public education and outreach programs to provide necessary resources to increase public awareness and understanding of the risks, resilience strategies, and safety measures associated with natural hazards across Broome County.	
Encourage Partnerships	Strengthen partnerships between government agencies, private sector businesses, and non-profits to provide resources and their involvement in reducing risk and mitigating hazards.	
Provide for Enhanced Emergency Services		
Improve the resilience and strength of the built environment and communities to reduce impacts of natural hazard events.	Build stronger by promoting mitigation actions that emphasize sustainable construction and design measures to reduce or eliminate the impacts of natural hazards now and in the future.	
	Address Long-Term Vulnerabilities from High Hazard Dams	
	Enhance coordination between local, county, state, and federal agencies by understand the impact of hazards in Broome County and developing policies, procedures, and strategies to effectively manage and reduce risk.	
	Applying for grant funding – need to re-word • *Performing projects that reduce the impact of natural hazards in order to increase resiliency and enhance the ability to recover*	
	Integrate goals, objectives, and mitigation actions from the Broome County Hazard Mitigation Plan into existing and future plans, codes, ordinances, and regulations to create a more resilient Broome County.	

2019 Goal	Update Suggestion for 2023 HMP	Keep As-Is, Use Update Suggestion, Other?
	Encourage the development and implementation of long-term, cost effective, and resilient mitigation projects to preserve or restore the functions of natural systems.	

2019 Objective	Update Suggestion for 2023 HMP	Keep As-Is, Use Update Suggestion, Other?
Objective 1-1: Work with all levels of government to implement publicly led mitigation projects to protect lives and property by making homes, businesses, infrastructure, and critical facilities more resistant to hazards.		
Objective 1-2: Educate and encourage private property owners to take preventive mitigation actions in areas that are especially vulnerable to hazards.		
Objective 1-3: Better characterize flood hazard events by conducting additional hazard studies, improved flood hazard mapping and creating flood and dam inundation models.		
Objective 1-4: Review existing local laws and ordinances, building codes, safety inspection procedures, and applicable rules to ensure that they employ best practices for the protection of buildings and environmental resources.		
Objective 1-5: Ensure that public and private facilities and infrastructure meet established building codes and rigorously enforce the codes to address any identified deficiencies.		
Objective 1-6: Encourage homeowners, renters, and businesses to purchase insurance coverage for damages caused by hazards.		

2019 Objective	Update Suggestion for 2023 HMP	Keep As-Is, Use Update Suggestion, Other?
Objective 1-7: Fully integrate the recommendations of this plan into existing local and county laws, plans, ordinances, natural resource management activities and programs to encourage resilient and sustainable efforts throughout the county.		
Objective 1-8: Implement mitigation activities that encourage environmental stewardship and protection of the environment.		
Objective 1-9: Minimize new development within hazard prone areas.		
Objective 1-10: Incorporate hazard mitigation planning into post disaster recovery projects and operations.		
Objective 1-11: Mitigate impacts of natural hazards to businesses, communities and local economies.		
Objective 1-12: Ensure that hazard mitigation measures and allocation of mitigation funds are protective of the county's underserved and vulnerable populations so that hazards do not have a disproportionately negative impact on those populations and improve coordination with those populations to ensure that hazard, risks, and preparedness options are well understood.		
Objective 2-1: Develop and implement additional education and outreach programs to increase public awareness of the hazard risks and educate the public on specific, individual preparedness activities. Specifically target residents, businesses, realtors, insurance agents, and mortgage lenders.		

2019 Objective	Update Suggestion for 2023 HMP	Keep As-Is, Use Update Suggestion, Other?
Objective 2-2: Inform government officials, school districts, and non-profits about tools, partnership opportunities, funding resources, and government initiatives to assist in implementing mitigation activities.		
Objective 2-3: Enhance the technological capabilities of the jurisdictions and agencies in the county to better profile and assess exposure of hazards.		
Objective 2-4: Provide comprehensive information online for local emergency service providers, municipalities, the media and the public during and immediately following disaster and hazard events including emergency traffic routes, restrictions and road closures, evacuations, shelter locations, and others		
Objective 2-5: Increase public awareness of existing warning systems		
Objective 2-6: Establish consistent message for "State of Emergency" declarations and educate the public on the meaning of those declarations.		
Objective 3-1: Strengthen inter-jurisdiction and inter-agency communication, coordination, and partnerships to inform agencies of local project priorities and to foster hazard mitigation strategies and/or projects designed to benefit multiple jurisdictions.		
Objective 3-2: Identify and implement ways to engage public agencies with individual citizens, non-profit organizations, business, and industry to implement mitigation activities		

2019 Objective	Update Suggestion for 2023 HMP	Keep As-Is, Use Update Suggestion, Other?
more effectively.		
Objective 3-3: Encourage shared services in acquiring, maintaining, and providing emergency services and equipment, and planning and executing mitigation projects.		
Objective 3-4: Implement tools to enhance capability to collect, analyze and share data amongst partners.		
Objective 4-1: Where appropriate, coordinate and integrate hazard mitigation activities with existing local emergency operations plans.		
Objective 4-2: Identify the need for, and acquire, any special emergency services, training, and equipment to enhance response capabilities for specific hazards.		
Objective 4-3: Review and improve, if necessary, emergency traffic routes; communicate such routes to the public and communities.		
Objective 4-4: Ensure continuity of governmental operations, emergency services, and essential facilities at the county and local level during and immediately after disaster and hazard events.		
Objective 4-5: Improve communications to residents and businesses during and after disasters.		
Objective 4-6: Improve warnings prior to disasters.		
Objective 4-7: Encourage NIMS training for all appropriate personnel including elected officials.		

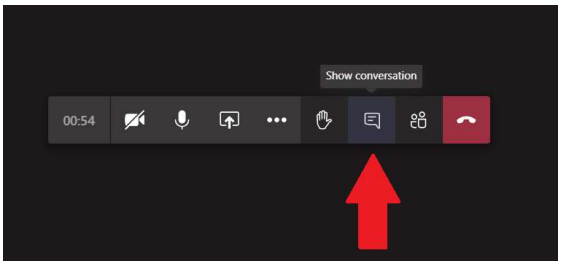
2019 Objective	Update Suggestion for 2023 HMP	Keep As-Is, Use Update Suggestion, Other?
Objective 5-1: Improve or protect vital infrastructure and critical facilities to reduce the disruption of activities after a natural hazard event.		
Objective 5-2: Promote sustainable land development practices.		
Objective 5-3: Decrease the potential local economic loss and maintain local and government business continuity after a natural hazard event.		
Objective 5-4: Encourage the establishment of policies at the local level to ensure the prioritization and implementation of mitigation projects that benefit essential facilities, services, and infrastructure.		
Objective 5-6: Encourage the establishment of policies that reflect the best available information regarding current and future hazard risk.		
Objective 5-6: Identify technological solutions that may help to improve the resiliency and redundancy of our infrastructure and enhance our ability to inform the public during a disaster.		
Objective 5-7: Encourage building and rebuilding practices that address resiliency through higher standards and sustainable design to resist impacts of natural hazards.		
Objective 6-1: Address long-term vulnerabilities from high hazard dams to • Ensure dam infrastructure is routinely inspected and maintained. • Ensure Emergency Action Plans are		

2019 Objective	Update Suggestion for 2023 HMP	Keep As-Is, Use Update Suggestion, Other?
developed and updated. • Support the identification and access to funding to repair/replace dams.		
Objective 7-1: Continue to participate in federal, state, and local programs and efforts that focus on practices that support or enhance resiliency, including programs to ensure the maintenance and repair of critical assets like bridges and dams.		
Objective 7-2: Improve hazard data through studies, research, and mapping to enhance information related to the impacts of hazards and related risks, vulnerability, and losses.		
Objective 8-1: Ensure jurisdictions and organizations in the county have the resources, tools, and capacity necessary to capitalize on funding opportunities.		
Objective 10-1: Encourage the use of green and natural infrastructure.		

Welcome!

TETRA TECH

- If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.
  - Bring your mouse to the lower part of the screen until a set of buttons appears. They may also be at the top of your screen.
  - Click "Show Conversation."



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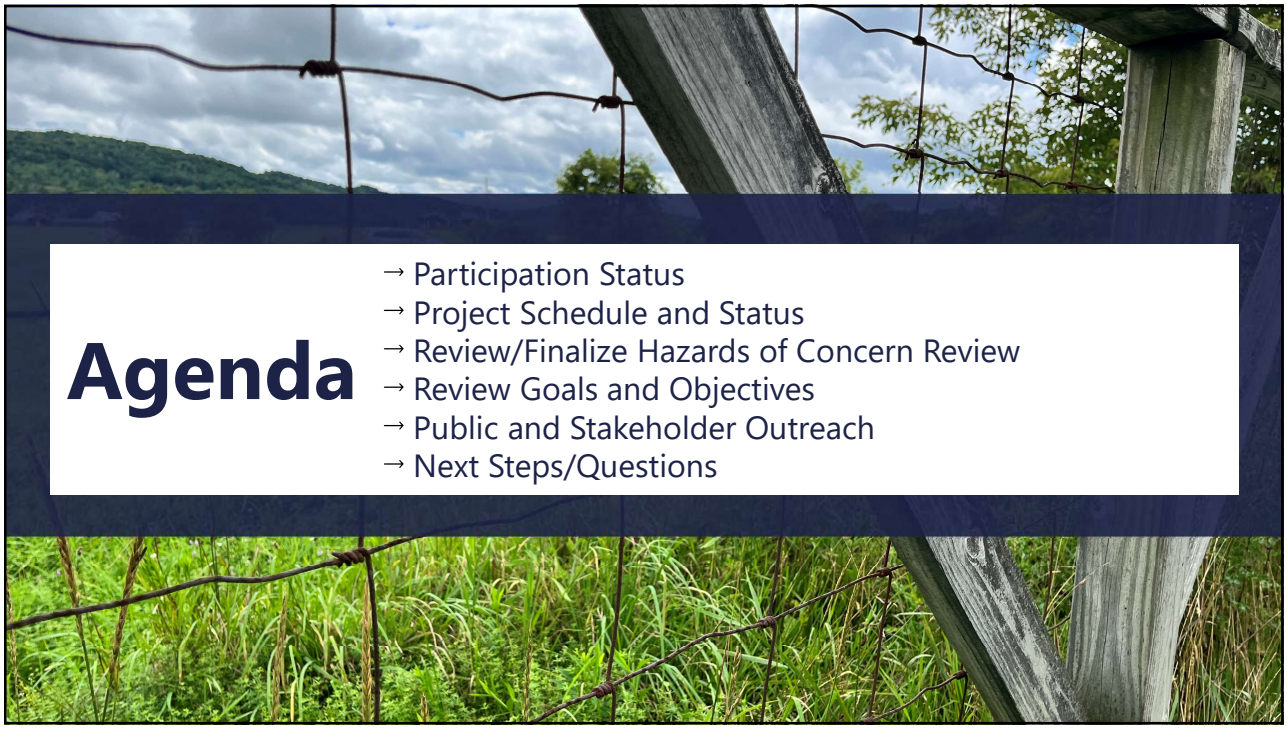
Broome County Multi-Jurisdictional Hazard Mitigation Plan 2024 Update

Steering Committee – Goals, Objectives, and Hazards of Concern

September 14, 2023



2



Agenda

- → Participation Status
- → Project Schedule and Status
- → Review/Finalize Hazards of Concern Review
- → Review Goals and Objectives
- → Public and Stakeholder Outreach
- → Next Steps/Questions

3

Participation Status

TETRA TECH

- Annex updates are in progress
- Worksheets were sent out to all participating jurisdictions – Tetra Tech is following up with each to help complete the worksheets
- Status of Previous Mitigation Actions –
  - Tetra Tech will work with the jurisdictions to get updates; only two jurisdictions utilized the BATool to update
- Critical Facilities
  - Some input received

4

Schedule

TETRA TECH



5

Project Status

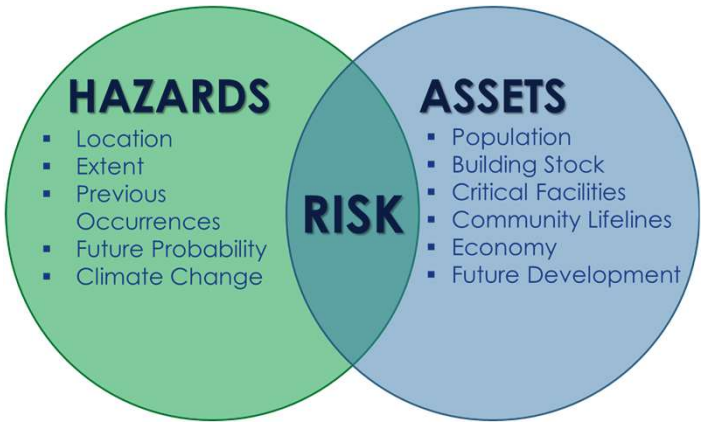
TETRA TECH

Data Collection – In Progress	Risk Assessment - In Progress	Public Involvement - Ongoing	Mitigation Strategy
• Plan Collection – In progress • General Building Stock – Update in Progress • Critical Facility Inventory – Update In Progress	• Hazard Profile Drafts – In progress • Vulnerability Assessment – In progress • Risk Assessment Meeting – **TBD**	• Social Media Posts • Public Survey • Stakeholder Surveys • Public Outreach –Tetra Tech to provide materials	• Confirm Goals And Objectives – Today! • Confirm Hazards of Concern – Today! • Municipal Annex Updates - In Progress • Mitigation Workshop – **TBD** • Develop Mitigation Strategy – Pending • We will need to have a meeting with the CPT to identify new actions

6

Risk Assessment

TETRA TECH

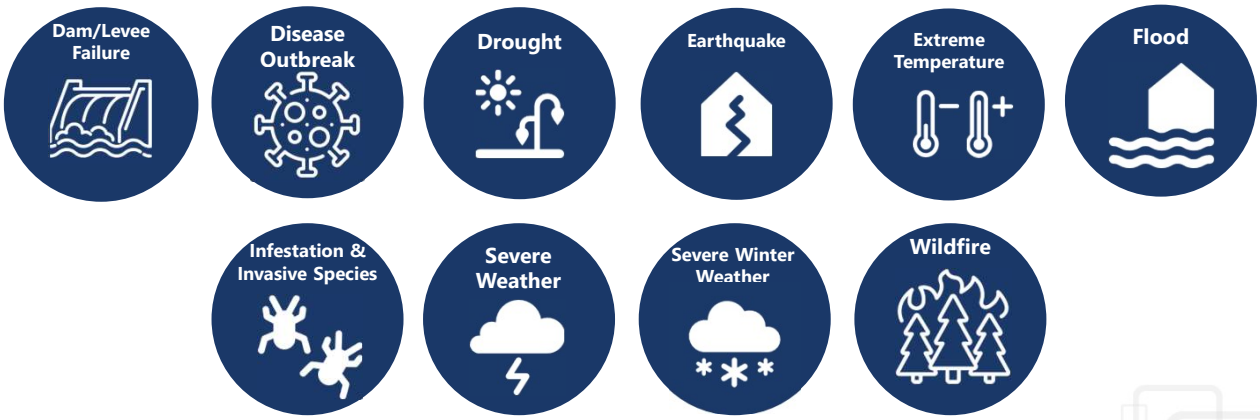


- Review and update list of hazards of concern
- Update hazard profiles
- Complete risk assessment
- Review risk assessment results with Steering Committee and Planning Partnership

7

Hazards of Concern

TETRA TECH



8

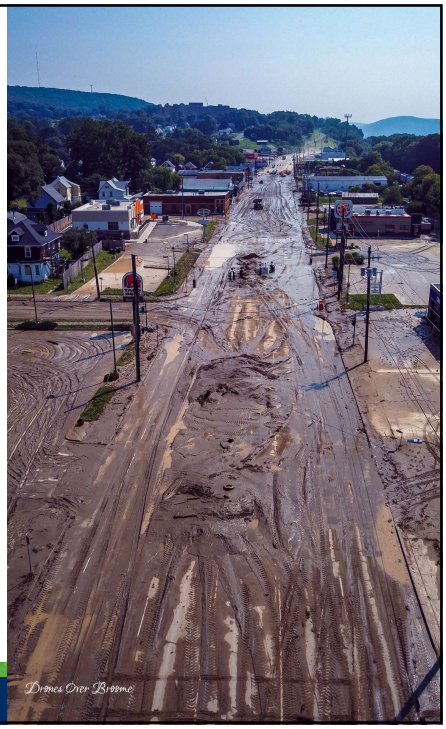
Hazards of Concern

- Dam/Levee Failure (new to 2024)
  - 100% voted to include in the 2024 HMP update
- Disease Outbreak (new to 2024)
  - 89% voted to include in the 2024 HMP update
  - 11% voted to not separate into its own hazard
- Drought
  - 11.1% voted increase in frequency/severity/location
- Earthquake
  - 55.6% voted no change
  - 11.1% voted to remove from update
- Extreme Temperature
  - 11.1% voted increase in frequency/severity/location
- Flooding (inland, flash, urban/stormwater, ice jam)
  - 11.1% voted increase in frequency/severity/location
- Invasive Species
  - 22.2% voted increase in frequency/severity/location
- Severe Storms
  - 22.2% voted increase in frequency/severity/location
- Severe Winter Weather
  - 11.1% voted increase in frequency/severity/location
- Wildfire
  - 55.6% voted no change

9

Hazards of Concern

- Are there any new or additional natural hazards that should be considered for the plan update? The following topics came from the survey:
  - Wildfire Smoke- will be addressed in the wildfire hazard profile
  - Little Snake Creek Flash Flooding- will be addressed in the flood hazard profile and in actions developed for relevant municipalities and the County
- Anything else?
  - Utility outages
  - Stormwater flooding

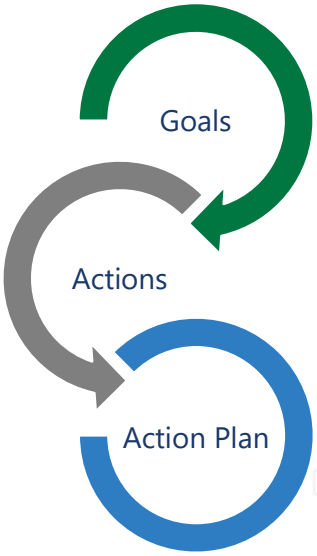


10

Mitigation Strategy

TETRA TECH

- Goals
  - What outcomes do you want to achieve?
- Actions
  - What specific actions will be taken to reduce risk from hazards?
- Action Plan
  - How will the actions be prioritized and implemented?



11

Goals and Objectives – Review and Update

TETRA TECH

Goal Number	Goal	Modify, Keep, or Remove?
1	Protect Life, Property, and Economy	
2	Increase Public Awareness and Preparedness.	
3	Strengthen Partnerships	
4	Provide for Enhanced Emergency Services.	
5	Improve the resilience and strength of the built environment and communities to reduce impacts of natural hazard events.	
6 - NEW	Address Long-Term Vulnerabilities from High Hazard Dams	

Goal Minimize new development in hazard-prone areas

Objectives Reduce the number of vulnerable structures in flood hazard areas.

Actions Amend zoning ordinance to permit only open space and uses within floodplains.

12

Goals and Objectives – Review and Update

TETRA TECH

Objectives	Modify, Keep, or Remove?
Objective 1-1: Work with all levels of government to implement publicly led mitigation projects to protect lives and property by making homes, businesses, infrastructure, and critical facilities more resistant to hazards.	
Objective 1-2: Educate and encourage private property owners to take preventive mitigation actions in areas that are especially vulnerable to hazards.	
Objective 1-3: Better characterize flood hazard events by conducting additional hazard studies, improved flood hazard mapping and creating flood and dam inundation models.	
Objective 1-4: Review existing local laws and ordinances, building codes, safety inspection procedures, and applicable rules to ensure that they employ best practices for the protection of buildings and environmental resources.	
Objective 1-5: Ensure that public and private facilities and infrastructure meet established building codes and rigorously enforce the codes to address any identified deficiencies.	
Objective 1-6: Encourage homeowners, renters, and businesses to purchase insurance coverage for damages caused by hazards.	
Objective 1-7: Fully integrate the recommendations of this plan into existing local and county laws, plans, ordinances, natural resource management activities and programs to encourage resilient and sustainable efforts throughout the county.	
Objective 1-8: Implement mitigation activities that encourage environmental stewardship and protection of the environment.	
Objective 1-9: Minimize new development within hazard prone areas.	
Objective 1-10: Incorporate hazard mitigation planning into post disaster recovery projects and operations.	
Objective 1-11: Mitigate impacts of natural hazards to businesses, communities and local economies.	
Objective 2-1: Develop and implement additional education and outreach programs to increase public awareness of the hazard risks and educate the public on specific, individual preparedness activities. Specifically target residents, businesses, realtors, insurance agents, and mortgage lenders.	
Objective 2-2: Inform government officials, school districts, and non-profits about tools, partnership opportunities, funding resources, and government initiatives to assist in implementing mitigation activities.	
Objective 2-3: Enhance the technological capabilities of the jurisdictions and agencies in the county to better profile and assess exposure of hazards.	
Objective 2-4: Provide comprehensive information online for local emergency service providers, municipalities, the media and the public during and immediately following disaster and hazard events including emergency traffic routes, restrictions and road closures, evacuations, shelter locations, and others	
Objective 2-5: Increase public awareness of existing warning systems	
Objective 2-6: Establish consistent message for "State of Emergency" declarations and educate the public on the meaning of those declarations.	

13

Goals and Objectives – Review and Update

TETRA TECH

Objectives	Modify, Keep, or Remove?
Objective 3-1: Strengthen inter-jurisdiction and inter-agency communication, coordination, and partnerships to inform agencies of local project priorities and to foster hazard mitigation strategies and/or projects designed to benefit multiple jurisdictions.	
Objective 3-2: Identify and implement ways to engage public agencies with individual citizens, non-profit organizations, business, and industry to implement mitigation activities more effectively.	
Objective 3-3: Encourage shared services in acquiring, maintaining, and providing emergency services and equipment, and planning and executing mitigation projects.	
Objective 3-4: Implement tools to enhance capability to collect, analyze and share data amongst partners.	
Objective 4-1: Where appropriate, coordinate and integrate hazard mitigation activities with existing local emergency operations plans.	
Objective 4-2: Identify the need for, and acquire, any special emergency services, training, and equipment to enhance response capabilities for specific hazards.	
Objective 4-3: Review and improve, if necessary, emergency traffic routes; communicate such routes to the public and communities.	
Objective 4-4: Ensure continuity of governmental operations, emergency services, and essential facilities at the county and local level during and immediately after disaster and hazard events.	
Objective 4-5: Improve communications to residents and businesses during and after disasters.	
Objective 4-6: Improve warnings prior to disasters.	
Objective 4-7: Encourage NIMS training for all appropriate personnel including elected officials.	
Objective 5-1: Improve or protect vital infrastructure and critical facilities to reduce the disruption of activities after a natural hazard event.	
Objective 5-2: Promote sustainable land development practices.	
Objective 5-3: Decrease the potential local economic loss and maintain local and government business continuity after a natural hazard event.	
Objective 5-4: Encourage the establishment of policies at the local level to ensure the prioritization and implementation of mitigation projects that benefit essential facilities, services, and infrastructure.	
Objective 5-6: Encourage the establishment of policies that reflect the best available information regarding current and future hazard risk.	
Objective 5-6: Identify technological solutions that may help to improve the resiliency and redundancy of our infrastructure and enhance our ability to inform the public during a disaster.	

14

Goals for the 2024 HMP

TETRA TECH

- To provide input on the goals and objectives, we will be using an online form.
- Scan the QR code or use the link in the chat to access.

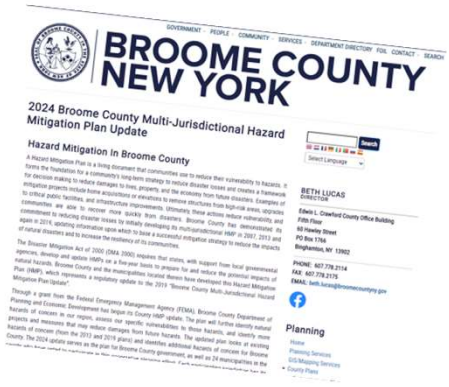
Broome County HMP | Goals and Objectives

15

Public and Stakeholder Outreach

TETRA TECH

- Social Media Posts
- StoryMap
- Press Release
- HMP website – https://www.gobroomecounty.com/planning/hazardmitigation/2024HazardMitigationPlanUpdate
- All meetings open to the public and stakeholders
- Stakeholder Survey
- Public Survey
- Neighboring County Outreach



16

Schedule

TETRA TECH

1 Organizing the Planning Effort
2 Profile the Community and Existing Conditions
3 Select, Profile, and Evaluate Impacts of Hazards of Concern
4 Assess Capabilities and Integrate Resources
5 Develop the Mitigation Strategy
6 Establish the Plan Maintenance Process
7 Draft and Submit the Plan
8 Adopt the Plan

- Kick-Off Meetings
- Data collection – by end of August
- Through November 2023
- Through November 2023
- Finalize by January 2024
- Draft by April 2024
- Draft to NYSDHSES by May 2024
- Draft to FEMA by June 2024
- Review 2019 actions by August 2023
- Finalize goals by November 2023
- Identify 2024 actions by January 2024

17



Questions?

18


Broome County Project Contacts
Stephanie Brewer, Senior Planner
607-778-2390 | Stephanie.Brewer@broomecountyny.gov
Tetra Tech Project Contacts
Heather Apgar, CFM
(973) 630-8046 | heather.apgar@tetratech.com
Thank You!

19

Purpose of Meeting:	Steering Committee Meeting #2
Location of Meeting:	*Virtual - Teams*
Date of Meeting:	September 14, 2023 | 10:00 a.m. – 11:00 a.m.
Attendees:	• Aimee Dailey, Broome County Planning • Amy Fassold, BC Health • Christopher Kylor, Town of Union • Conor Johns, Town of Union • Franco Incitti, City of Binghamton • Gillian Sloan, Broome County Planning • John Mastronardi, Town of Fenton • Joshua Holland, Village of Johnson City • Juliet Berling, City of Binghamton • Marina Lane, Town of Vestal • Michael Bender, BC Health • Roland Paperman, DHSES • Ron Lake, City of Binghamton • Stephanie Brewer, Broome County Planning • Stephanie Yezzi, Village of Johnson • Vernon Myers, Town of Vestal • Heather Apgar, Tetra Tech • Madeleine Lane, Tetra Tech
Agenda Summary:	Finalize hazards of concern; review goals and objectives; discuss methods of public and stakeholder outreach.

Item No.	Agenda Topic and Discussion	Action item(s):
1	**Welcome** •	County - Tetra Tech -
2	**Participation Status** •	County - Tetra Tech -

3	**Finalize Hazards of Concern**
	• Everyone agrees with the identified hazards of concern.
	  ○ Wildfire smoke risk will be incorporated into wildfire hazard.
	  ○ Little Snake Creek flooding will be incorporated into flood hazard.
	• Are there any counts/data from utility outages?
	  ○ County will provide data on utility hazards.
	• Stormwater flooding will be incorporated into flood hazard.
	• Tornadoes will be included within severe storm hazard profile.
		County – Provide data on utility outages to Tetra Tech
		Tetra Tech – Prepare hazard profiles

4	**Review Goals and Objectives** • Discussed 2019 Goals and Objectives • Potential new goal is to take advantage of available BRIC/HMA/FEMA funding. Historically, the applications have been very involved. Want to ensure that smaller communities have the resources to efficiently and easily fill out applications. • Strengthening partnerships is a very broad goal. ○ Other plans have expanded and provided more detail to this goal.	County - Tetra Tech – Will revise goals and objectives and send to county for review.

Item No.	Agenda Topic and Discussion	Action item(s):
5	**Public and Stakeholder Outreach** • County is developing a list of email contacts of relevant stakeholders to send meeting times, venues, and dates. • Does the county need to send invites to each jurisdictions fire, police, and EMS staff? ○ Curating a list of every fire, police, and EMS contact is very time consuming. It is easier to send an email to jurisdiction's OEM/OEPC coordinators and allow them to distribute information further. • Links to the surveys should be added to county HMP webpage. • County will send out information to Chamber of Commerce in order to engage with local business stakeholders.	County – Continue to curate contact lists of relevant stakeholders, including OEM/OEPC staff and Chamber of Commerce. Copy survey links to public HMP webpage. Tetra Tech -
6	**Next Steps/Questions** •	County - Tetra Tech -



TETRA TECH

Broome County Hazard Mitigation Plan – 2024 Update

Planning Partnership Meeting #2 – Review Preliminary Hazard Ranking

December 7, 2023

If you are joining through Teams, please enter your name and department/agency in the chat.



Today's Agenda

1. Welcome
2. Progress Report
3. Public and Stakeholder Outreach
4. Risk Assessment Overview
5. Schedule
6. Questions/Next Steps/Wrap Up



Project Schedule

- **Planning Process**
  - Ongoing
- **Update Risk Assessment**
  - Discuss risk assessment results – **TODAY!**
- **Public and Stakeholder Outreach**
  - Ongoing
- **Capability Assessment**
  - Ongoing
- **Mitigation Strategy**
  - Continue working with municipalities
  - Mitigation Strategy Workshop with FEMA and State – **February 1st**
- **Plan Maintenance**
  - Utilizing the BATool to review/update actions from 2019 HMP
  - Finalize plan maintenance procedures by **February 2024**
- **Develop Plan**
  - Draft Plan to Steering Committee by **March 2024**
  - Draft Plan Presentation in **April 2024**
  - Public Review Period – **April-May 2024**
  - Draft to NYS DHSES – **May 2024**
  - Draft to FEMA – **August/September 2024**
  - Adoption – **October/November 2024**

In-Kind Tracking

Jurisdiction: _____

Name: _____ Title: _____

Date	Start Time	End Time	# hours	Task Description	Hourly Rate	Total *# hours x rate*	Comments *describe task in more detail*
					$		

Scan the UR code for the online form to enter your time.

-or-

https://www.surveymonkey.com/r/BroomeInKind

Participation Status

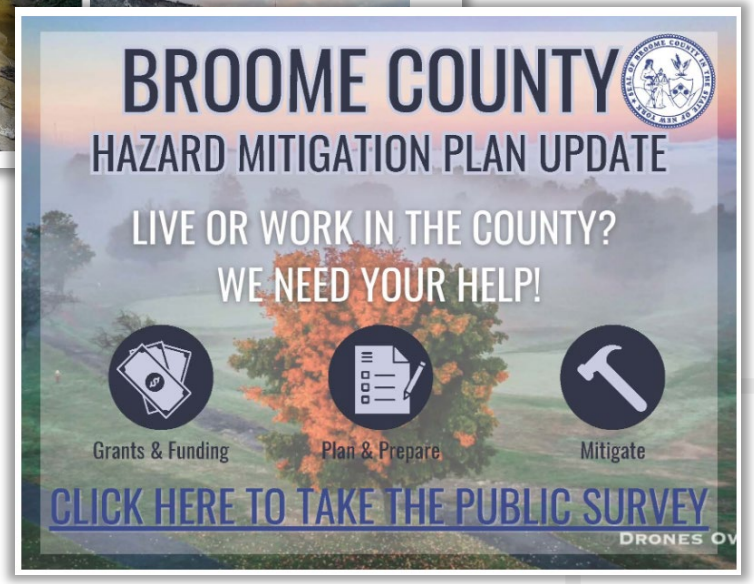
Jurisdiction	Participating?	Status
Broome County	Yes	Annex updated; need status of several 2019 actions
Barker (T)	Yes	Annex updated; need status of 2019 actions
Binghamton (C)	Yes	Annex updated; need status of several 2019 actions
Binghamton (T)	Yes	Annex updated; need status of 2019 actions
Chenango (T)	Yes	Annex updated; need status of 2019 actions
Colesville (T)	Yes	Annex updated; need status of 2019 actions
Conklin (T)	Yes	Annex updated; need status of 2019 actions
Deposit (V)	No	-
Dickinson (T)	Yes	Annex updated; need status of 2019 actions
Endicott (V)	Yes	Annex updated; need status of 2019 actions
Fenton (T)	Yes	Annex updated; need status of 2019 actions
Johnson City (V)	Yes	Annex updated; need status of 2019 actions

Jurisdiction	Participating?	Status
Kirkwood (T)	Yes	Annex updated; need status of 2019 actions
Lisle (T)	No	-
Lisle (V)	Yes	Annex updated; need status of 2019 actions
Maine (T)	Yes	Annex updated; need status of 2019 actions
Nanticoke (T)	Yes	Annex updated; need status of 2019 actions
Port Dickinson (V)	Yes	Annex updated; need status of 2019 actions
Sanford (T)	Yes	Annex updated; need status of 2019 actions
Triangle (T)	Yes	Annex updated; need status of 2019 actions
Union (T)	Yes	Annex updated; need status of 2019 actions
Vestal (T)	Yes	Annex updated; need status of 2019 actions
Whitney Point (V)	Yes	Annex updated; need status of 2019 actions
Windsor (T)	Yes	Annex updated; need status of 2019 actions
Windsor (V)	Yes	Annex updated, including status of 2019 actions

Public and Stakeholder Outreach

- Public Outreach Toolkit –
  - Social media templates and posts
  - Printable materials
- Surveys
  - Stakeholders
  - Neighboring communities
  - Public
- HMP website –[2024 Broome County Multi-Jurisdictional Hazard Mitigation Plan Update | Broome County (broomecountyny.gov)]
- StoryMap - https://storymaps.arcgis.com/stories/6f5336592a674f548ff0bd2c360e849d





Hazards of Concern (2024 HMP)

- Dam and Levee Failure
- Disease Outbreak
- Drought
- Earthquake
- Extreme Temperature
- Flood
- Invasive Species
- Severe Storm
- Severe Winter Storm
- Wildfire

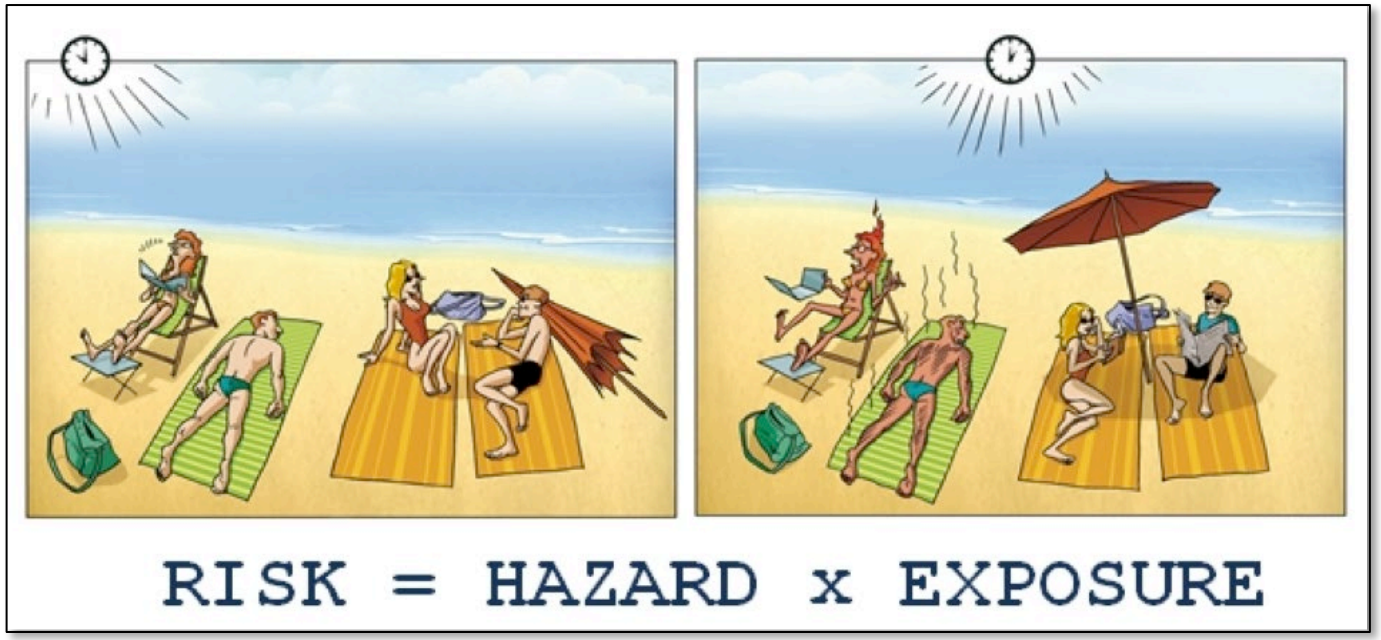


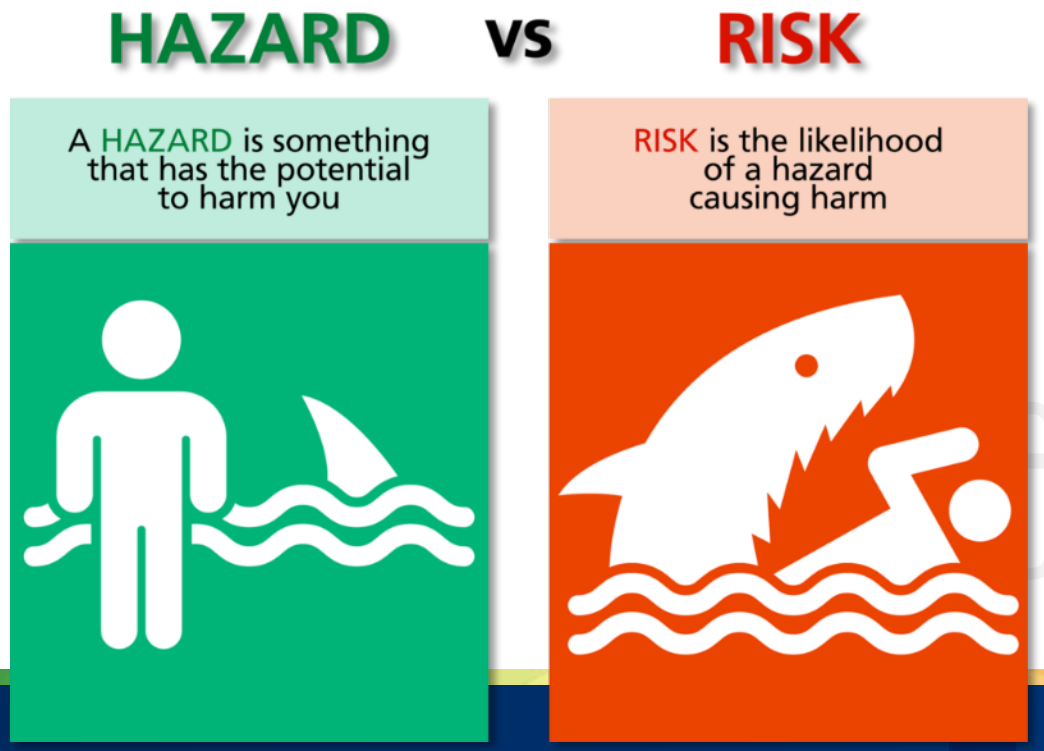
Risk Assessment Overview

How are the rankings calculated?
What is the preliminary ranking?

What is Risk?

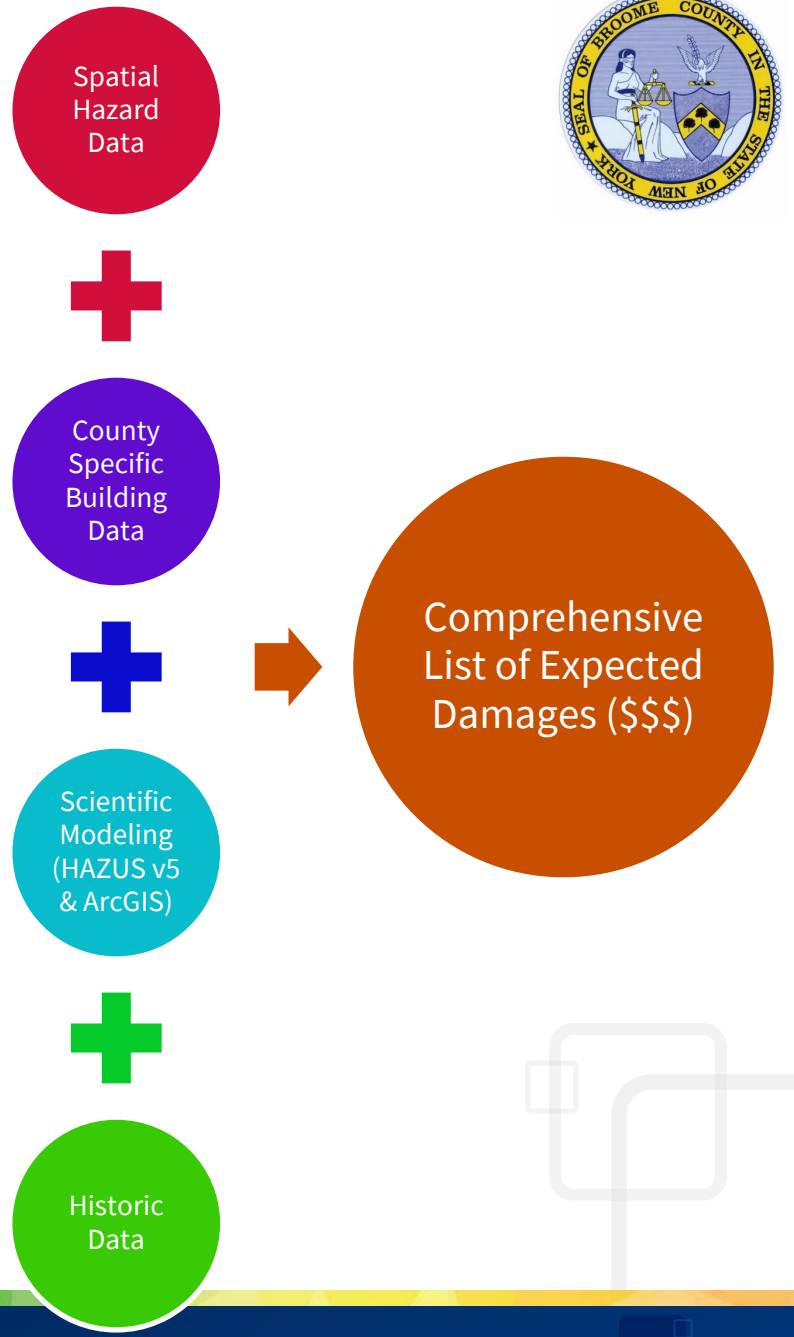
- ✓ Hazard
  - *Something that has the potential to cause damage, injuries, and losses*
- ✓ Exposure
  - *People, property and infrastructure vulnerable to the hazard*
- ✓ Risk
  - *Probability and severity of damages to people, property, and infrastructure*





Purpose of the Risk Assessment

- To get a better understanding of the risks you face
- Initial results based on available data
- Quantitative data (population/structures exposed, structural damages within hazard zones) used when available
- Qualitative community input (such as unmapped flood areas) integrated to adjust results
- Local community input to adjust relative rankings

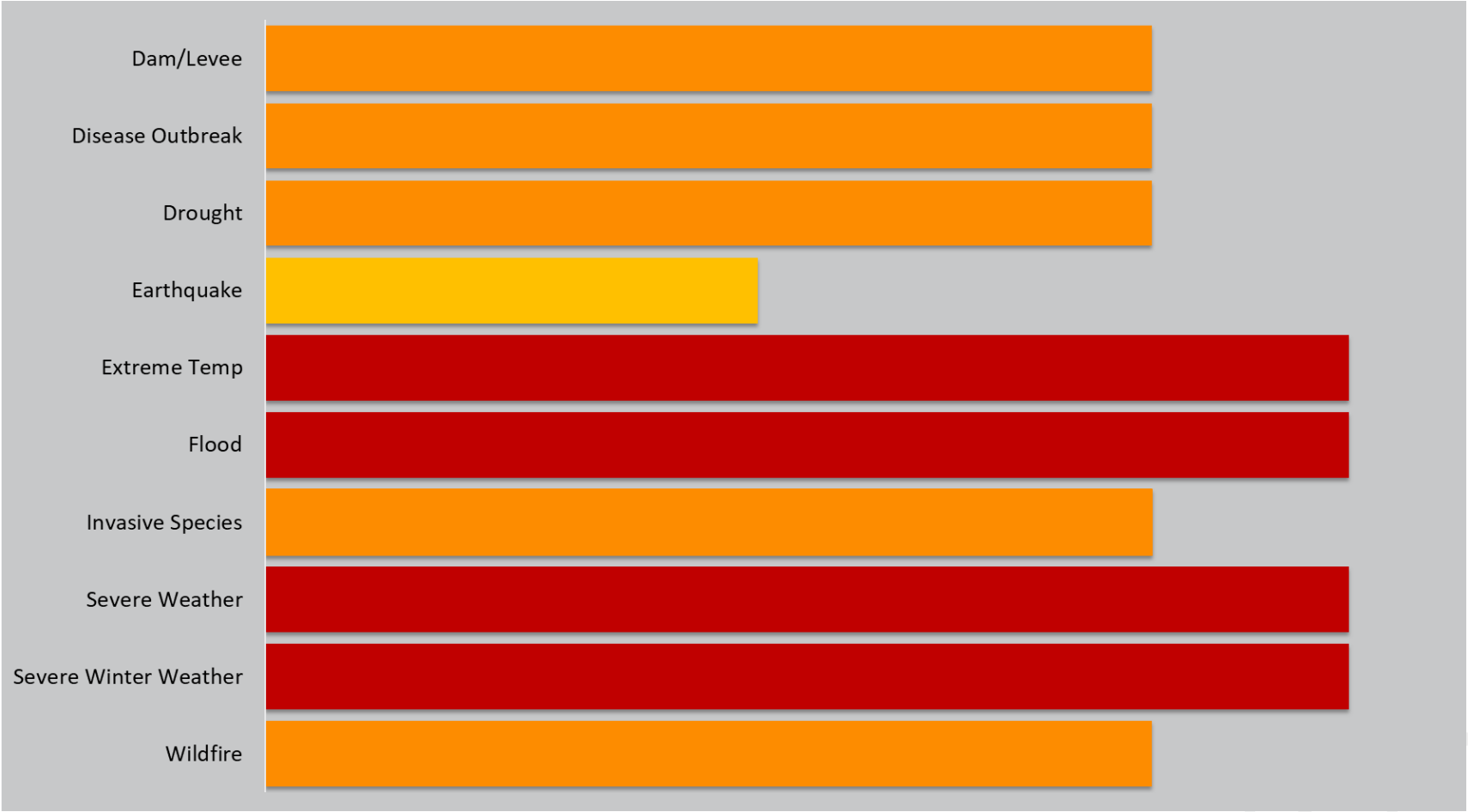


What We Looked At

Hazard	Population	Property	Economy
Dam/Levee Failure	Entire Population	Entire Building Stock	Entire Replacement Costs for all Buildings
Disease Outbreak	Vulnerable populations (65+, >5, Disabled, and Poverty)	Entire Building Stock	Entire Replacement Costs for all Buildings
Drought	Vulnerable populations (65+, >5, Disabled, and Poverty)	Entire Building Stock	Entire Replacement Costs for all Buildings
Earthquake	Population located areas with Class D & E soils	Buildings located in areas with Class D & E soils	Damage to buildings located in areas of Class D & E soils
Extreme Temperature	Vulnerable populations (65+, >5, Disabled, and Poverty)	Entire Building Stock	Entire Replacement Costs for all Buildings
Flood	Population located in 1% SFHA	Buildings located in 1% SFHA	Replacement costs of buildings in 1% SFHA
Invasive Species	Entire Population	Entire Building Stock	Entire Replacement Costs for all Buildings
Severe Storm	Entire Population	Entire Building Stock	Entire Replacement Costs for all Buildings
Severe Winter Storm	Vulnerable populations (65+, >5, Disabled, and Poverty)	Entire Building Stock	Entire Replacement Costs for all Buildings
Wildfire	Population located in Wildland/Urban Interface/Intermix Areas	Buildings located in Wildland/Urban Interface/Intermix Areas	Damage to buildings located in Wildland/Urban Interface/Intermix Areas

Countywide Rankings

Hazard	Ranking
Dam/Levee Failure	Medium
Disease Outbreak	Medium
Drought	Medium
Earthquake	Low
Extreme Temperature	High
Flood	High
Invasive Species	Medium
Severe Storm	High
Severe Winter Storm	High
Wildfire	Medium



Preliminary Municipal Rankings

Jurisdictions	Hazard Ranking									
	Dam/Levee	Disease Outbreak	Drought	Earthquake	Extreme Temp	Flood	Invasive Species	Severe Weather	Severe Winter Weather	Wildfire
Barker (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Binghamton (C)	Medium	Medium	Medium	Low	High	Medium	Medium	High	High	Medium
Binghamton (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Chenango (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Colesville (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Conklin (T)	Medium	Medium	Medium	Low	High	High	Medium	High	High	Medium
Dickinson (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Endicott (V)	Medium	Medium	Medium	Low	High	High	Medium	High	High	Medium
Fenton (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Johnson City (V)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Kirkwood (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Lisle (V)	Medium	Medium	Medium	Low	High	High	Medium	High	High	Medium
Maine (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Nanticoke (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Port Dickinson (V)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Sanford (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Triangle (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Union (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Vestal (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Whitney Point (V)	Medium	Medium	Medium	Low	High	High	Medium	High	High	Medium
Windsor (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Windsor (V)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
County (Total)	**High**	**Medium**	**Medium**	**Low**	**High**	**High**	**Medium**	**High**	**High**	**Medium**

Review Preliminary Rankings

Hazard Ranking Review

Please send all electronic Word versions of this worksheet to Maddie Lane (Tetra Tech) by January 3rd
Email: maddie.lane@tetratech.com

Jurisdiction: Broome County

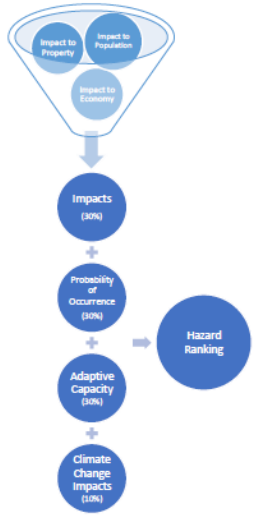
Name/Title of Individual Completing Worksheet: _____

What is a Hazard Ranking?

Hazard Ranking is used to understand your community's vulnerabilities to hazards and to prioritize projects and activities for mitigation.

Hazard Ranking is determined by quantitative and qualitative factors including:

1. The calculated probability of a hazard occurring based on historical data.
2. Impacts to people, property, and the economy based on GIS data and analysis of exposure.
3. The degree to which climate change will affect future occurrences based on best available data.
4. Adaptive Capacity, which is the ability your community has to respond to the hazard based on ordinances, mitigation strategies and procedures, and readiness.



What is my Hazard Ranking?

The following table represent the calculated rankings for the hazards of concern for your community. Please review the calculated rankings and indicate whether or not you want to adjust the ranking. If you are changing the ranking, please provide detail as to why you are changing the ranking. *REMEMBER, for every hazard of concern, you need at least one mitigation action.*

Table 1. 2023 HMP Municipal Hazard Rankings

Hazard	Draft 2024 Ranking Based on RA Results	Agree with draft hazard ranking (Y/N)? If No, indicate preferred ranking.	What changes in mitigation or other conditions have resulted in the change in hazard ranking since 2019?
Dam/Levee	High		

Hazard	Draft 2024 Ranking Based on RA Results	Agree with draft hazard ranking (Y/N)? If No, indicate preferred ranking.	What changes in mitigation or other conditions have resulted in the change in hazard ranking since 2019?
Disease Outbreak	Medium		
Drought	Medium		
Earthquake	Low		
Extreme Temperature	High		
Flood	High		
Invasive Species	Medium		
Severe Storm	High		
Severe Winter Storm	High		
Wildfire	Medium		

What is Adaptive Capacity?

Adaptive capacity describes a jurisdiction's current ability to protect from or withstand a hazard event.

- **Weak** adaptive capacity means the jurisdiction does not have the capability to effectively respond, which leads to an increase in vulnerability. Examples include weak/outdated/inconsistent plans, policies, codes/ordinances in place; no redundancies; limited to no deployable resources; limited capabilities to respond; long recovery.
- **Moderate** adaptive capacity means minimum requirements are in place; moderate capabilities; mitigation measures are identified but not implemented widespread; jurisdiction can recover but needs outside resources.
- **Strong** adaptive capacity means the jurisdiction does have the capability to effectively respond, plans/policies exceed minimum requirements; deployable resources all of which decreases vulnerability.

Table 2. 2024 HMP Municipal Adaptive Capacity

Hazard	Preliminary Ranking	What should we indicate for your community's adaptive capacity for each hazard?
Dam/Levee	Moderate	
Disease Outbreak	Moderate	
Drought	Moderate	
Earthquake	Weak	
Extreme Temperature	Moderate	
Flood	Moderate	
Invasive Species	Moderate	
Severe Storm	Moderate	
Severe Winter Storm	Moderate	
Wildfire	Moderate	

Review Preliminary Rankings

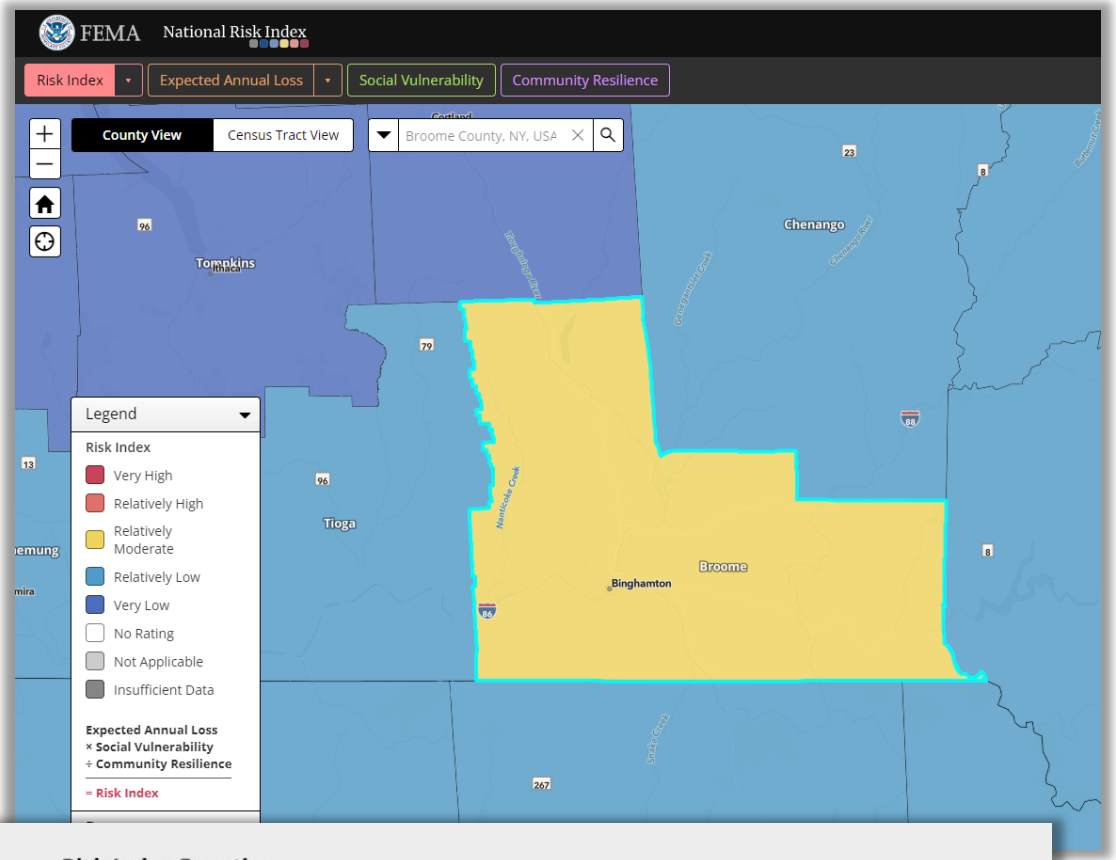
Hazard	Draft 2024 Ranking Based on RA Results	Agree with draft hazard ranking (Y/N)? If No, indicate preferred ranking.	What changes in mitigation or other conditions have resulted in the change in hazard ranking since 2019?
Dam/Levee	Medium	Yes	-
Disease Outbreak	Medium	Yes	-
Drought	Medium	Yes	-
Earthquake	Low	Yes	-
Extreme Temperature	High	Yes	-
Flood	Low	No – High	Stormwater flooding causes significant issues throughout the municipality; flood should be ranked as high
Invasive Species	Medium	Yes	-
Severe Storm	High	Yes	-
Severe Winter Storm	High	Yes	-
Wildfire	Medium	No – Low	The municipality does not have a history of wildfires and not located in an areas susceptible to wildfires; should be ranked as low

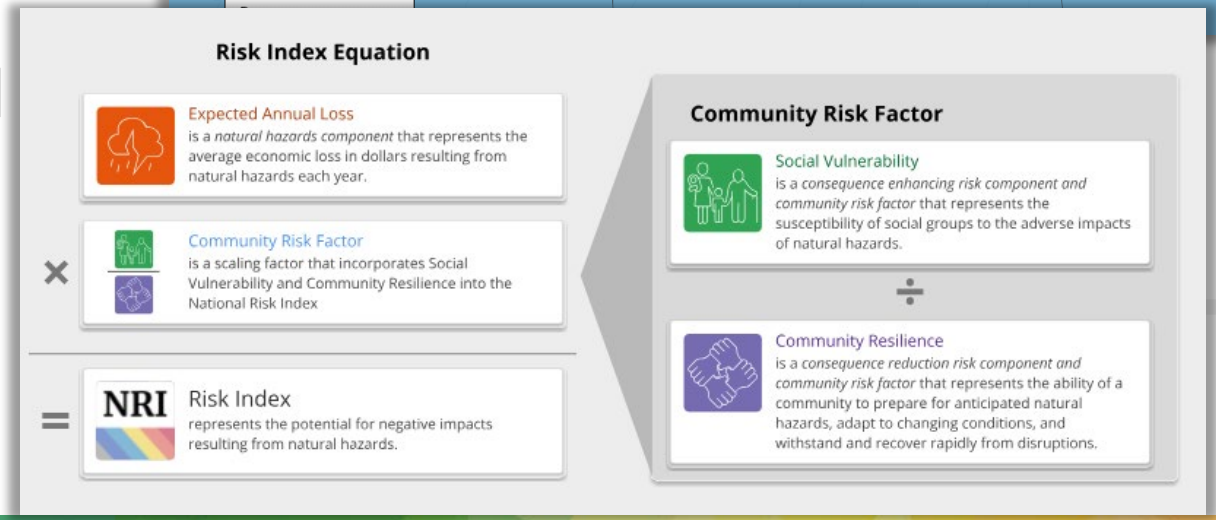
Review Preliminary Adaptive Capacity

Hazard	Preliminary Ranking	What should we indicate for your community's adaptive capacity for each hazard?
Dam/Levee	Moderate	
Disease Outbreak	Moderate	
Drought	Moderate	Weak – many residents rely on surface water and we do not have backup water sources in the event of a severe drought
Earthquake	Weak	Moderate – buildings codes include requirements to withstand earthquakes
Extreme Temperature	Moderate	
Flood	Moderate	
Invasive Species	Moderate	
Severe Storm	Moderate	Strong – the municipality experiences severe storms every year and we have programs and resources to decrease our vulnerability
Severe Winter Storm	Moderate	Strong – the municipality experiences winter weather every year and we have programs and resources to decrease our vulnerability
Wildfire	Moderate	

Risk Assessment Summary

- Each slide will include:
  - Types of hazards included (e.g., severe storm includes hail, lightning, etc.)
  - Summary of events
  - FEMA National Risk Index (NRI) Rating
    - —Online tool to help understand risk for 18 hazards
  - Risk assessment results
  - Preliminary hazard ranking





Dam/Levee Failure

- Number of dams
  - 61 dams (USACE) – 23 identified as high hazard
- Number of levees
  - 13 levee systems (USACE); all used for flood risk reduction
- No reported failures or incidents
  - Any events we should include?
- Inundation areas – not available for the risk assessment; if available, we can incorporate into the HMP

Preliminary Hazard Ranking

Medium

Disease Outbreak

- Included – Lyme, West Nile, Flu, and Covid-19
- History of occurrence throughout the County
- Impacts
  - Vulnerable populations at risk (age, disability, and poverty)
  - Property impacts
  - Economic impacts – depends on extent of outbreak

Preliminary Hazard Ranking

MEDIUM

Drought

- Event history -
  - Drought Impact Reporter identifies 14 drought events since 1950; majority of impacts related to agriculture
- FEMA NRI Rating = No Rating
- Impacts
  - Entire population at risk; however, more vulnerable populations at higher risk
  - Property impacts – low
  - Economic impacts – medium

Preliminary Hazard Ranking

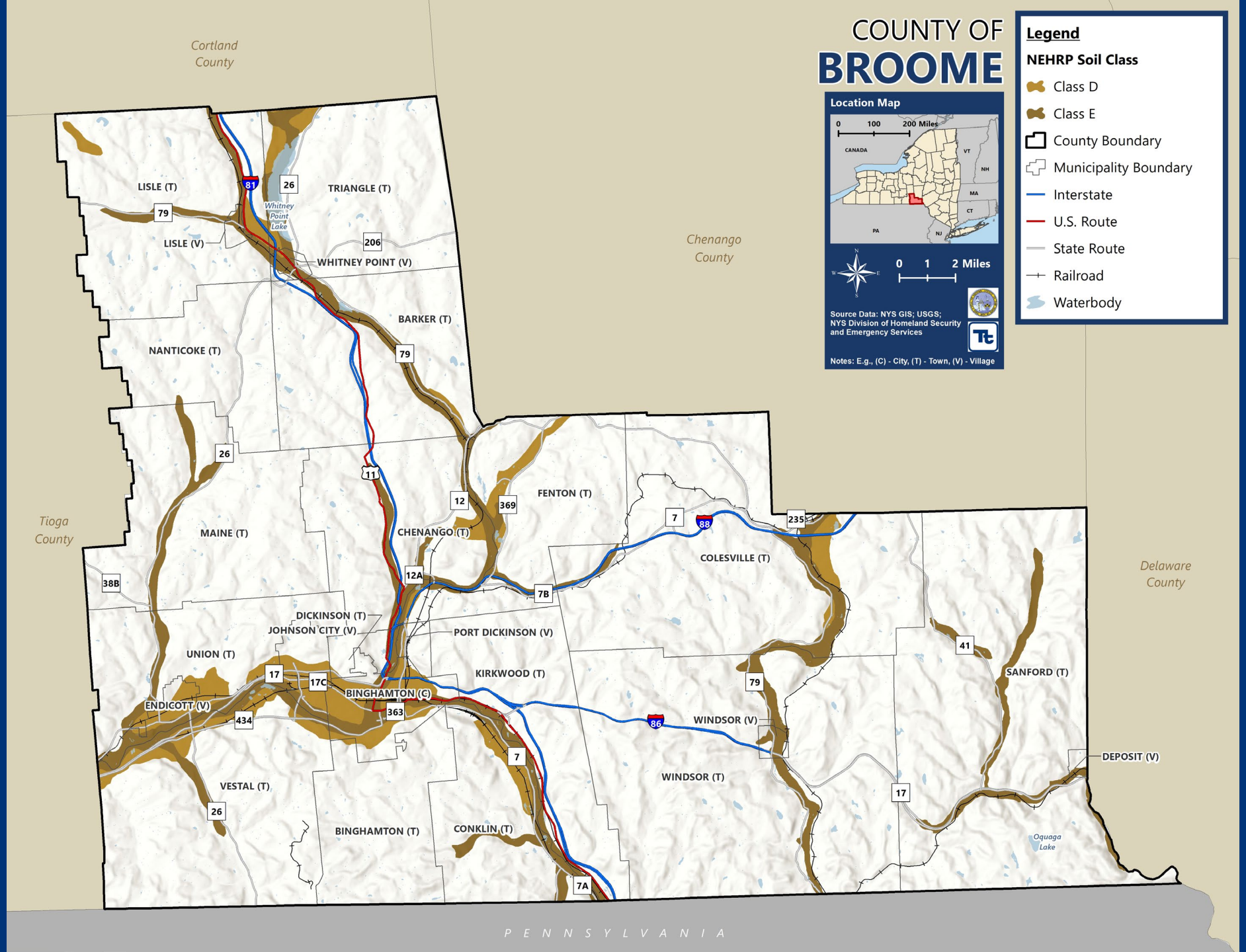
MEDIUM

Earthquake

- Event history is minimal
  - No earthquakes in the County since 1950
- FEMA NRI Rating = Very Low
- Impacts
  - Population - low
  - Property impacts – low
  - Economic impacts – low

Preliminary Hazard Ranking

LOW


COUNTY OF
BROOME
Location Map
0 100 200 Miles
CANADA
VT
NH
MA
CT
PA
NJ
0 1 2 Miles
Source Data: NYS GIS; USGS; NYS Division of Homeland Security and Emergency Services
Notes: E.g., (C) - City, (T) - Town, (V) - Village
Legend
NEHRP Soil Class
Class D
Class E
County Boundary
Municipality Boundary
Interstate
U.S. Route
State Route
Railroad
Waterbody
Cortland County
Chenango County
Tioga County
Delaware County
PENNSYLVANIA
LISLE (T)
LISLE (V)
TRIANGLE (T)
Whitney Point Lake
WHITNEY POINT (V)
BARKER (T)
NANTICOKE (T)
MAINE (T)
FENTON (T)
CHENANGO (T)
COLESVILLE (T)
DICKINSON (T)
JOHNSON CITY (V)
PORT DICKINSON (V)
UNION (T)
KIRKWOOD (T)
BINGHAMTON (C)
ENDICOTT (V)
WINDSOR (V)
SANFORD (T)
DEPOSIT (V)
VESTAL (T)
WINDSOR (T)
BINGHAMTON (T)
CONKLIN (T)
Oquaga Lake
81
26
79
206
11
12
369
7
88
235
12A
7B
38B
41
17
17C
363
434
86
7A

Extreme Temperature (hot/cold)

- Extreme Heat - >90°F
  - Over 200 days since 1950 with a recorded high of >90
- Extreme Cold - <20°F
  - Over 1,000 days with a recorded low of <20
- FEMA NRI Rating –
  - Cold = Relatively Moderate
  - Heat = Relatively Low
- Impacts
  - Vulnerable populations most at risk – age, disability, and poverty
  - Property impacts – low
  - Economic impacts – medium

Preliminary Hazard Ranking

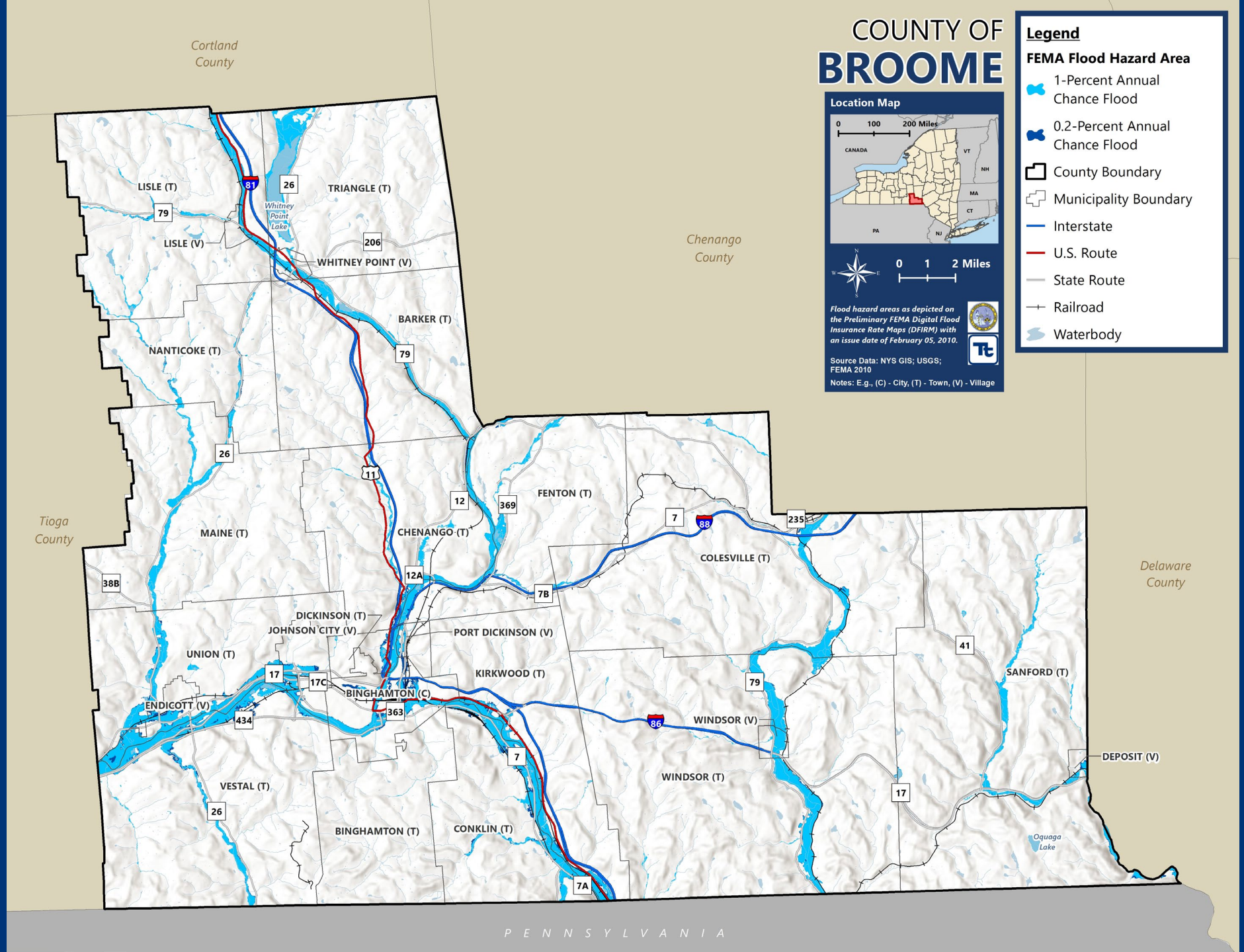
HIGH

Flood

- History of occurrence throughout the County
  - 201 recorded flood events since 1996 (NOAA-NCEI)
  - 8 FEMA declarations (identified as flood events)
- FEMA NRI Rating = Relatively High
- Impacts
  - Population and property located in the 1% SFHA
  - Economic impacts – replacement cost values of buildings in the 1% SFHA
  - Considered stormwater impacts as well

Preliminary Hazard Ranking

HIGH


COUNTY OF
BROOME
Legend
FEMA Flood Hazard Area
1-Percent Annual Chance Flood
0.2-Percent Annual Chance Flood
County Boundary
Municipality Boundary
Interstate
U.S. Route
State Route
Railroad
Waterbody
Location Map
0 100 200 Miles
CANADA
VT
NH
MA
CT
PA
NJ
0 1 2 Miles
Flood hazard areas as depicted on the Preliminary FEMA Digital Flood Insurance Rate Maps (DFIRM) with an issue date of February 05, 2010.
Source Data: NYS GIS; USGS; FEMA 2010
Notes: E.g., (C) - City, (T) - Town, (V) - Village
Cortland County
Chenango County
Tioga County
Delaware County
PENNSYLVANIA
LISLE (T)
LISLE (V)
TRIANGLE (T)
Whitney Point Lake
WHITNEY POINT (V)
BARKER (T)
NANTICOKE (T)
MAINE (T)
CHENANGO (T)
FENTON (T)
COLESVILLE (T)
DICKINSON (T)
JOHNSON CITY (V)
PORT DICKINSON (V)
UNION (T)
KIRKWOOD (T)
BINGHAMTON (C)
ENDICOTT (V)
WINDSOR (V)
SANFORD (T)
DEPOSIT (V)
WINDSOR (T)
VESTAL (T)
BINGHAMTON (T)
CONKLIN (T)
Oquaga Lake
81
26
79
206
11
12
369
7
88
235
12A
7B
38B
41
17
17C
363
434
86
7A

Invasive and Nuisance Species

- Included – Phragmites, Dutch Elm Disease, Giant Hogweed, Hydrilla, Japanese Knotweed, Tree of Heaven, Wild Parsnip, Elm Zigzag Sawfly, Emerald Ash Borer, Hemlock Wooly Adelgid, Spotted Lanternfly, True Armyworm, Stinkbug, and Ticks
- Impacts
  - Entire population at risk
  - Property impacts – medium
  - Economic impacts – medium

Preliminary Hazard Ranking

MEDIUM

Severe Storm

- Included – hail, lightning, wind, hurricanes/tropical storms, tornadoes
- Over 500 events since 1950 (NOAA-NCEI)
- 12 FEMA declarations (severe storm, hurricane)
- FEMA NRI Rating –
  - Hail = Relatively Low
  - Lightning = Relatively Low
  - Strong Wind = Relatively Low
  - Tornado = Relatively Moderate
- Impacts
  - Entire population at risk
  - Property impacts – medium
  - Economic impacts – medium

Preliminary Hazard Ranking

HIGH

Severe Winter Weather

- Included – snow, ice, blizzards
- Event history -
  - Over 90 events since 1996 (NOAA-NCEI)
  - 4 FEMA declarations
- FEMA NRI Ratings –
  - Ice Storm = Relatively Moderate
  - Winter Weather = Very Low
- Impacts
  - Vulnerable populations most at risk – age, disability, and poverty
  - Property impacts – high
  - Economic impacts – low

Preliminary Hazard Ranking

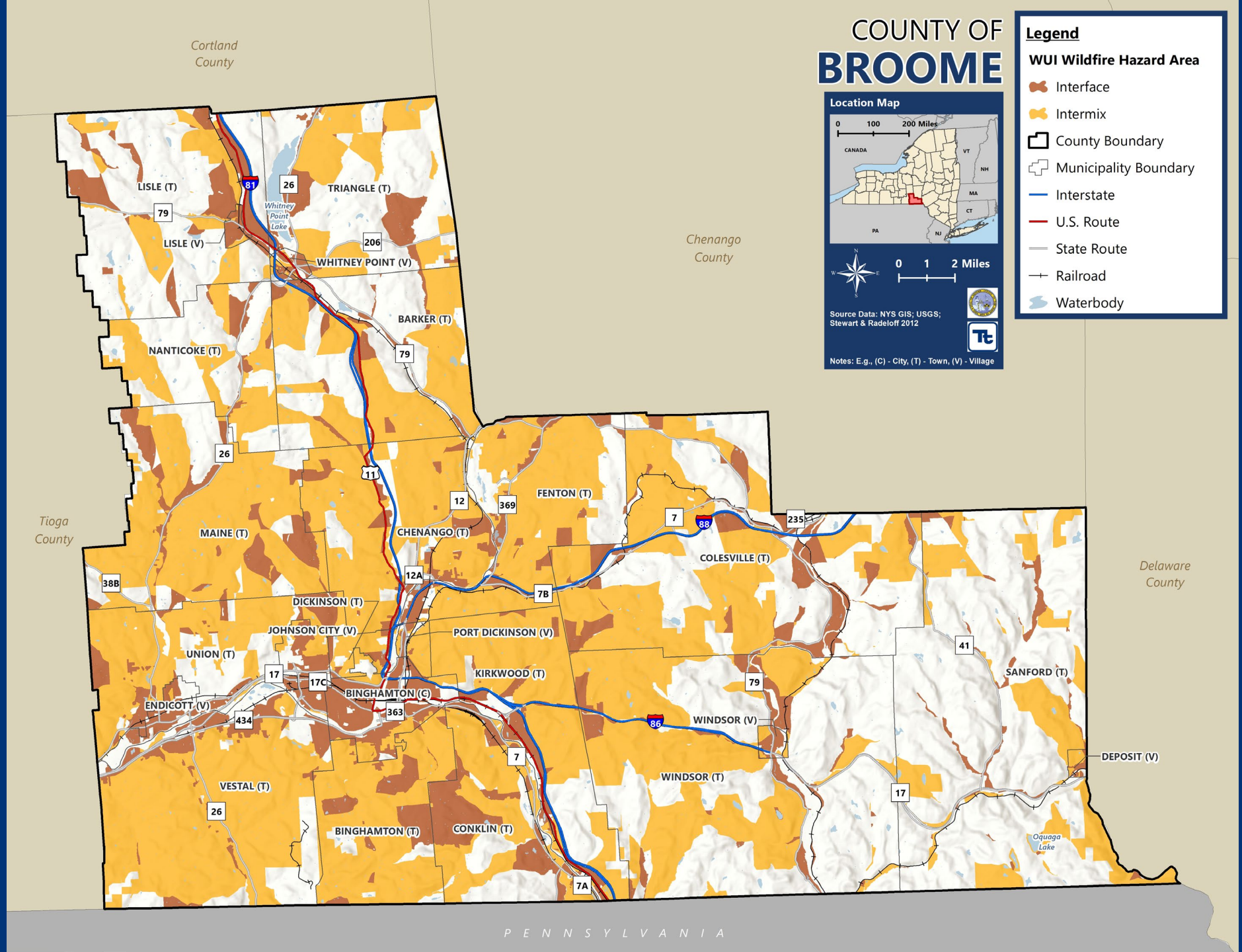
HIGH

Wildfire

- 37 wildfires recorded since 2008 (NYS Forest Ranger database)
- FEMA NRI Rating = Very Low
- Impacts
  - Entire population at risk
  - Property impacts – Medium
  - Economic impacts – Medium

Preliminary Hazard Ranking

MEDIUM


COUNTY OF
BROOME
Legend
WUI Wildfire Hazard Area
Interface
Intermix
County Boundary
Municipality Boundary
Interstate
U.S. Route
State Route
Railroad
Waterbody
Location Map
0 100 200 Miles
CANADA
VT
NH
MA
CT
PA
NJ
0 1 2 Miles
Source Data: NYS GIS; USGS; Stewart & Radeloff 2012
Notes: E.g., (C) - City, (T) - Town, (V) - Village
Cortland County
Chenango County
Tioga County
Delaware County
PENNSYLVANIA
LISLE (T)
LISLE (V)
TRIANGLE (T)
Whitney Point Lake
WHITNEY POINT (V)
BARKER (T)
NANTICOKE (T)
MAINE (T)
CHENANGO (T)
FENTON (T)
COLESVILLE (T)
DICKINSON (T)
JOHNSON CITY (V)
PORT DICKINSON (V)
UNION (T)
KIRKWOOD (T)
BINGHAMTON (C)
ENDICOTT (V)
WINDSOR (V)
SANFORD (T)
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7A



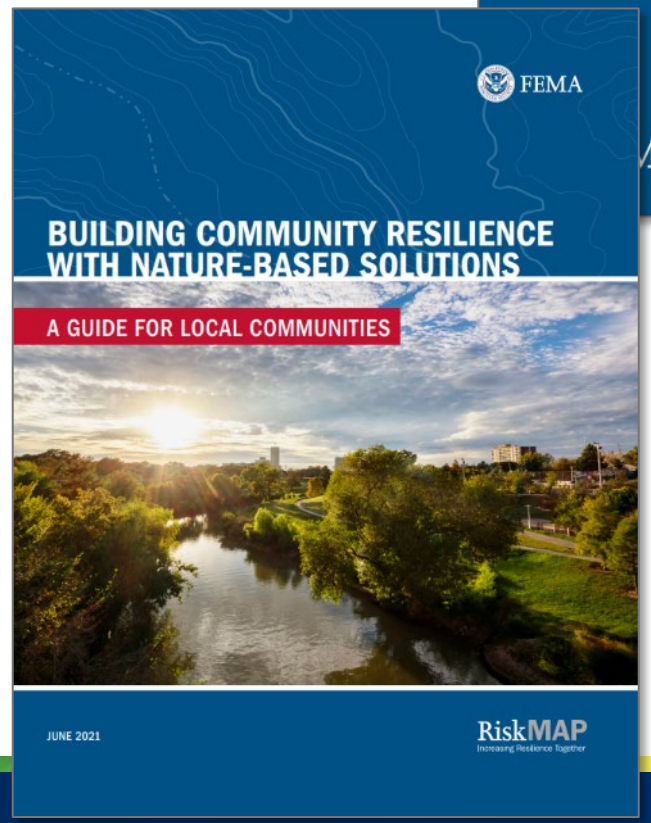
Mitigation Strategy

How will you accomplish the overall purpose of the HMP? What will you do to reduce risk?

How do you reduce risk?

- How do you reduce risk for a hazard?
  - **Manipulate the Hazard**
    - Structural flood control (e.g., flood walls, levees)
  - **Reduce/Eliminate Exposure**
    - Acquire floodprone properties
  - **Reduce Vulnerability**
    - Retrofit (e.g., floodproofing structures)
  - **Increase Capability**
    - $, preparation, technical assistance, planning enforcement





Using Your Mitigation Strategy to Reduce Risk

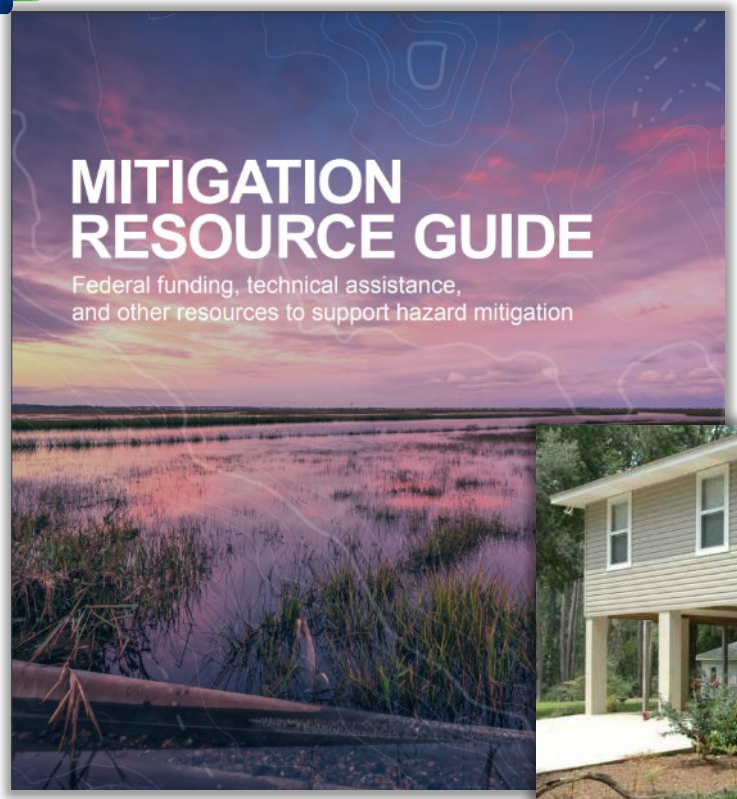
- What is a ***Mitigation Strategy***?
  - A group of projects or actions to reduce the impacts of the hazards of concern on your community
    - Plans and Regulations
    - Structure and Infrastructure Studies and Projects
    - Natural Systems Protection Studies and Projects
    - Education and Awareness Programs
- Terms to describe the Mitigation Strategy include:
  - **Mitigation Action Plan** or **Action Plan**
  - **Mitigation Projects** or **Initiatives** or **Actions**

Your Mitigation Strategy table is included in your annex. We will use action worksheets and online forms to collect details on the actions you will include in the 2024 Update.

Where do you need to focus?

- Stronger connection between the risk assessment and mitigation strategy
- More specific, achievable actions
  - Specific projects, in specific locations, in a specific timeframe
  - Focus on socially vulnerable populations and underserved communities
- Diverse actions
  - You need at least one action per hazard of concern. Think about actions that can cover multiple hazards.
  - Include a variety of action types (e.g., developing plans, outreach, structural, etc.)

Other Mitigation Actions to Consider

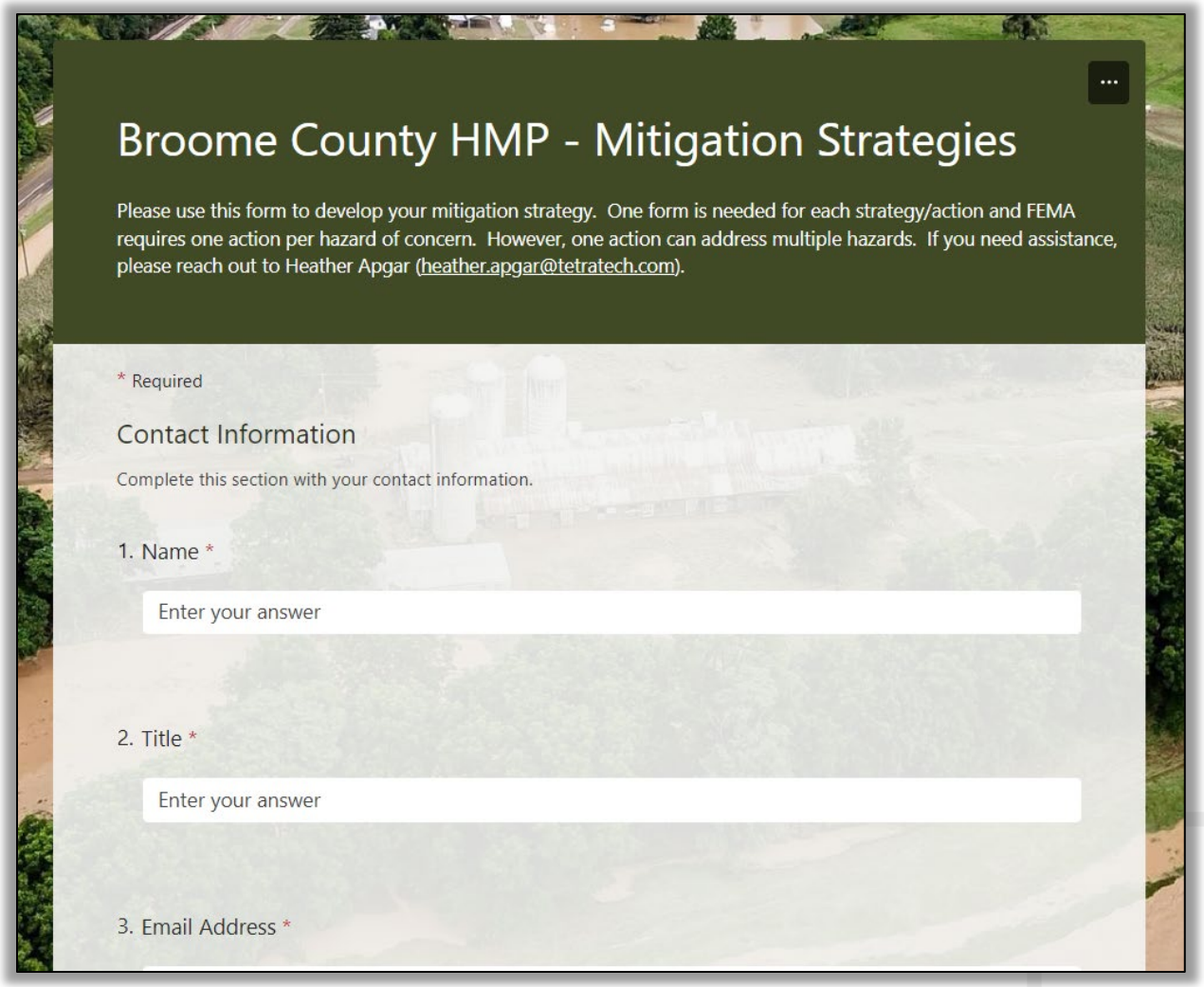




- Local Disaster Debris Management Plans
- Substantial Damage Management Plan
- Actions to address high-hazard or significant-hazard dams
- Public education and outreach programs
- Generators at critical facilities and community lifelines
- Floodproofing critical facilities and community lifelines
- Addressing repetitive and severe repetitive loss properties

Mitigation Strategy Online Form

- We will be collecting input on mitigation actions through on online form
- Complete one form per action
- We will be providing additional information to help with the actions
- Any questions, reach out!





QUESTIONS?



Thank You!

Broome County Project Contact

Stephanie Brewer, Senior Planner
607-778-2390 | Stephanie.Brewer@broomecountyny.gov

Tetra Tech Project Contacts

Heather Apgar, Project Manager
(973) 630-8046 | heather.apgar@tetratech.com

1. Summary

Meeting title	Broome County HMP | Planning Partners Risk Assessment Meeting - December 7th
Attended participants	39
Start time	12/07/23, 9:38:39 AM
End time	12/07/23, 10:59:31 AM
Meeting duration	1h 20m 52s
Average attendance ti	55m 57s

2. Participants

Name	First Join	Last Leave	In-Meeting	Email	Participant	Role
Mcinerney,	American F	12/07/23, 9	12/07/23, 1	1h 52s	cynthia.mc	cynthia.mc	Attendee
Franco A. I	Binghamto	12/07/23, 1	12/07/23, 1	52m 11s			Attendee
Juliet Berli	Binghamto	12/07/23, 1	12/07/23, 1	57m 51s	jberling@b	jberling@b	Attendee
Tito Martin	Binghamto	12/07/23, 1	12/07/23, 1	57m 4s			Attendee
Brewer, Ste	Broome Co	12/07/23, 1	12/07/23, 1	58m 59s	Stephanie.	Stephanie.	Attendee
Dailey, Aim	Broome Co	12/07/23, 1	12/07/23, 1	58m 37s	Aimee.Dail	Aimee.Dail	Attendee
Lucas, Bet	Broome Co	12/07/23, 1	12/07/23, 1	59m 12s	Beth.Lucas	Beth.Lucas	Attendee
Sloan, Gilli	Broome Co	12/07/23, 1	12/07/23, 1	58m 45s	Gillian.Slo	Gillian.Slo	Attendee
Jean West	Broome Co	12/07/23, 1	12/07/23, 1	51m 2s	jean@bing	jean@bing	Attendee
Derin Kraa	Chenango	12/07/23, 9	12/07/23, 1	1h 52s			Attendee
Gavin Stile	Chenango	12/07/23, 9	12/07/23, 1	1h 51s	gavin.stiles	gavins@to	Attendee
Greg Burde	Chenango	12/07/23, 1	12/07/23, 1	57m 8s			Attendee
Joy Kasma	Chenango	12/07/23, 9	12/07/23, 1	1h 12s	joy.kasmar	JoyK@towr	Attendee
nick pappa	Conklin (T)	12/07/23, 1	12/07/23, 1	17s			Attendee
Ron	Dickinson,	12/07/23, 9	12/07/23, 1	1h 52s			Attendee
Brian Botsf	Endicott (V	12/07/23, 9	12/07/23, 1	1h 16s	bbotsford@	bbotsford@	Attendee
Cameron V	Endicott (V	12/07/23, 9	12/07/23, 1	1h 51s			Attendee
John Mastr	Fenton, Kir	12/07/23, 9	12/07/23, 1	1h 48s	JohnMastr	JohnMastr	Attendee
Terry Corte	Good Shep	12/07/23, 9	12/07/23, 1	55m 57s			Attendee
josh (Gues	Johnson Ci	12/07/23, 9	12/07/23, 1	1h 51s			Attendee
Stephanie	Johnson Ci	12/07/23, 1	12/07/23, 1	40m			Attendee
Roy Willis,	Nanticoke	12/07/23, 9	12/07/23, 1	1h 51s			Attendee
Paperman,	NYSDHSES	12/07/23, 9	12/07/23, 1	1h 48s	Roland.Pa	Roland.Pa	Attendee
Wilkinson,	NYSDHSES	12/07/23, 1	12/07/23, 1	55m 14s	John.Wilkir	John.Wilkir	Attendee
Gene Hulb	Port Dickin	12/07/23, 1	12/07/23, 1	59m 14s	ghh@hulbe	ghh@hulbe	Attendee
Paul VanSl	Sanford (T)	12/07/23, 9	12/07/23, 1	1h 51s			Attendee
Ashley Sey	Southern T	12/07/23, 1	12/07/23, 1	49m 41s	aseyfried@	aseyfried@	Attendee
Sophia Pap	Southern T	12/07/23, 1	12/07/23, 1	56m 53s	spappas@	spappas@	Attendee
Altenburg,	Tetra Tech	12/07/23, 9	12/07/23, 1	1h 23s	GRACE.AL	GRACE.AL	Organizer
Apgar, Hea	Tetra Tech	12/07/23, 9	12/07/23, 1	1h 1m 48s	Heather.Ap	Heather.Ap	Organizer
Lane, Mad	Tetra Tech	12/07/23, 9	12/07/23, 1	1h 14s	MADDIE.LA	MADDIE.LA	Organizer
Conor Johr	Union (T)	12/07/23, 1	12/07/23, 1	58m 25s			Attendee
Marina Lan	Union (T)	12/07/23, 1	12/07/23, 1	45m 41s			Attendee
Vernon My	Vestal (T)	12/07/23, 1	12/07/23, 1	55m 23s	vmyers@ve	vmyers@V	Attendee

Jason Som	Whitney Pc	12/07/23, 9	12/07/23, 1	1h 50s	jsomers@t	jsomers@t Attendee
1.61E+10		12/07/23, 1	12/07/23, 1	59m 11s		Attendee
alex		12/07/23, 1	12/07/23, 1	53m 58s	Attendee	
Lesley		12/07/23, 1	12/07/23, 1	56m 58s		Attendee


TETRA TECH
Broome County Hazard Mitigation Plan – 2024 Update
Planning Partnership Meeting #2 – Review Preliminary Hazard Ranking
December 7, 2023
If you are joining through Teams, please enter your name and department/agency in the chat.

1


Today's Agenda
1. Welcome
2. Progress Report
3. Public and Stakeholder Outreach
4. Risk Assessment Overview
5. Schedule
6. Questions/Next Steps/Wrap Up

2

Project Schedule

- **Planning Process**
  - Ongoing
- **Update Risk Assessment**
  - Discuss risk assessment results – **TODAY!**
- **Public and Stakeholder Outreach**
  - Ongoing
- **Capability Assessment**
  - Ongoing
- **Mitigation Strategy**
  - Continue working with municipalities
  - Mitigation Strategy Workshop with FEMA and State – **February 1st**
- **Plan Maintenance**
  - Utilizing the BATool to review/update actions from 2019 HMP
  - Finalize plan maintenance procedures by **February 2024**
- **Develop Plan**
  - Draft Plan to Steering Committee by **March 2024**
  - Draft Plan Presentation in **April 2024**
  - Public Review Period – **April-May 2024**
  - Draft to NYS DHSES – **May 2024**
  - Draft to FEMA – **August/September 2024**
  - Adoption – **October/November 2024**

3

In-Kind Tracking

Jurisdiction: _____

Name: _____ Title: _____

Date	Start Time	End Time	# hours	Task Description	Hourly Rate	Total *# hours x rate*	Comments *describe task in more detail*
					$		

Scan the UR code for the online form to enter your time.

-or-

https://www.surveymonkey.com/r/BroomeInKind

4

Participation Status

Jurisdiction	Participating?	Status
Broome County	Yes	Annex updated; need status of several 2019 actions
Barker (T)	Yes	Annex updated; need status of 2019 actions
Binghamton (C)	Yes	Annex updated; need status of several 2019 actions
Binghamton (T)	Yes	Annex updated; need status of 2019 actions
Chenango (T)	Yes	Annex updated; need status of 2019 actions
Colesville (T)	Yes	Annex updated; need status of 2019 actions
Conklin (T)	Yes	Annex updated; need status of 2019 actions
Deposit (V)	No	-
Dickinson (T)	Yes	Annex updated; need status of 2019 actions
Endicott (V)	Yes	Annex updated; need status of 2019 actions
Fenton (T)	Yes	Annex updated; need status of 2019 actions
Johnson City (V)	Yes	Annex updated; need status of 2019 actions

Jurisdiction	Participating?	Status
Kirkwood (T)	Yes	Annex updated; need status of 2019 actions
Lisle (T)	No	-
Lisle (V)	Yes	Annex updated; need status of 2019 actions
Maine (T)	Yes	Annex updated; need status of 2019 actions
Nanticoke (T)	Yes	Annex updated; need status of 2019 actions
Port Dickinson (V)	Yes	Annex updated; need status of 2019 actions
Sanford (T)	Yes	Annex updated; need status of 2019 actions
Triangle (T)	Yes	Annex updated; need status of 2019 actions
Union (T)	Yes	Annex updated; need status of 2019 actions
Vestal (T)	Yes	Annex updated; need status of 2019 actions
Whitney Point (V)	Yes	Annex updated; need status of 2019 actions
Windsor (T)	Yes	Annex updated; need status of 2019 actions
Windsor (V)	Yes	Annex updated, including status of 2019 actions

5

Public and Stakeholder Outreach

- Public Outreach Toolkit –
  - Social media templates and posts
  - Printable materials
- Surveys
  - Stakeholders
  - Neighboring communities
  - Public
- HMP website –2024 Broome County Multi-Jurisdictional Hazard Mitigation Plan Update | Broome County (broomecountyny.gov)
- StoryMap - https://storymaps.arcgis.com/stories/6f5336592a674f548ff0bd2c360e849d



6

Hazards of Concern (2024 HMP)

- Dam and Levee Failure
- Disease Outbreak
- Drought
- Earthquake
- Extreme Temperature
- Flood
- Invasive Species
- Severe Storm
- Severe Winter Storm
- Wildfire

7



Risk Assessment Overview

How are the rankings calculated?
What is the preliminary ranking?

8

What is Risk?

- ✓ Hazard
  - *Something that has the potential to cause damage, injuries, and losses*
- ✓ Exposure
  - *People, property and infrastructure vulnerable to the hazard*
- ✓ Risk
  - *Probability and severity of damages to people, property, and infrastructure*



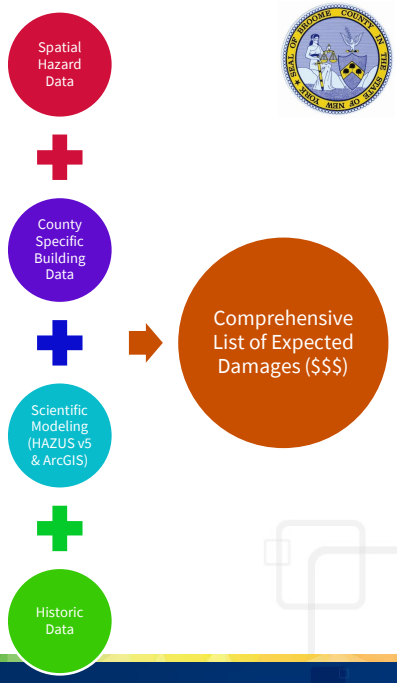


TETRA TECH

9

Purpose of the Risk Assessment

- To get a better understanding of the risks you face
- Initial results based on available data
- Quantitative data (population/structures exposed, structural damages within hazard zones) used when available
- Qualitative community input (such as unmapped flood areas) integrated to adjust results
- Local community input to adjust relative rankings



TETRA TECH

10

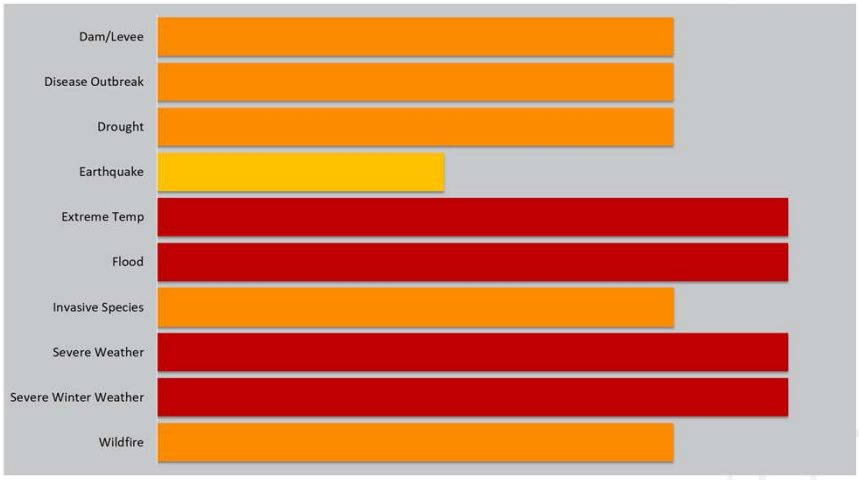
What We Looked At

Hazard	Population	Property	Economy
Dam/Levee Failure	Entire Population	Entire Building Stock	Entire Replacement Costs for all Buildings
Disease Outbreak	Vulnerable populations (65+, >5, Disabled, and Poverty)	Entire Building Stock	Entire Replacement Costs for all Buildings
Drought	Vulnerable populations (65+, >5, Disabled, and Poverty)	Entire Building Stock	Entire Replacement Costs for all Buildings
Earthquake	Population located areas with Class D & E soils	Buildings located in areas with Class D & E soils	Damage to buildings located in areas of Class D & E soils
Extreme Temperature	Vulnerable populations (65+, >5, Disabled, and Poverty)	Entire Building Stock	Entire Replacement Costs for all Buildings
Flood	Population located in 1% SFHA	Buildings located in 1% SFHA	Replacement costs of buildings in 1% SFHA
Invasive Species	Entire Population	Entire Building Stock	Entire Replacement Costs for all Buildings
Severe Storm	Entire Population	Entire Building Stock	Entire Replacement Costs for all Buildings
Severe Winter Storm	Vulnerable populations (65+, >5, Disabled, and Poverty)	Entire Building Stock	Entire Replacement Costs for all Buildings
Wildfire	Population located in Wildland/Urban Interface/Intermix Areas	Buildings located in Wildland/Urban Interface/Intermix Areas	Damage to buildings located in Wildland/Urban Interface/Intermix Areas

11

Countywide Rankings

Hazard	Ranking
Dam/Levee Failure	Medium
Disease Outbreak	Medium
Drought	Medium
Earthquake	Low
Extreme Temperature	High
Flood	High
Invasive Species	Medium
Severe Storm	High
Severe Winter Storm	High
Wildfire	Medium



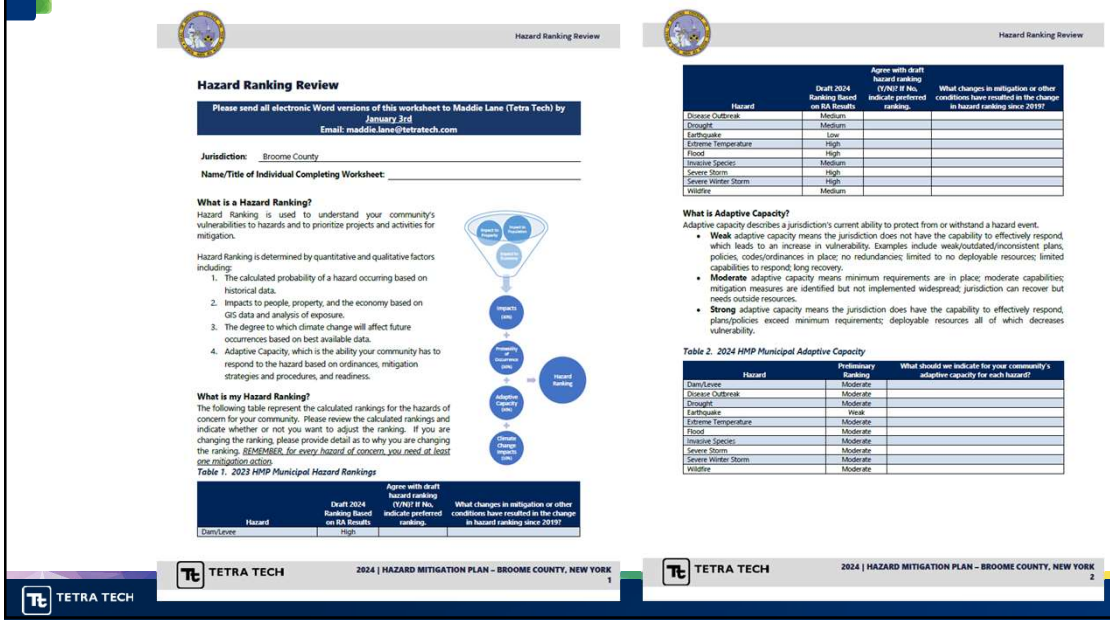
12

Preliminary Municipal Rankings

Jurisdictions	Hazard Ranking									
	Dam/Levee	Disease Outbreak	Drought	Earthquake	Extreme Temp	Flood	Invasive Species	Severe Weather	Severe Winter Weather	Wildfire
Barker (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Binghamton (C)	Medium	Medium	Medium	Low	High	Medium	Medium	High	High	Medium
Binghamton (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Chenango (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Colesville (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Conklin (T)	Medium	Medium	Medium	Low	High	High	Medium	High	High	Medium
Dickinson (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Endicott (V)	Medium	Medium	Medium	Low	High	High	Medium	High	High	Medium
Fenton (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Johnson City (V)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Kirkwood (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Lisle (V)	Medium	Medium	Medium	Low	High	High	Medium	High	High	Medium
Maine (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Nanticoke (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Port Dickinson (V)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Sanford (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Triangle (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Union (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Vestal (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Whitney Point (V)	Medium	Medium	Medium	Low	High	High	Medium	High	High	Medium
Windsor (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Windsor (V)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
County (Total)	**High**	**Medium**	**Medium**	**Low**	**High**	**High**	**Medium**	**High**	**High**	**Medium**

13

Review Preliminary Rankings



14

Review Preliminary Rankings

Hazard	Draft 2024 Ranking Based on RA Results	Agree with draft hazard ranking (Y/N)? If No, indicate preferred ranking.	What changes in mitigation or other conditions have resulted in the change in hazard ranking since 2019?
Dam/Levee	Medium	Yes	-
Disease Outbreak	Medium	Yes	-
Drought	Medium	Yes	-
Earthquake	Low	Yes	-
Extreme Temperature	High	Yes	-
Flood	Low	No – High	Stormwater flooding causes significant issues throughout the municipality; flood should be ranked as high
Invasive Species	Medium	Yes	-
Severe Storm	High	Yes	-
Severe Winter Storm	High	Yes	-
Wildfire	Medium	No – Low	The municipality does not have a history of wildfires and not located in an areas susceptible to wildfires; should be ranked as low

15

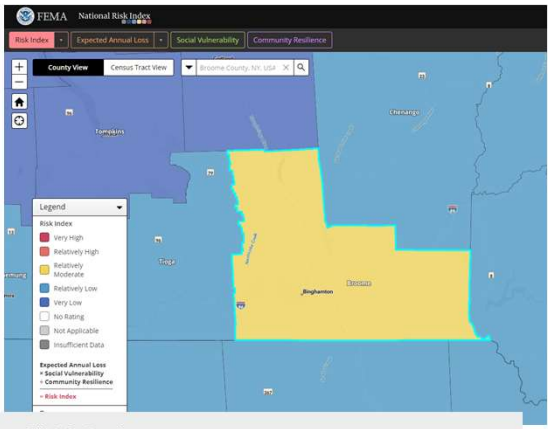
Review Preliminary Adaptive Capacity

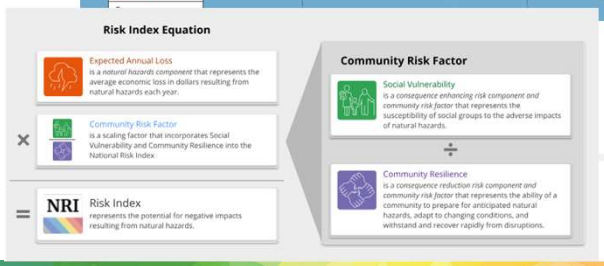
Hazard	Preliminary Ranking	What should we indicate for your community's adaptive capacity for each hazard?
Dam/Levee	Moderate	
Disease Outbreak	Moderate	
Drought	Moderate	Weak – many residents rely on surface water and we do not have backup water sources in the event of a severe drought
Earthquake	Weak	Moderate – buildings codes include requirements to withstand earthquakes
Extreme Temperature	Moderate	
Flood	Moderate	
Invasive Species	Moderate	
Severe Storm	Moderate	Strong – the municipality experiences severe storms every year and we have programs and resources to decrease our vulnerability
Severe Winter Storm	Moderate	Strong – the municipality experiences winter weather every year and we have programs and resources to decrease our vulnerability
Wildfire	Moderate	

16

Risk Assessment Summary

- Each slide will include:
  - Types of hazards included (e.g., severe storm includes hail, lightning, etc.)
  - Summary of events
  - FEMA National Risk Index (NRI) Rating
    - —Online tool to help understand risk for 18 hazards
  - Risk assessment results
  - Preliminary hazard ranking





17

Dam/Levee Failure

- Number of dams
  - 61 dams (USACE) – 23 identified as high hazard
- Number of levees
  - 13 levee systems (USACE); all used for flood risk reduction
- No reported failures or incidents
  - Any events we should include?
- Inundation areas – not available for the risk assessment; if available, we can incorporate into the HMP

Preliminary Hazard Ranking

Medium

18

Disease Outbreak

- Included – Lyme, West Nile, Flu, and Covid-19
- History of occurrence throughout the County
- Impacts
  - Vulnerable populations at risk (age, disability, and poverty)
  - Property impacts
  - Economic impacts – depends on extent of outbreak

Preliminary Hazard Ranking
MEDIUM

19

Drought

- Event history -
  - Drought Impact Reporter identifies 14 drought events since 1950; majority of impacts related to agriculture
- FEMA NRI Rating = No Rating
- Impacts
  - Entire population at risk; however, more vulnerable populations at higher risk
  - Property impacts – low
  - Economic impacts – medium

Preliminary Hazard Ranking
MEDIUM

20

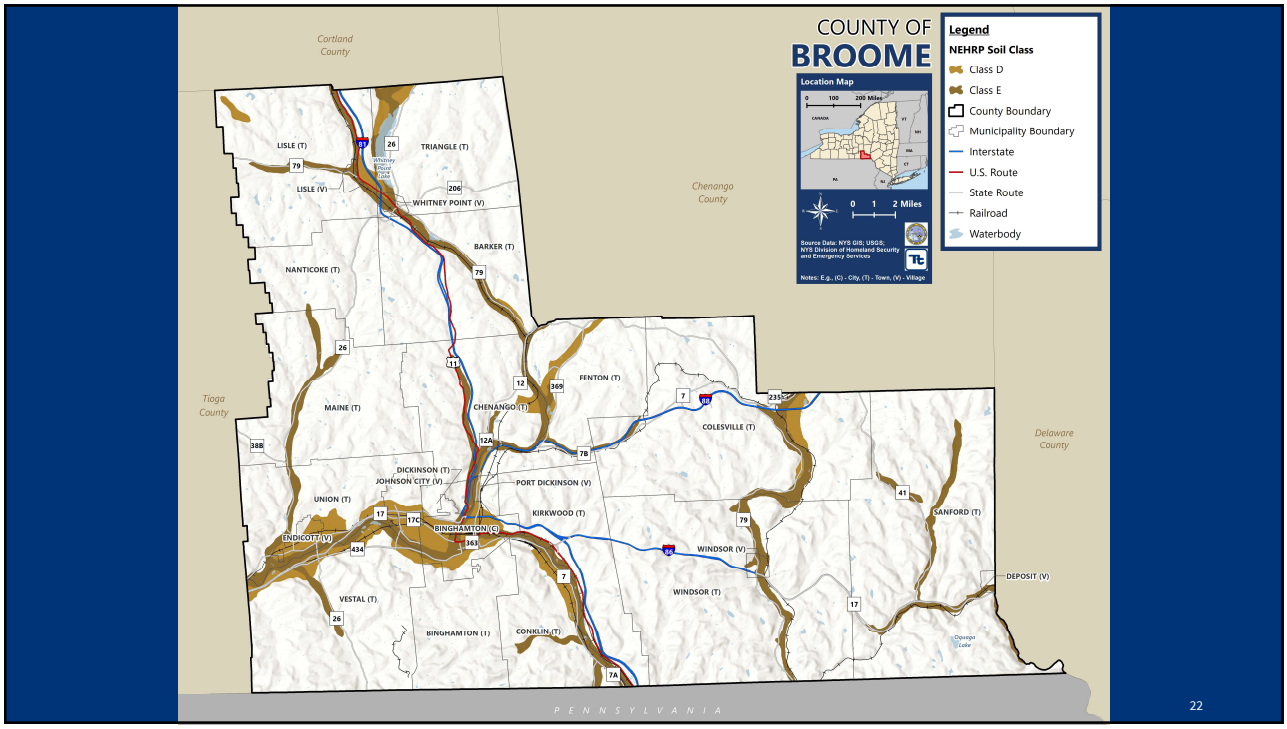
Earthquake

- Event history is minimal
  - No earthquakes in the County since 1950
- FEMA NRI Rating = Very Low
- Impacts
  - Population - low
  - Property impacts – low
  - Economic impacts – low

Preliminary Hazard Ranking

LOW

21



22

Extreme Temperature (hot/cold)

- Extreme Heat - >90°F
  - Over 200 days since 1950 with a recorded high of >90
- Extreme Cold - <20°F
  - Over 1,000 days with a recorded low of <20
- FEMA NRI Rating –
  - Cold = Relatively Moderate
  - Heat = Relatively Low
- Impacts
  - Vulnerable populations most at risk – age, disability, and poverty
  - Property impacts – low
  - Economic impacts – medium

Preliminary Hazard Ranking

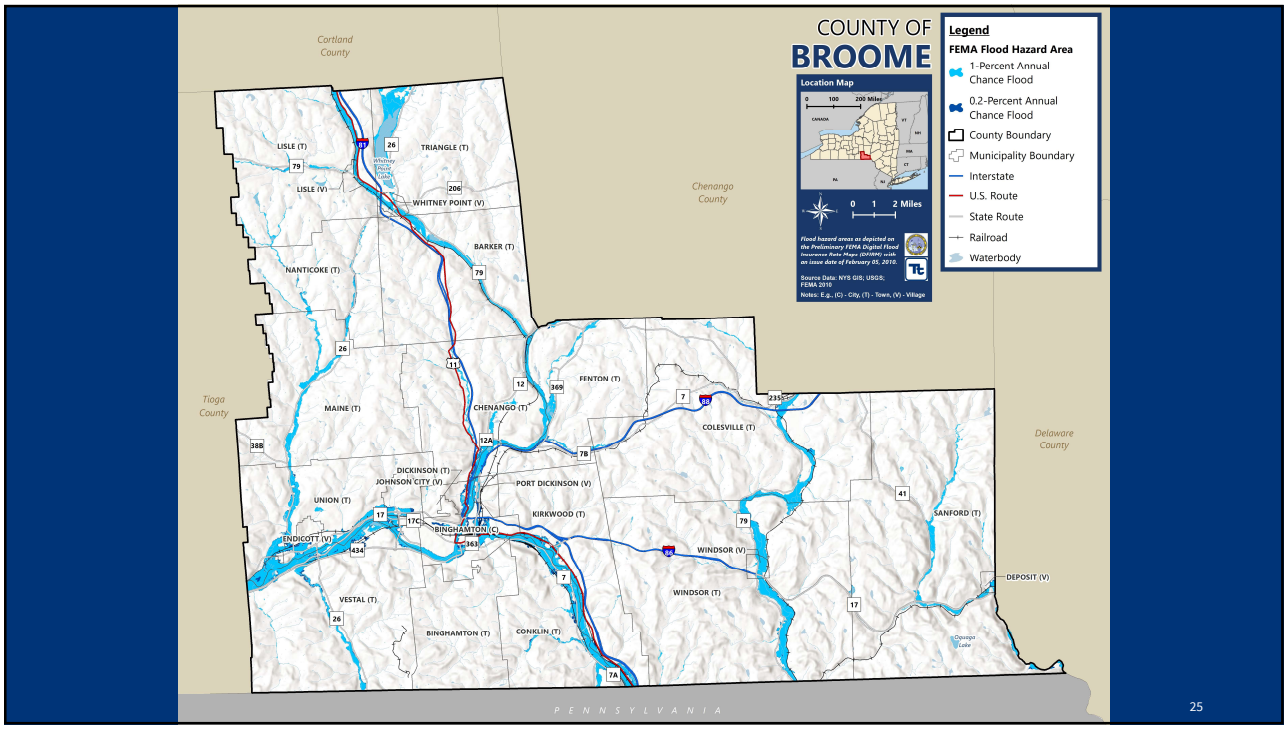
HIGH

Flood

- History of occurrence throughout the County
  - 201 recorded flood events since 1996 (NOAA-NCEI)
  - 8 FEMA declarations (identified as flood events)
- FEMA NRI Rating = Relatively High
- Impacts
  - Population and property located in the 1% SFHA
  - Economic impacts – replacement cost values of buildings in the 1% SFHA
  - Considered stormwater impacts as well

Preliminary Hazard Ranking

HIGH



25

Invasive and Nuisance Species

- Included – Phragmites, Dutch Elm Disease, Giant Hogweed, Hydrilla, Japanese Knotweed, Tree of Heaven, Wild Parsnip, Elm Zigzag Sawfly, Emerald Ash Borer, Hemlock Wooly Adelgid, Spotted Lanternfly, True Armyworm, Stinkbug, and Ticks
- Impacts
  - Entire population at risk
  - Property impacts – medium
  - Economic impacts – medium

Preliminary Hazard Ranking
MEDIUM

26

Severe Storm

- Included – hail, lightning, wind, hurricanes/tropical storms, tornadoes
- Over 500 events since 1950 (NOAA-NCEI)
- 12 FEMA declarations (severe storm, hurricane)
- FEMA NRI Rating –
  - Hail = Relatively Low
  - Lightning = Relatively Low
  - Strong Wind = Relatively Low
  - Tornado = Relatively Moderate
- Impacts
  - Entire population at risk
  - Property impacts – medium
  - Economic impacts – medium

Preliminary Hazard Ranking

HIGH

Severe Winter Weather

- Included – snow, ice, blizzards
- Event history -
  - Over 90 events since 1996 (NOAA-NCEI)
  - 4 FEMA declarations
- FEMA NRI Ratings –
  - Ice Storm = Relatively Moderate
  - Winter Weather = Very Low
- Impacts
  - Vulnerable populations most at risk – age, disability, and poverty
  - Property impacts – high
  - Economic impacts – low

Preliminary Hazard Ranking

HIGH

Wildfire

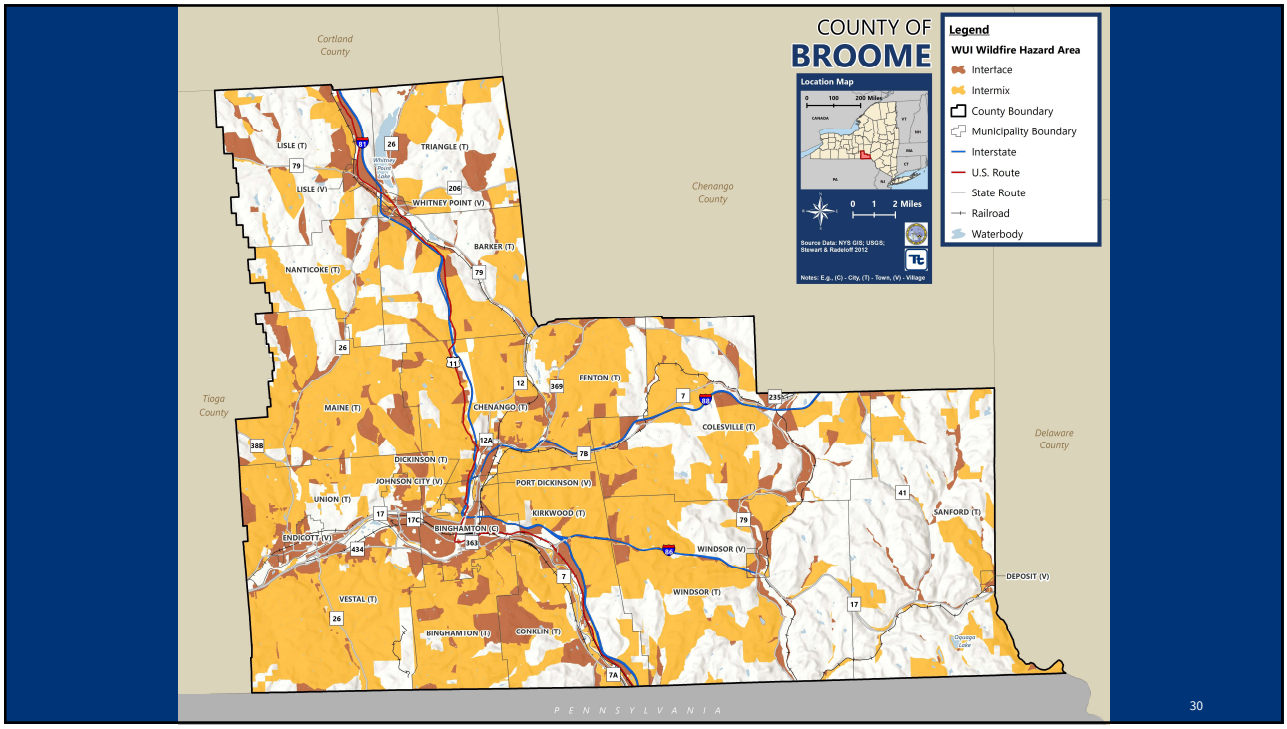
- 37 wildfires recorded since 2008 (NYS Forest Ranger database)
- FEMA NRI Rating = Very Low
- Impacts
  - Entire population at risk
  - Property impacts – Medium
  - Economic impacts – Medium

Preliminary Hazard Ranking

MEDIUM

TETRA TECH

29



30



Mitigation Strategy

How will you accomplish the overall purpose of the HMP? What will you do to reduce risk?

31

How do you reduce risk?

- How do you reduce risk for a hazard?
  - **Manipulate the Hazard**
    - Structural flood control (e.g., flood walls, levees)
  - **Reduce/Eliminate Exposure**
    - Acquire floodprone properties
  - **Reduce Vulnerability**
    - Retrofit (e.g., floodproofing structures)
  - **Increase Capability**
    - $, preparation, technical assistance, planning enforcement



TETRA TECH

32

Using Your Mitigation Strategy to Reduce Risk

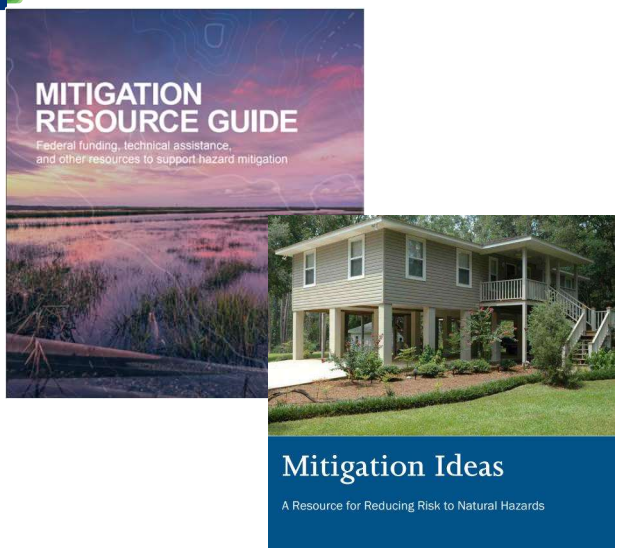
- What is a ***Mitigation Strategy***?
  - A group of projects or actions to reduce the impacts of the hazards of concern on your community
    - Plans and Regulations
    - Structure and Infrastructure Studies and Projects
    - Natural Systems Protection Studies and Projects
    - Education and Awareness Programs
- Terms to describe the Mitigation Strategy include:
  - **Mitigation Action Plan** or **Action Plan**
  - **Mitigation Projects** or **Initiatives** or **Actions**

Your Mitigation Strategy table is included in your annex. We will use action worksheets and online forms to collect details on the actions you will include in the 2024 Update.

Where do you need to focus?

- Stronger connection between the risk assessment and mitigation strategy
- More specific, achievable actions
  - Specific projects, in specific locations, in a specific timeframe
  - Focus on socially vulnerable populations and underserved communities
- Diverse actions
  - You need at least one action per hazard of concern. Think about actions that can cover multiple hazards.
  - Include a variety of action types (e.g., developing plans, outreach, structural, etc.)

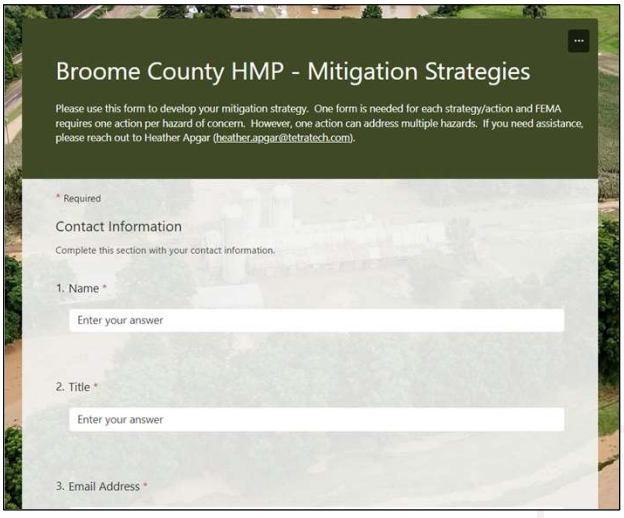
Other Mitigation Actions to Consider



- Local Disaster Debris Management Plans
- Substantial Damage Management Plan
- Actions to address high-hazard or significant-hazard dams
- Public education and outreach programs
- Generators at critical facilities and community lifelines
- Floodproofing critical facilities and community lifelines
- Addressing repetitive and severe repetitive loss properties

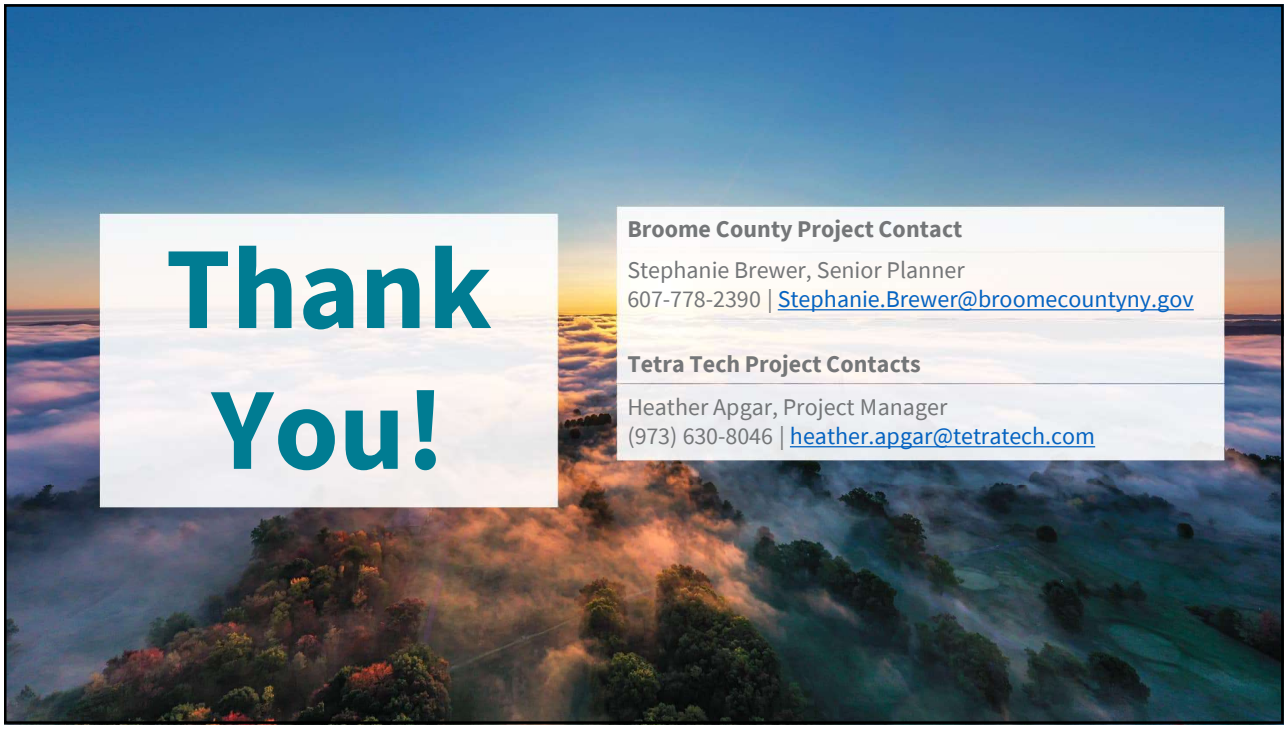
Mitigation Strategy Online Form

- We will be collecting input on mitigation actions through on online form
- Complete one form per action
- We will be providing additional information to help with the actions
- Any questions, reach out!




QUESTIONS?

37


Thank You!
Broome County Project Contact
Stephanie Brewer, Senior Planner
607-778-2390 | Stephanie.Brewer@broomecountyny.gov
Tetra Tech Project Contacts
Heather Apgar, Project Manager
(973) 630-8046 | heather.apgar@tetratech.com

38



TETRA TECH

Broome County Hazard Mitigation Plan – 2024 Update

Steering Committee Meeting #3 – Review Preliminary Hazard Ranking

December 6, 2023

If you are joining through Teams, please enter your name and department/agency in the chat.



Today's Agenda

1. Welcome
2. Progress Report
3. Public and Stakeholder Outreach
4. Risk Assessment Overview
5. Schedule
6. Questions/Next Steps/Wrap Up



In-Kind Tracking

Jurisdiction: _____

Name: _____ Title: _____

Date	Start Time	End Time	# hours	Task Description	Hourly Rate	Total *# hours x rate*	Comments *describe task in more detail*
					$		

Scan the UR code for the online form to enter your time.

-or-

https://www.surveymonkey.com/r/BroomeInKind

Project Schedule

- **Planning Process**
  - Ongoing
- **Update Risk Assessment**
  - Discuss risk assessment results – **TODAY!**
  - Discuss risk assessment with municipalities – **December 7th**
- **Public and Stakeholder Outreach**
  - Ongoing
- **Capability Assessment**
  - Ongoing
- **Mitigation Strategy**
  - Continue working with municipalities
  - Mitigation Strategy Workshop with FEMA and State – **February 1st**
- **Plan Maintenance**
  - Utilizing the BATool to review/update actions from 2019 HMP
  - Finalize plan maintenance procedures by **February 2024**
- **Develop Plan**
  - Draft Plan to Steering Committee by **March 2024**
  - Draft Plan Presentation in **April 2024**
  - Public Review Period – **April-May 2024**
  - Draft to NYS DHSES – **May 2024**
  - Draft to FEMA – **August/September 2024**
  - Adoption – **October/November 2024**

Participation Status

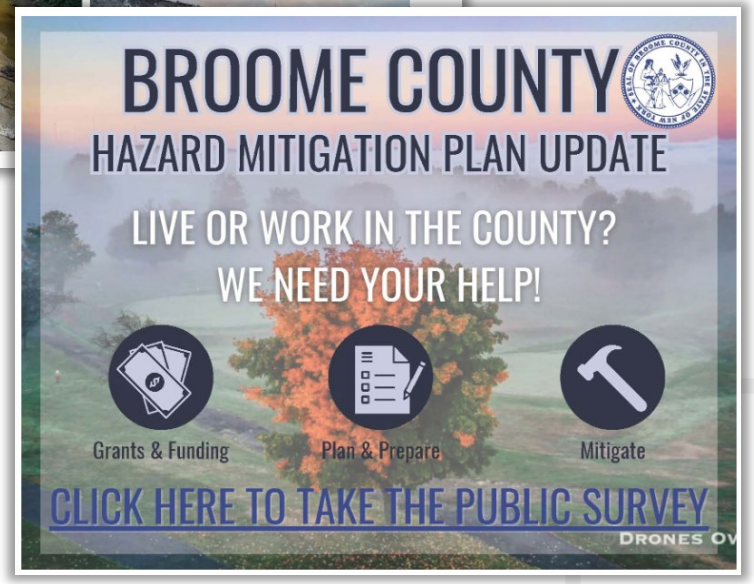
Jurisdiction	Participating?	Status
Broome County	Yes	Annex updated; need status of several 2019 actions
Barker (T)	Yes	Annex updated; need status of 2019 actions
Binghamton (C)	Yes	Annex updated; need status of several 2019 actions
Binghamton (T)	Yes	Annex updated; need status of 2019 actions
Chenango (T)	Yes	Annex updated; need status of 2019 actions
Colesville (T)	Yes	Annex updated; need status of 2019 actions
Conklin (T)	Yes	Annex updated; need status of 2019 actions
Deposit (V)	No	-
Dickinson (T)	Yes	Annex updated; need status of 2019 actions
Endicott (V)	Yes	Annex updated; need status of 2019 actions
Fenton (T)	Yes	Annex updated; need status of 2019 actions
Johnson City (V)	Yes	Annex updated; need status of 2019 actions

Jurisdiction	Participating?	Status
Kirkwood (T)	Yes	Annex updated; need status of 2019 actions
Lisle (T)	No	-
Lisle (V)	Yes	Annex updated; need status of 2019 actions
Maine (T)	Yes	Annex updated; need status of 2019 actions
Nanticoke (T)	Yes	Annex updated; need status of 2019 actions
Port Dickinson (V)	Yes	Annex updated; need status of 2019 actions
Sanford (T)	Yes	Annex updated; need status of 2019 actions
Triangle (T)	Yes	Annex updated; need status of 2019 actions
Union (T)	Yes	Annex updated; need status of 2019 actions
Vestal (T)	Yes	Annex updated; need status of 2019 actions
Whitney Point (V)	Yes	Annex updated; need status of 2019 actions
Windsor (T)	Yes	Annex updated; need status of 2019 actions
Windsor (V)	Yes	Annex updated, including status of 2019 actions

Public and Stakeholder Outreach

- Public Outreach Toolkit –
  - Social media templates and posts
  - Printable materials
- Surveys
  - Stakeholders
  - Neighboring communities
  - Public
- HMP website –[2024 Broome County Multi-Jurisdictional Hazard Mitigation Plan Update | Broome County (broomecountyny.gov)]
- StoryMap - https://storymaps.arcgis.com/stories/6f5336592a674f548ff0bd2c360e849d
- Planning Partnership meetings open to the public and stakeholders







Risk Assessment Overview

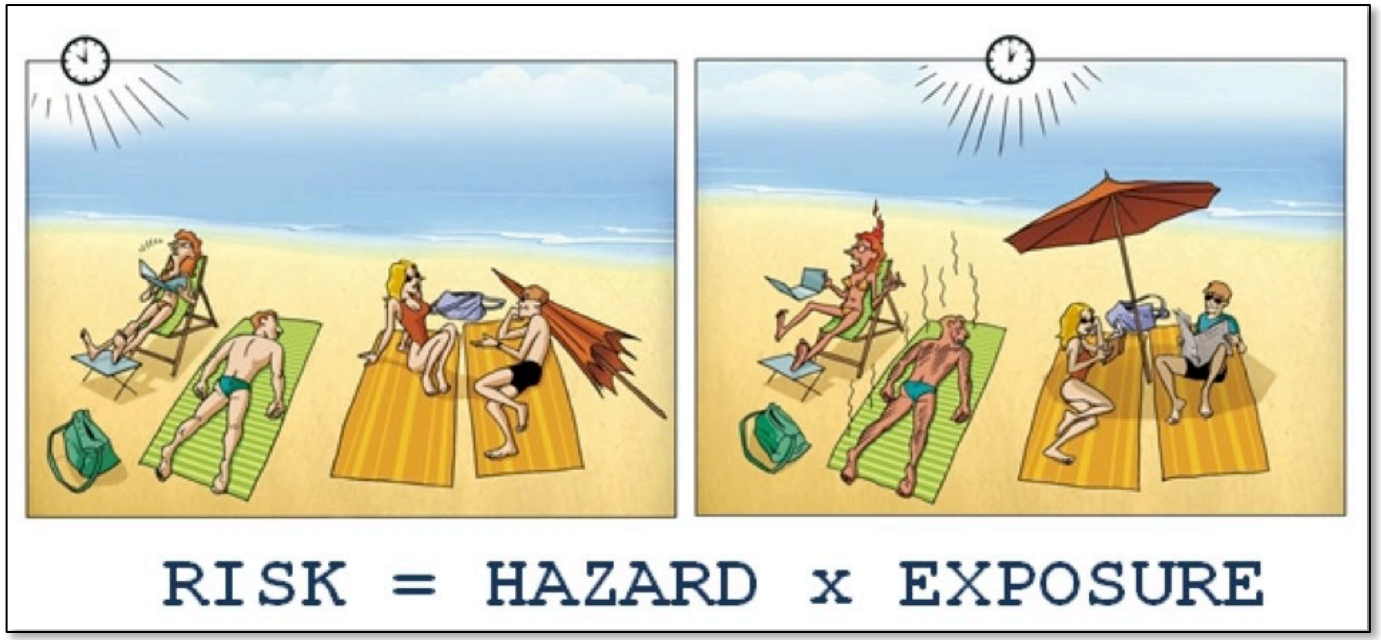
How are the rankings calculated?
What is the preliminary ranking?

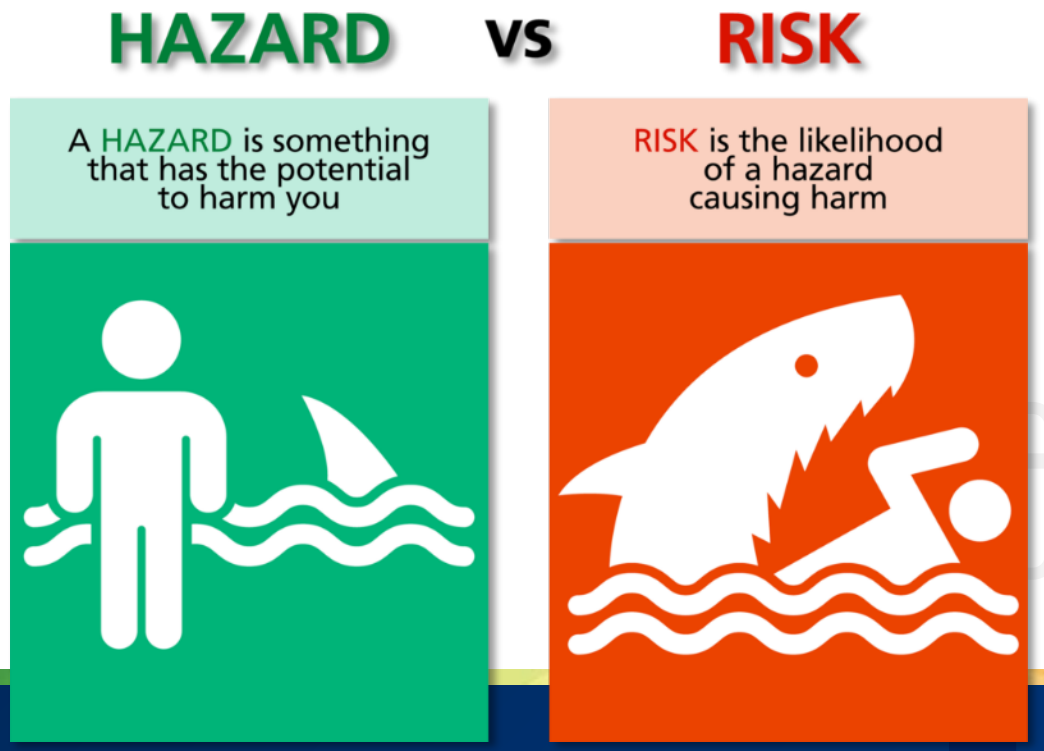
Hazards of Concern (2024 HMP)

- Dam and Levee Failure
- Disease Outbreak
- Drought
- Earthquake
- Extreme Temperature
- Flood
- Invasive Species
- Severe Storm
- Severe Winter Storm
- Wildfire

What is Risk?

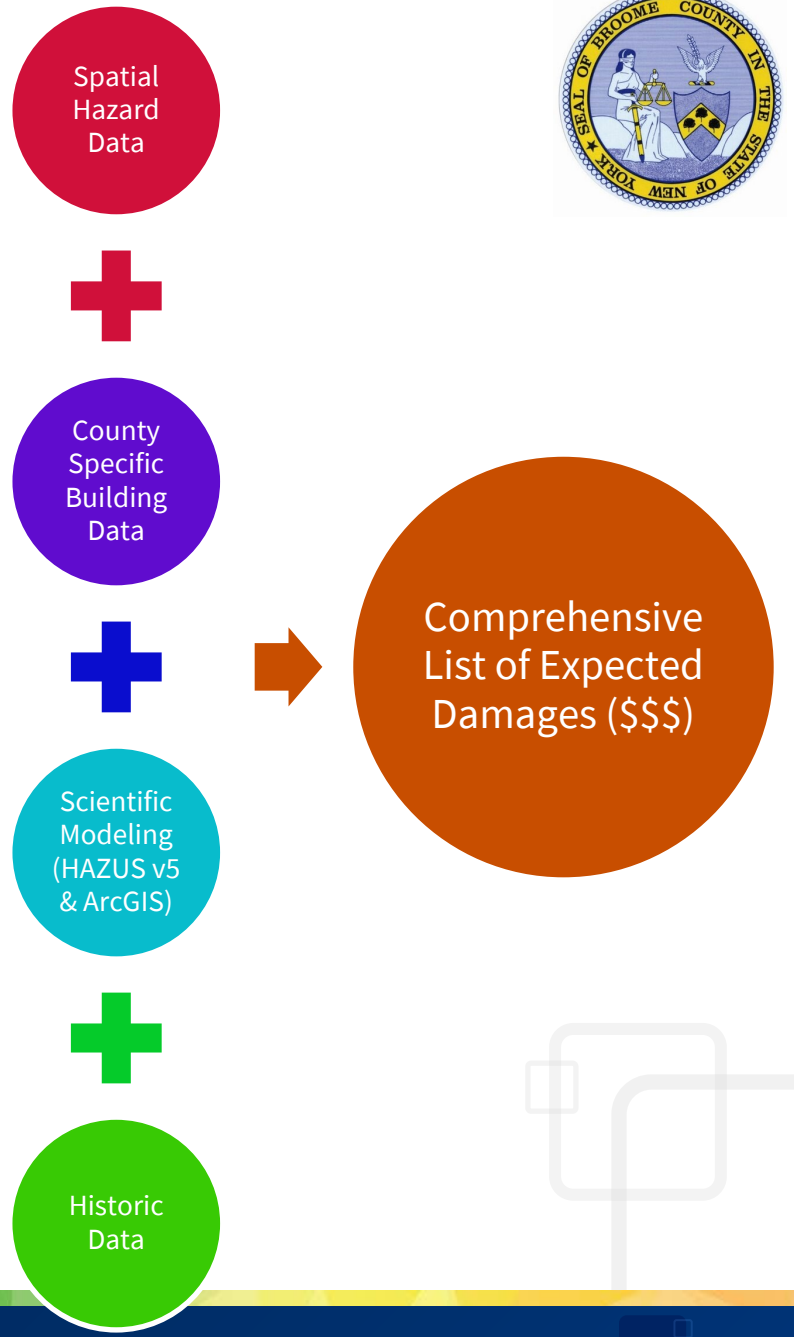
- ✓ Hazard
  - *Something that has the potential to cause damage, injuries, and losses*
- ✓ Exposure
  - *People, property and infrastructure vulnerable to the hazard*
- ✓ Risk
  - *Probability and severity of damages to people, property, and infrastructure*



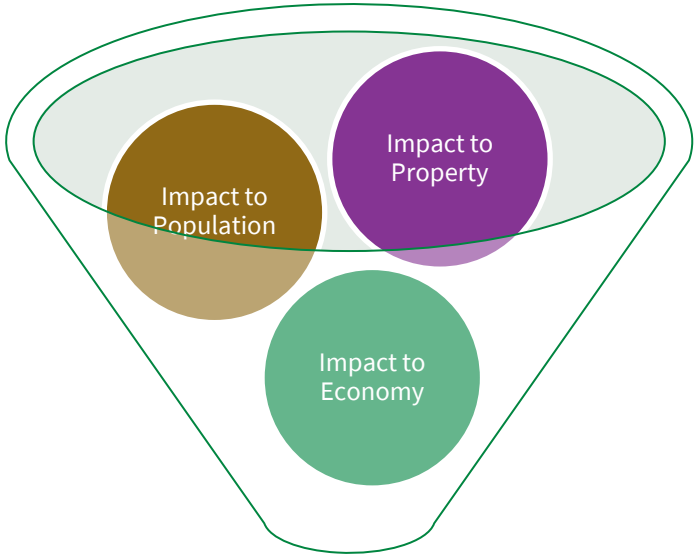


Purpose of the Risk Assessment

- To get a better understanding of the risks you face
- Initial results based on available data
- Quantitative data (population/structures exposed, structural damages within hazard zones) used when available
- Qualitative community input (such as unmapped flood areas) integrated to adjust results
- Local community input to adjust relative rankings



Preliminary Hazard Ranking Formula



Local community input to adjust preliminary rankings

Probability of Occurrence (30%) + Impacts (30%) + Adaptive Capacity (30%) + Climate Change (10%) → Preliminary Hazard Ranking

How did we measure impact?

Probability of Occurring

- → **Unlikely** - not likely to occur or less than 1% annual chance of occurring
- → **Rare** - between 1 and 10% annual chance of occurring
- → **Occasional** - between 10 and 100% annual chance of occurring
- → **Frequent** - 100% chance occurring; occurs multiple times a year



- → **Low** - <15% exposed
- → **Medium** - 15-29% exposed
- → **High** - >30% exposed



- → **Low** - <9% exposed
- → **Medium** – 10-19% exposed
- → **High** - >20% exposed



- → **Low** - <15% exposed
- → **Medium** - 15-29% exposed
- → **High** - >30% exposed

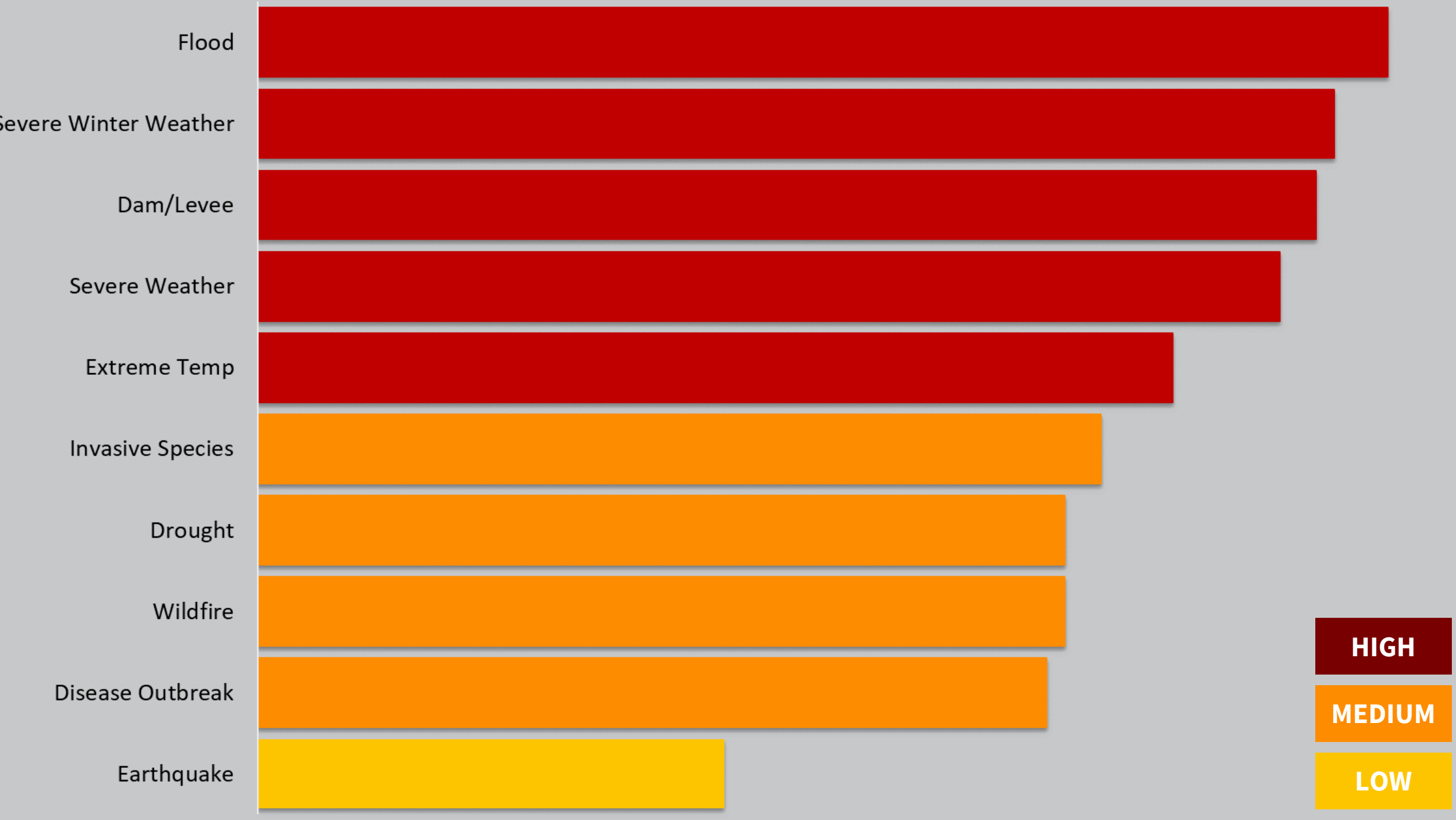
How did we measure impact?

Capacity

- → **Low** (1) - Weak/outdated/inconsistent plans, policies, codes/ordinances in place; no redundancies; limited to no deployable resources; limited capabilities to respond; long recovery.
- → **Medium** (0) - Plans, policies, codes/ordinances in place and meet minimum requirements; mitigation strategies identified but not implemented on a widespread scale; county/jurisdiction can recover but needs outside resources; moderate county/jurisdiction capabilities.
- → **High** (-1) - Plans, policies, codes/ordinances in place and exceed minimum requirements; mitigation/protective measures in place; county/jurisdiction has ability to recover quickly because resources are readily available, and capabilities are high.

Climate Change

- → **Low** (1) - No local data is available; modeling projects are uncertain on whether there is increased future risk; confidence level is low (inconclusive evidence).
- → **Medium** (2) - Studies and modeling projections indicate a potential for exacerbated conditions due to climate change; confidence level is medium to high (suggestive to moderate evidence).
- → **High** (3) - Studies and modeling projections indicate exacerbated conditions/increased future risk due to climate change; very high confidence level (strong evidence, well-documented and acceptable methods).

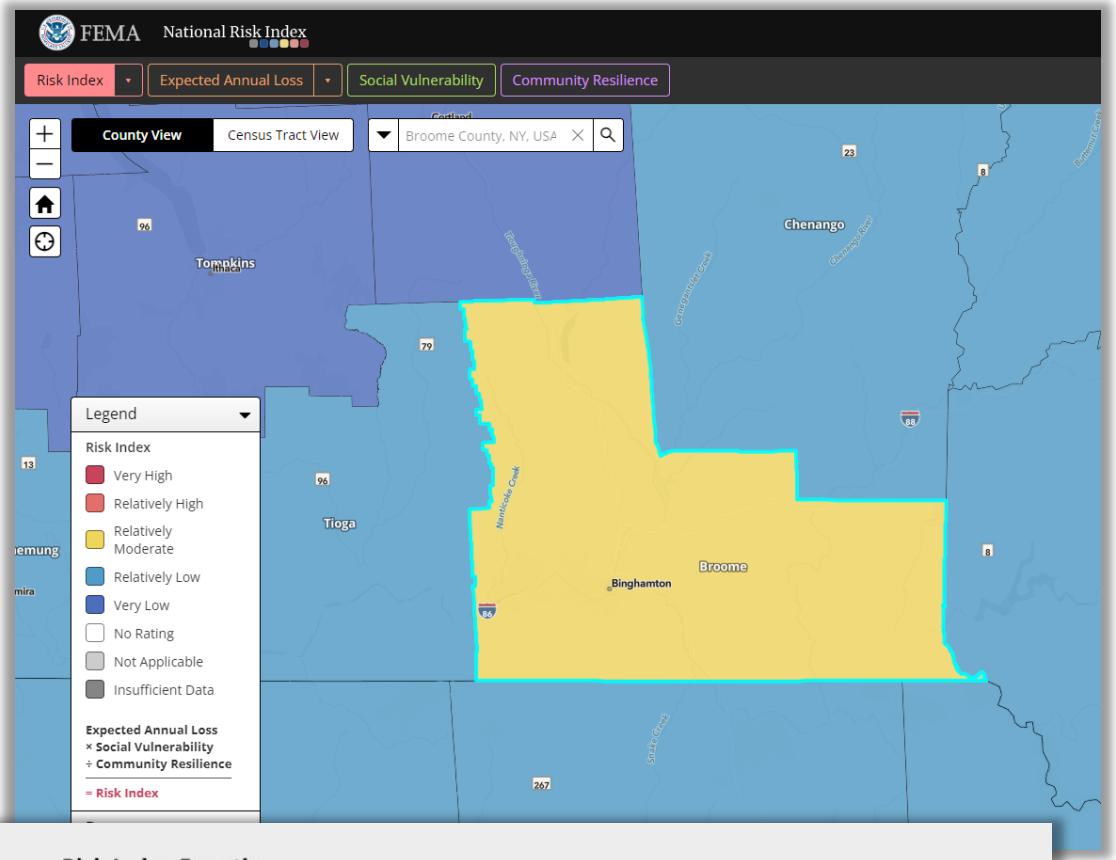

Flood
Severe Winter Weather
Dam/Levee
Severe Weather
Extreme Temp
Invasive Species
Drought
Wildfire
Disease Outbreak
Earthquake
HIGH
MEDIUM
LOW

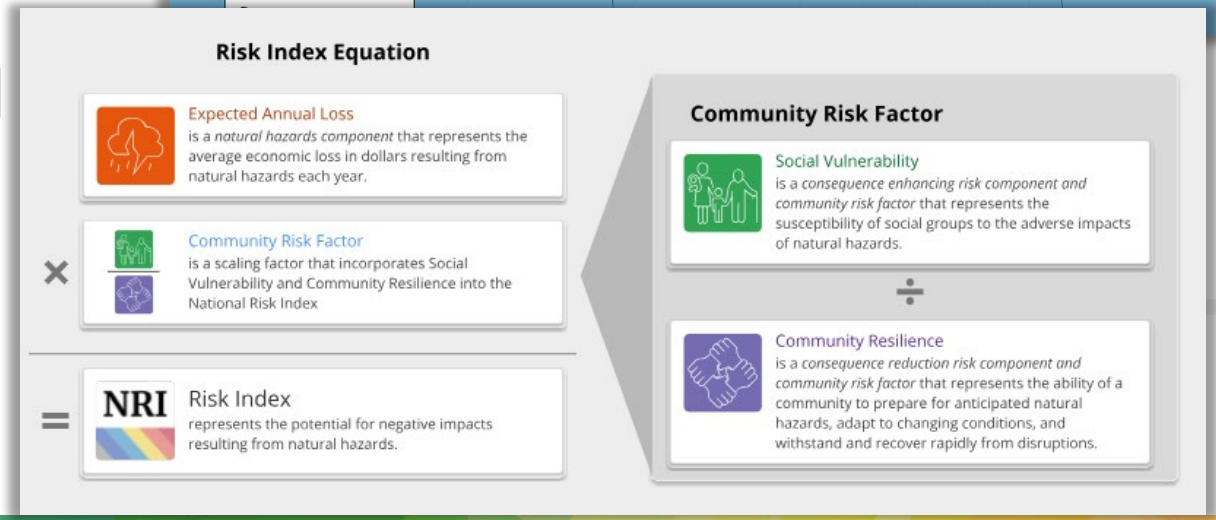
Preliminary Municipal Rankings

Jurisdictions	Hazard Ranking									
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Nanticoke (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Port Dickinson (V)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Sanford (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Triangle (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Union (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Vestal (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Whitney Point (V)	Medium	Medium	Medium	Low	High	High	Medium	High	High	Medium
Windsor (T)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
Windsor (V)	Medium	Medium	Medium	Low	High	Low	Medium	High	High	Medium
County (Total)	**High**	**Medium**	**Medium**	**Low**	**High**	**High**	**Medium**	**High**	**High**	**Medium**

Risk Assessment Summary

- Each slide will include:
  - Types of hazards included (e.g., severe storm includes hail, lightning, etc.)
  - Summary of events
  - FEMA National Risk Index (NRI) Rating
    - —Online tool to help understand risk for 18 hazards
  - Risk assessment results
  - Preliminary hazard ranking





Dam/Levee Failure

- Number of dams
  - 61 dams (USACE) – 23 identified as high hazard
- Number of levees
  - 13 levee systems (USACE); all used for flood risk reduction
- No reported failures or incidents
  - Any events we should include?
- Inundation areas – not available for the risk assessment; if available, we can incorporate into the HMP

Preliminary Hazard Ranking

High

Disease Outbreak

- Included – Lyme, West Nile, Flu, and Covid-19
- History of occurrence throughout the County
- Impacts
  - Vulnerable populations at risk (age, disability, and poverty)
  - Property impacts
  - Economic impacts – depends on extent of outbreak

Preliminary Hazard Ranking

MEDIUM

Drought

- Event history -
  - Drought Impact Reporter identifies 14 drought events since 1950; majority of impacts related to agriculture
- FEMA NRI Rating = No Rating
- Impacts
  - Entire population at risk; however, more vulnerable populations at higher risk
  - Property impacts – low
  - Economic impacts – medium

Preliminary Hazard Ranking

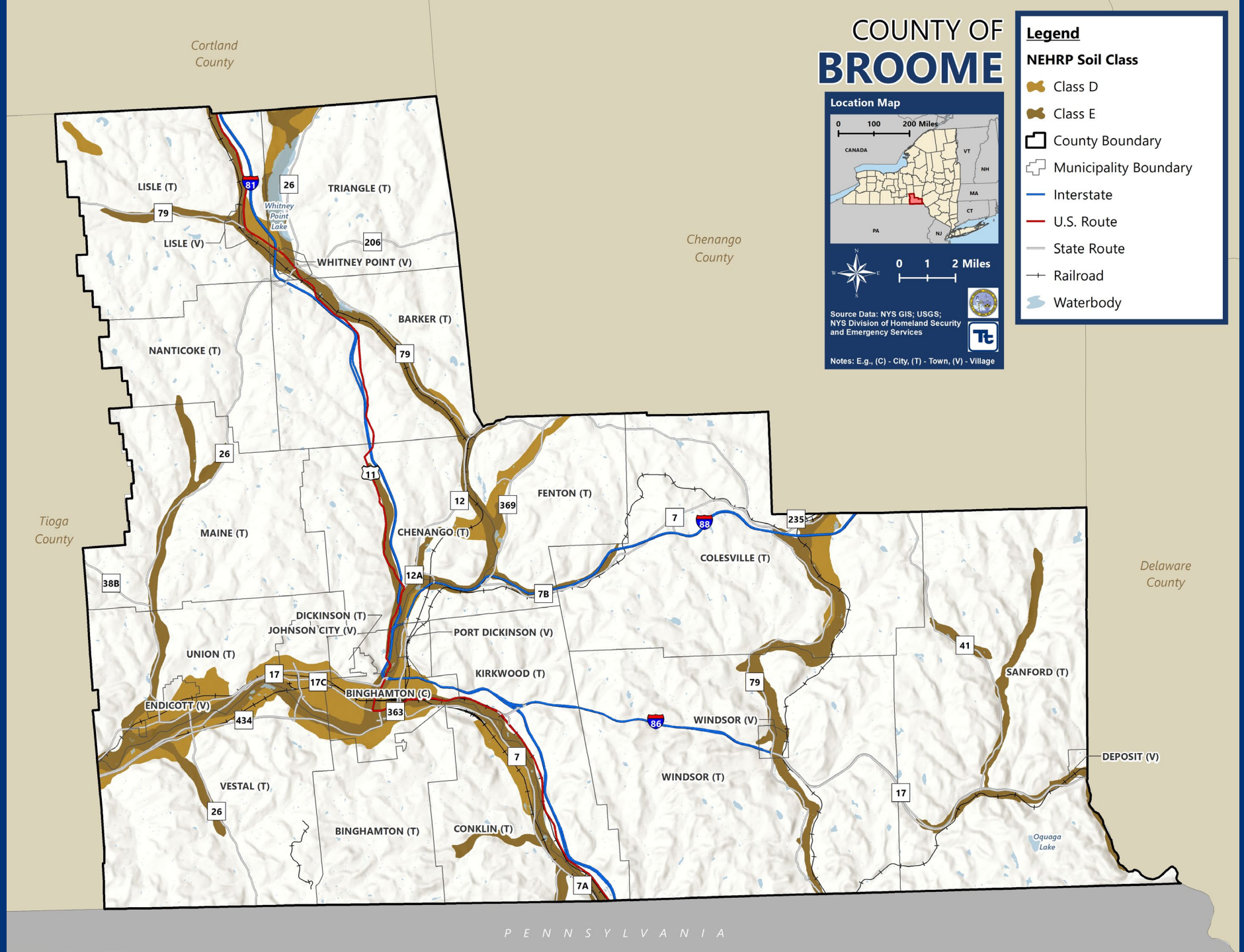
MEDIUM

Earthquake

- Event history is minimal
  - No earthquakes in the County since 1950
- FEMA NRI Rating = Very Low
- Impacts
  - Population - low
  - Property impacts – low
  - Economic impacts – low

Preliminary Hazard Ranking

LOW


COUNTY OF
BROOME
Legend
NEHRP Soil Class
Class D
Class E
County Boundary
Municipality Boundary
Interstate
U.S. Route
State Route
Railroad
Waterbody
Location Map
0 100 200 Miles
CANADA
VT
NH
MA
CT
PA
NJ
0 1 2 Miles
Source Data: NYS GIS; USGS; NYS Division of Homeland Security and Emergency Services
Notes: E.g., (C) - City, (T) - Town, (V) - Village
Cortland County
Chenango County
Tioga County
Delaware County
PENNSYLVANIA
LISLE (T)
LISLE (V)
TRIANGLE (T)
Whitney Point Lake
WHITNEY POINT (V)
BARKER (T)
NANTICOKE (T)
MAINE (T)
FENTON (T)
CHENANGO (T)
COLESVILLE (T)
DICKINSON (T)
JOHNSON CITY (V)
PORT DICKINSON (V)
UNION (T)
KIRKWOOD (T)
BINGHAMTON (C)
ENDICOTT (V)
WINDSOR (V)
SANFORD (T)
DEPOSIT (V)
VESTAL (T)
WINDSOR (T)
BINGHAMTON (T)
CONKLIN (T)
Oquaga Lake
81
26
79
206
11
12
369
7
88
235
12A
7B
38B
41
17
17C
363
434
86
7A

Extreme Temperature (hot/cold)

- Extreme Heat - >90°F
  - Over 200 days since 1950 with a recorded high of >90
- Extreme Cold - <20°F
  - Over 1,000 days with a recorded low of <20
- FEMA NRI Rating –
  - Cold = Relatively Moderate
  - Heat = Relatively Low
- Impacts
  - Vulnerable populations most at risk – age, disability, and poverty
  - Property impacts – low
  - Economic impacts – medium

Preliminary Hazard Ranking

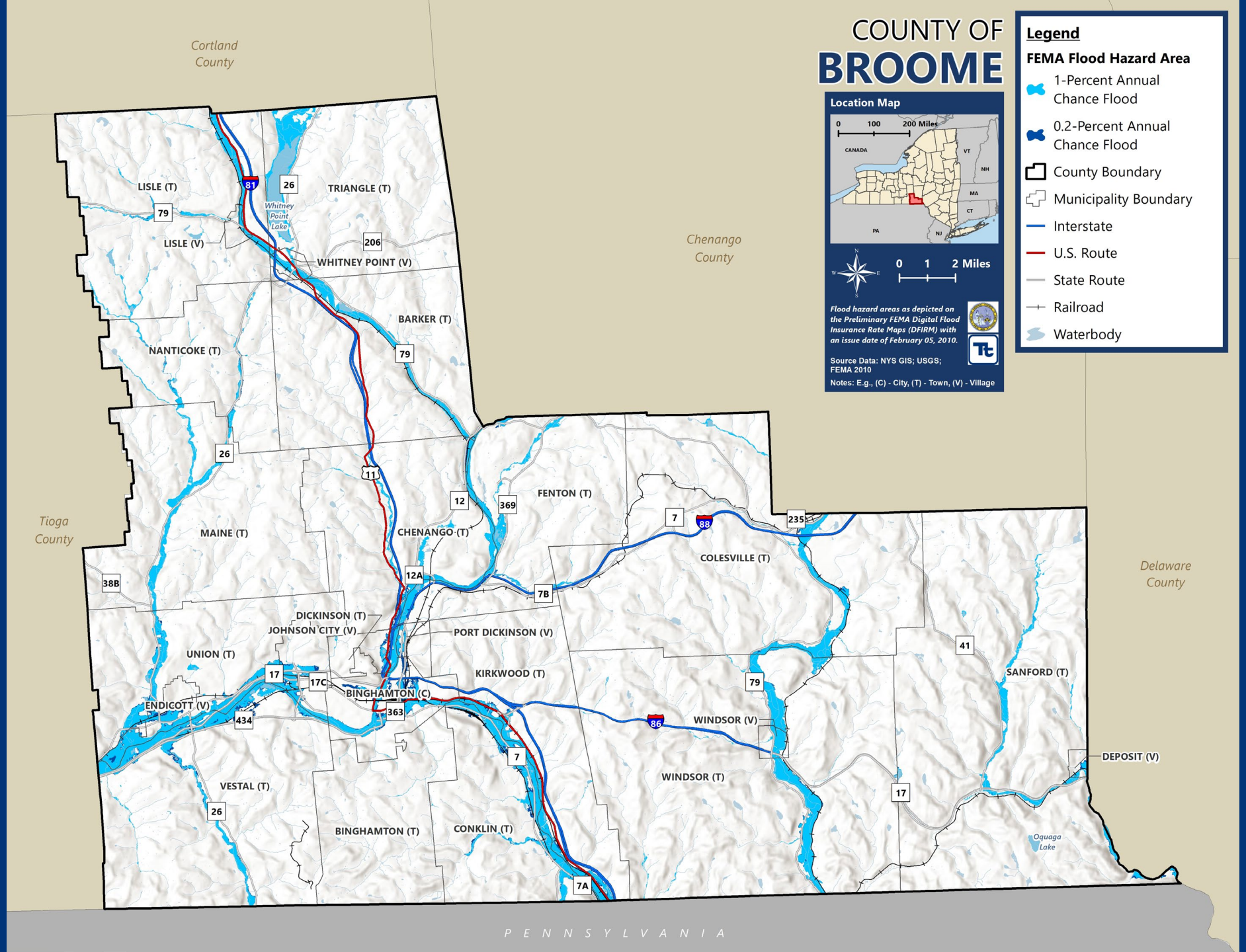
HIGH

Flood

- History of occurrence throughout the County
  - 201 recorded flood events since 1996 (NOAA-NCEI)
  - 8 FEMA declarations (identified as flood events)
- FEMA NRI Rating = Relatively High
- Impacts
  - Population and property located in the 1% SFHA
  - Economic impacts – replacement cost values of buildings in the 1% SFHA
  - Considered stormwater impacts as well

Preliminary Hazard Ranking

HIGH


COUNTY OF
BROOME
Legend
FEMA Flood Hazard Area
1-Percent Annual Chance Flood
0.2-Percent Annual Chance Flood
County Boundary
Municipality Boundary
Interstate
U.S. Route
State Route
Railroad
Waterbody
Location Map
0 100 200 Miles
CANADA
VT
NH
MA
CT
PA
NJ
0 1 2 Miles
Flood hazard areas as depicted on the Preliminary FEMA Digital Flood Insurance Rate Maps (DFIRM) with an issue date of February 05, 2010.
Source Data: NYS GIS; USGS; FEMA 2010
Notes: E.g., (C) - City, (T) - Town, (V) - Village
Cortland County
Chenango County
Tioga County
Delaware County
PENNSYLVANIA
LISLE (T)
LISLE (V)
TRIANGLE (T)
Whitney Point Lake
WHITNEY POINT (V)
BARKER (T)
NANTICOKE (T)
MAINE (T)
CHENANGO (T)
FENTON (T)
COLESVILLE (T)
DICKINSON (T)
JOHNSON CITY (V)
PORT DICKINSON (V)
UNION (T)
KIRKWOOD (T)
BINGHAMTON (C)
ENDICOTT (V)
WINDSOR (V)
WINDSOR (T)
SANFORD (T)
DEPOSIT (V)
VESTAL (T)
BINGHAMTON (T)
CONKLIN (T)
Oquaga Lake
81
26
79
206
11
12
369
7
88
235
12A
7B
38B
17
17C
363
434
86
41
7A

Invasive and Nuisance Species

- Included – Phragmites, Dutch Elm Disease, Giant Hogweed, Hydrilla, Japanese Knotweed, Tree of Heaven, Wild Parsnip, Elm Zigzag Sawfly, Emerald Ash Borer, Hemlock Wooly Adelgid, Spotted Lanternfly, True Armyworm, Stinkbug, and Ticks
- Impacts
  - Entire population at risk
  - Property impacts – medium
  - Economic impacts – medium

Preliminary Hazard Ranking

HIGH

Severe Storm

- Included – hail, lightning, wind, hurricanes/tropical storms, tornadoes
- Over 500 events since 1950 (NOAA-NCEI)
- 12 FEMA declarations (severe storm, hurricane)
- FEMA NRI Rating –
  - Hail = Relatively Low
  - Lightning = Relatively Low
  - Strong Wind = Relatively Low
  - Tornado = Relatively Moderate
- Impacts
  - Entire population at risk
  - Property impacts – medium
  - Economic impacts – medium

Preliminary Hazard Ranking

HIGH

Severe Winter Weather

- Included – snow, ice, blizzards
- Event history -
  - Over 90 events since 1996 (NOAA-NCEI)
  - 4 FEMA declarations
- FEMA NRI Ratings –
  - Ice Storm = Relatively Moderate
  - Winter Weather = Very Low
- Impacts
  - Vulnerable populations most at risk – age, disability, and poverty
  - Property impacts – high
  - Economic impacts – low

Preliminary Hazard Ranking

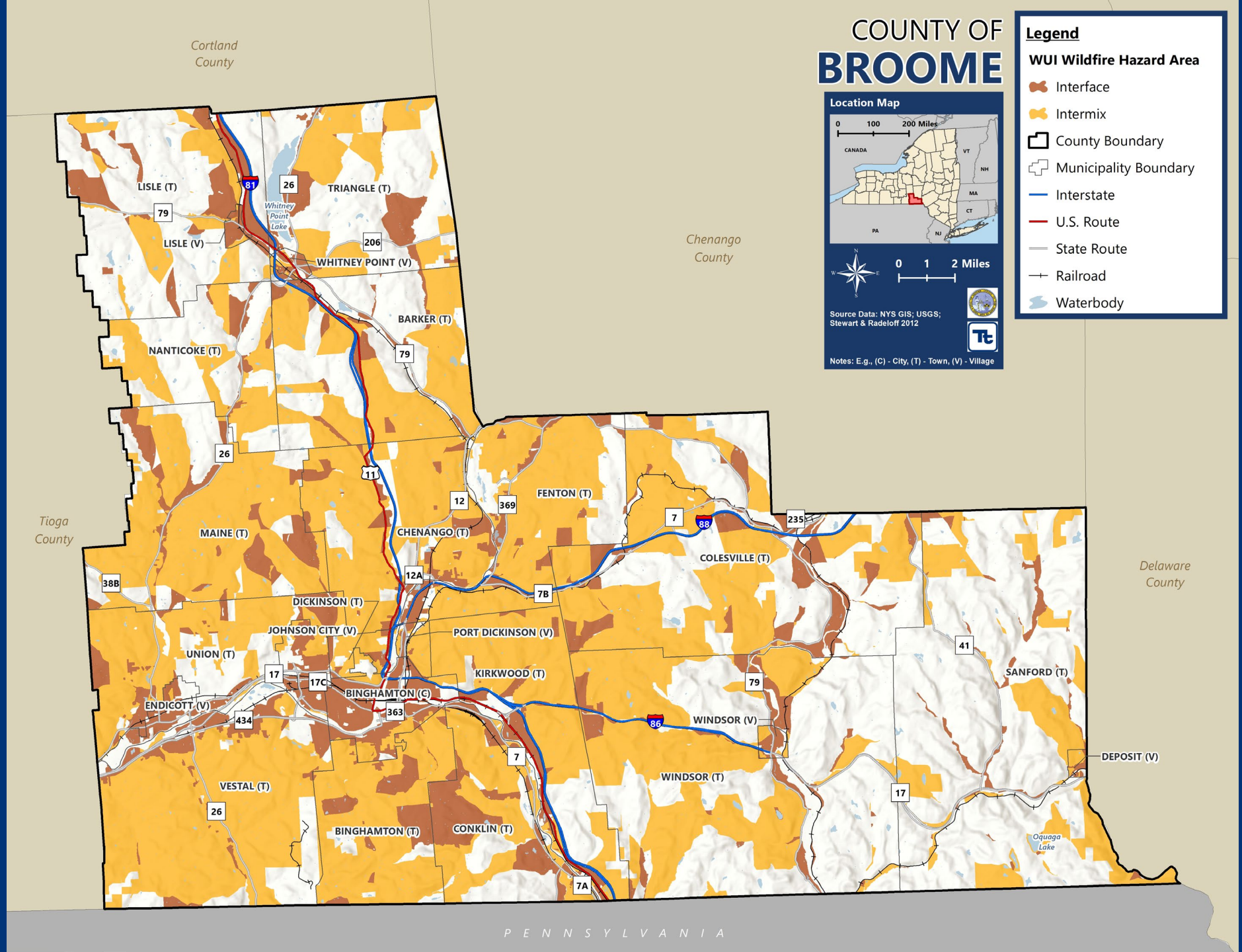
HIGH

Wildfire

- 37 wildfires recorded since 2008 (NYS Forest Ranger database)
- FEMA NRI Rating = Very Low
- Impacts
  - Entire population at risk
  - Property impacts – Medium
  - Economic impacts – Medium

Preliminary Hazard Ranking

MEDIUM


COUNTY OF
BROOME
Legend
WUI Wildfire Hazard Area
Interface
Intermix
County Boundary
Municipality Boundary
Interstate
U.S. Route
State Route
Railroad
Waterbody
Location Map
0 100 200 Miles
CANADA
VT
NH
MA
CT
PA
NJ
0 1 2 Miles
Source Data: NYS GIS; USGS; Stewart & Radeloff 2012
Notes: E.g., (C) - City, (T) - Town, (V) - Village
Cortland County
Chenango County
Tioga County
Delaware County
PENNSYLVANIA
LISLE (T)
LISLE (V)
TRIANGLE (T)
Whitney Point Lake
WHITNEY POINT (V)
BARKER (T)
NANTICOKE (T)
MAINE (T)
CHENANGO (T)
FENTON (T)
COLESVILLE (T)
DICKINSON (T)
JOHNSON CITY (V)
PORT DICKINSON (V)
UNION (T)
KIRKWOOD (T)
BINGHAMTON (C)
ENDICOTT (V)
WINDSOR (V)
SANFORD (T)
DEPOSIT (V)
WINDSOR (T)
VESTAL (T)
BINGHAMTON (T)
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Oquaga Lake
81
26
79
206
11
12
369
7
88
235
12A
7B
38B
41
17
17C
363
434
86
7
17
7A

Let's Hear From You!

- Take a few minutes to let us know if you agree with the rankings or if we need to adjust
- Scan the QR code or follow the instructions on the screen



Hazard	Preliminary Ranking
Dam/Levee	High
Disease Outbreak	Medium
Drought	Medium
Earthquake	Low
Extreme Temp	High
Flood	High
Invasive Species	Medium
Severe Weather	High
Severe Winter Weather	High
Wildfire	Medium



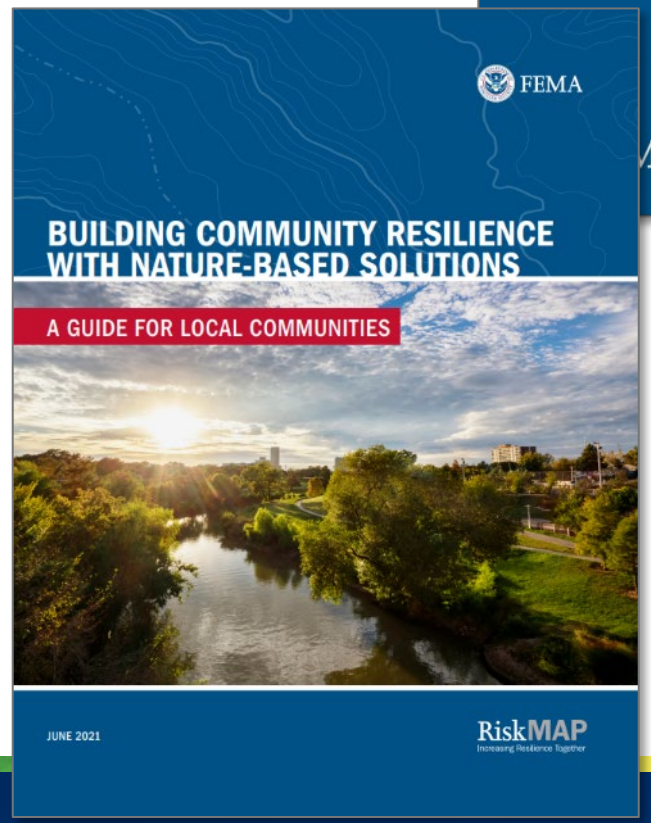
Mitigation Strategy

How will you accomplish the overall purpose of the HMP? What will you do to reduce risk?

How do you reduce risk?

- How do you reduce risk for a hazard?
  - **Manipulate the Hazard**
    - Structural flood control (e.g., flood walls, levees)
  - **Reduce/Eliminate Exposure**
    - Acquire floodprone properties
  - **Reduce Vulnerability**
    - Retrofit (e.g., floodproofing structures)
  - **Increase Capability**
    - $, preparation, technical assistance, planning enforcement





Using Your Mitigation Strategy to Reduce Risk

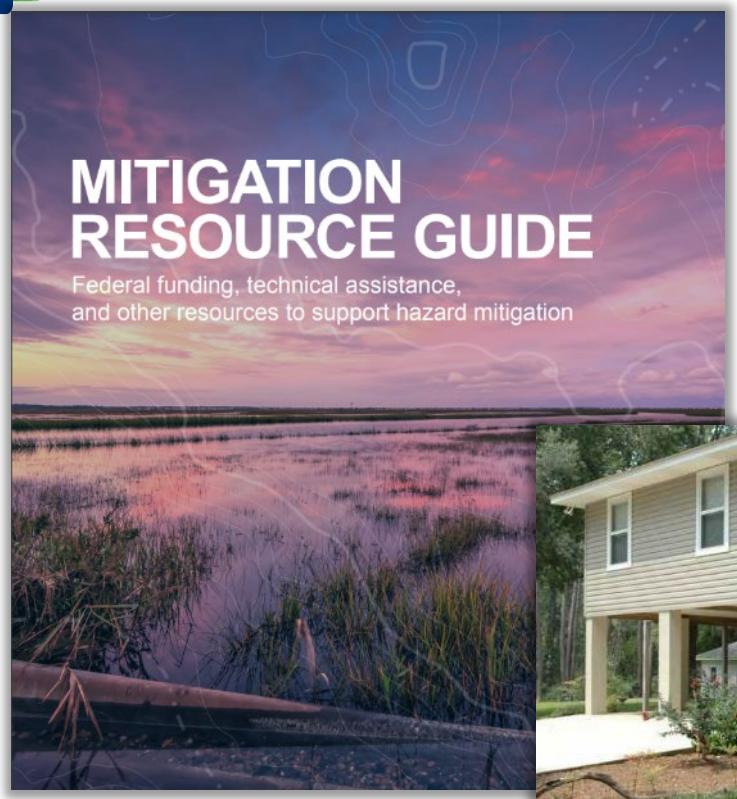
- What is a ***Mitigation Strategy***?
  - A group of projects or actions to reduce the impacts of the hazards of concern on your community
    - Plans and Regulations
    - Structure and Infrastructure Studies and Projects
    - Natural Systems Protection Studies and Projects
    - Education and Awareness Programs
- Terms to describe the Mitigation Strategy include:
  - **Mitigation Action Plan** or **Action Plan**
  - **Mitigation Projects** or **Initiatives** or **Actions**

Your Mitigation Strategy table is included in your annex. We will use action worksheets and online forms to collect details on the actions you will include in the 2024 Update.

Where do you need to focus?

- Stronger connection between the risk assessment and mitigation strategy
- More specific, achievable actions
  - Specific projects, in specific locations, in a specific timeframe
  - Focus on socially vulnerable populations and underserved communities
- Diverse actions
  - You need at least one action per hazard of concern. Think about actions that can cover multiple hazards.
  - Include a variety of action types (e.g., developing plans, outreach, structural, etc.)

Other Mitigation Actions to Consider

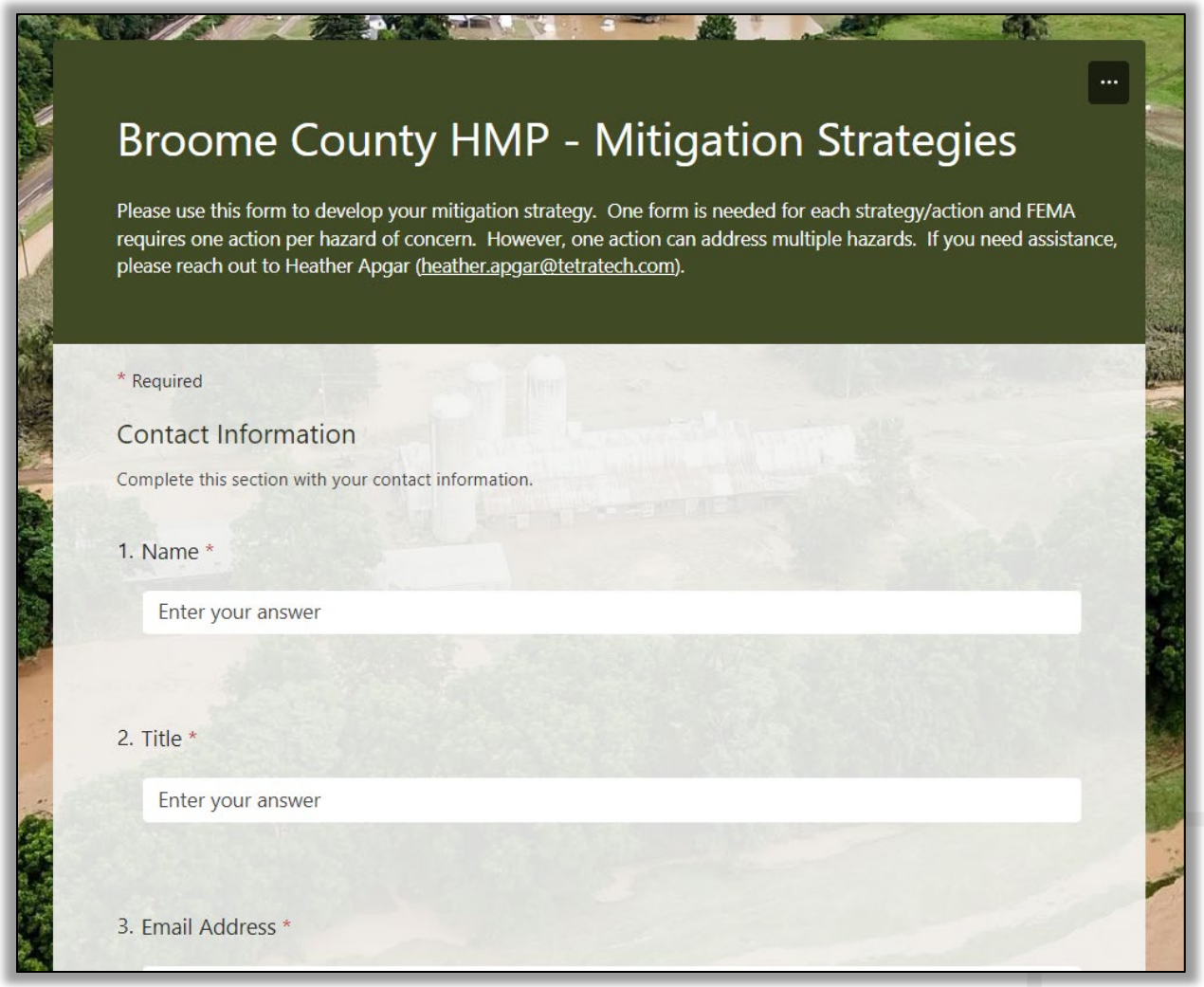




- Local Disaster Debris Management Plans
- Substantial Damage Management Plan
- Actions to address high-hazard or significant-hazard dams
- Public education and outreach programs
- Generators at critical facilities and community lifelines
- Floodproofing critical facilities and community lifelines
- Addressing repetitive and severe repetitive loss properties

Mitigation Strategy Online Form

- We will be collecting input on mitigation actions through on online form
- Complete one form per action
- We will be providing additional information to help with the actions
- Any questions, reach out!





QUESTIONS?



Thank You!

Broome County Project Contact
Stephanie Brewer, Senior Planner 607-778-2390 | Stephanie.Brewer@broomecountyny.gov
Tetra Tech Project Contacts
Heather Apgar, Project Manager (973) 630-8046 | heather.apgar@tetratech.com


Mentimeter
Risk Rank Meeting #1
Broome County HMP Steering Committee Risk Ranking
2

Mentimeter

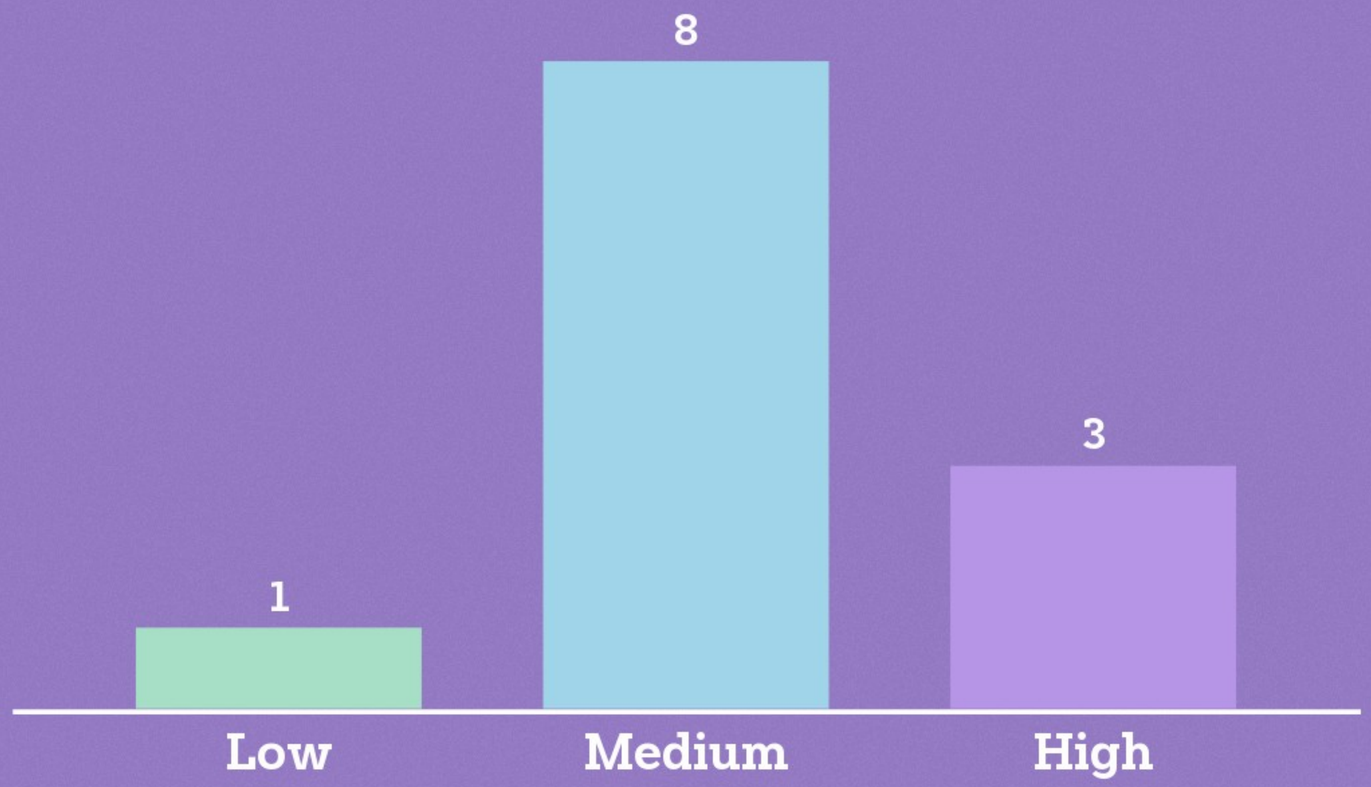
Instructions



2

Mentimeter

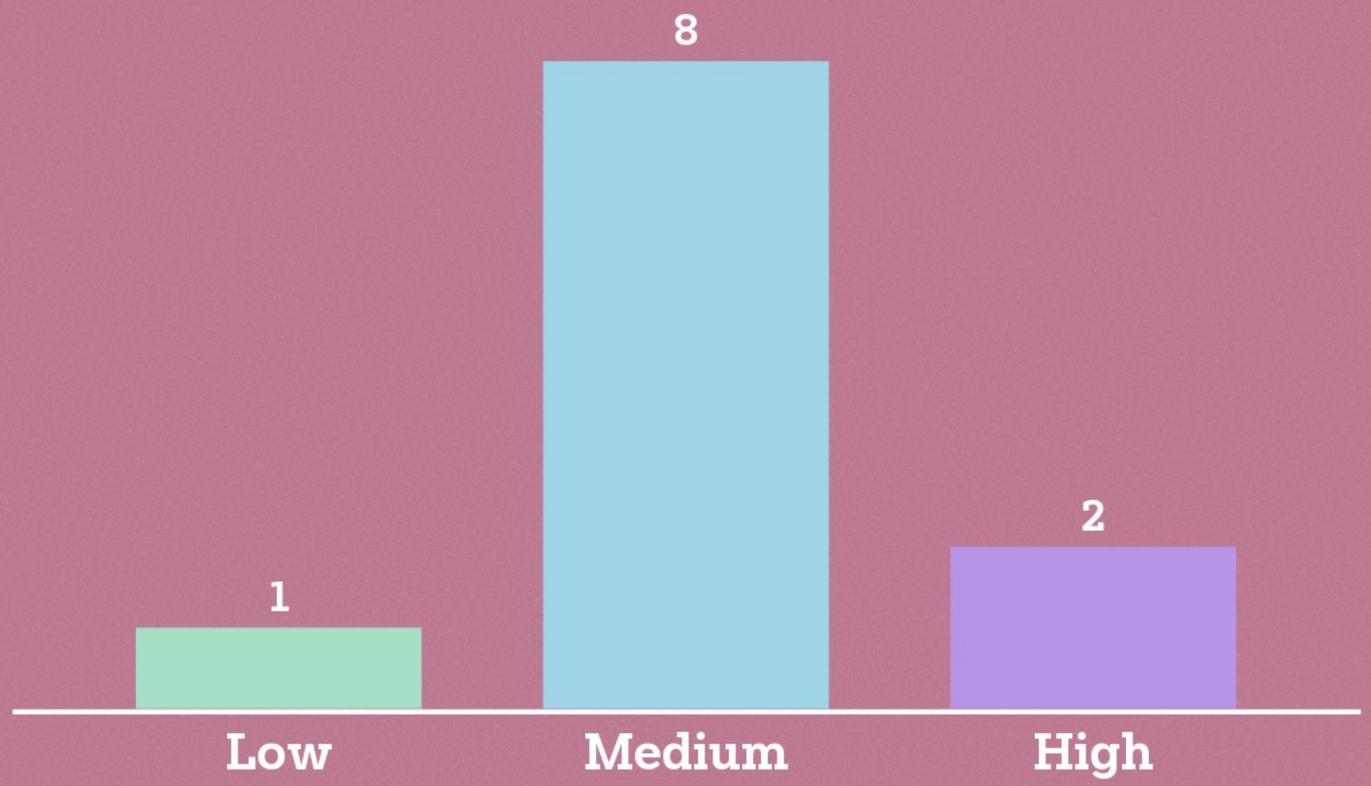
Dam and Levee Failure = High Risk



12

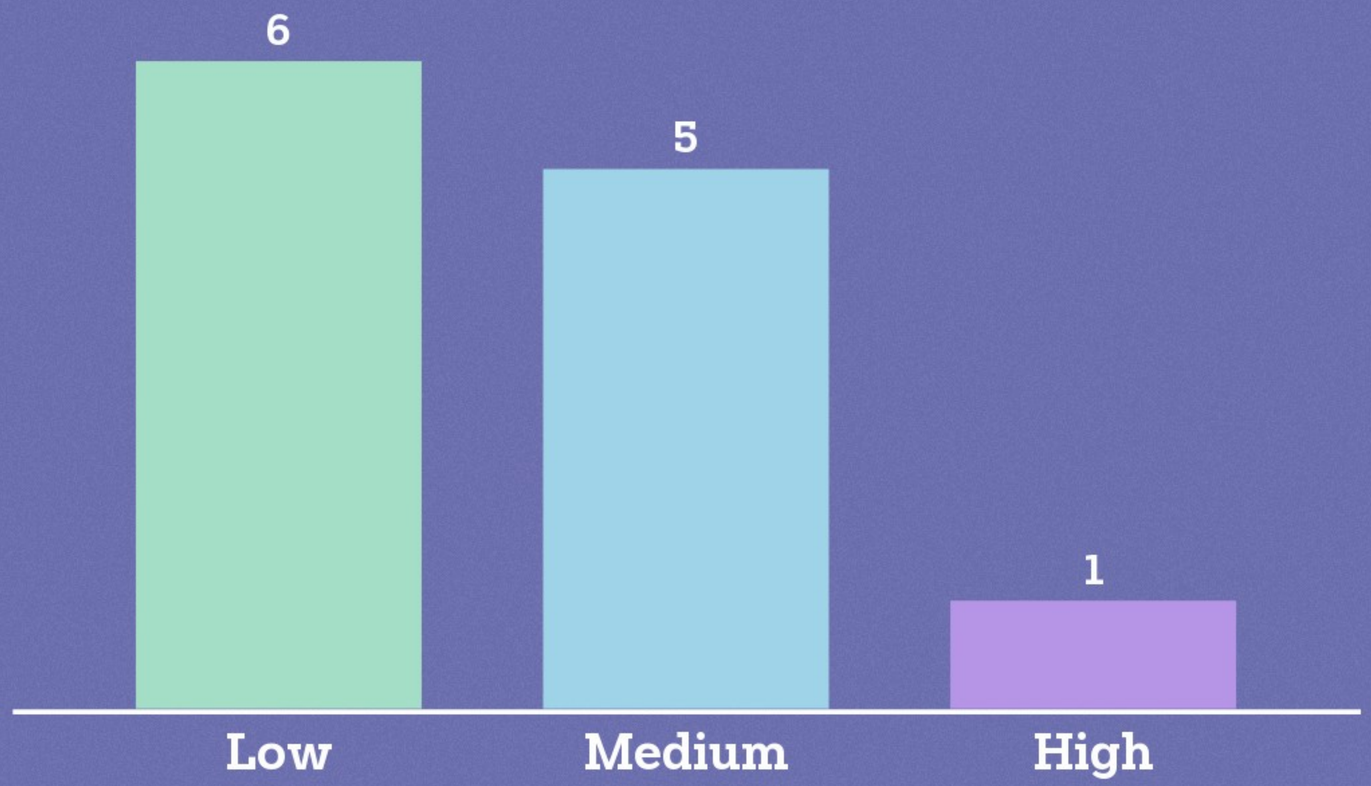
Mentimeter

Disease Outbreak = Med Risk



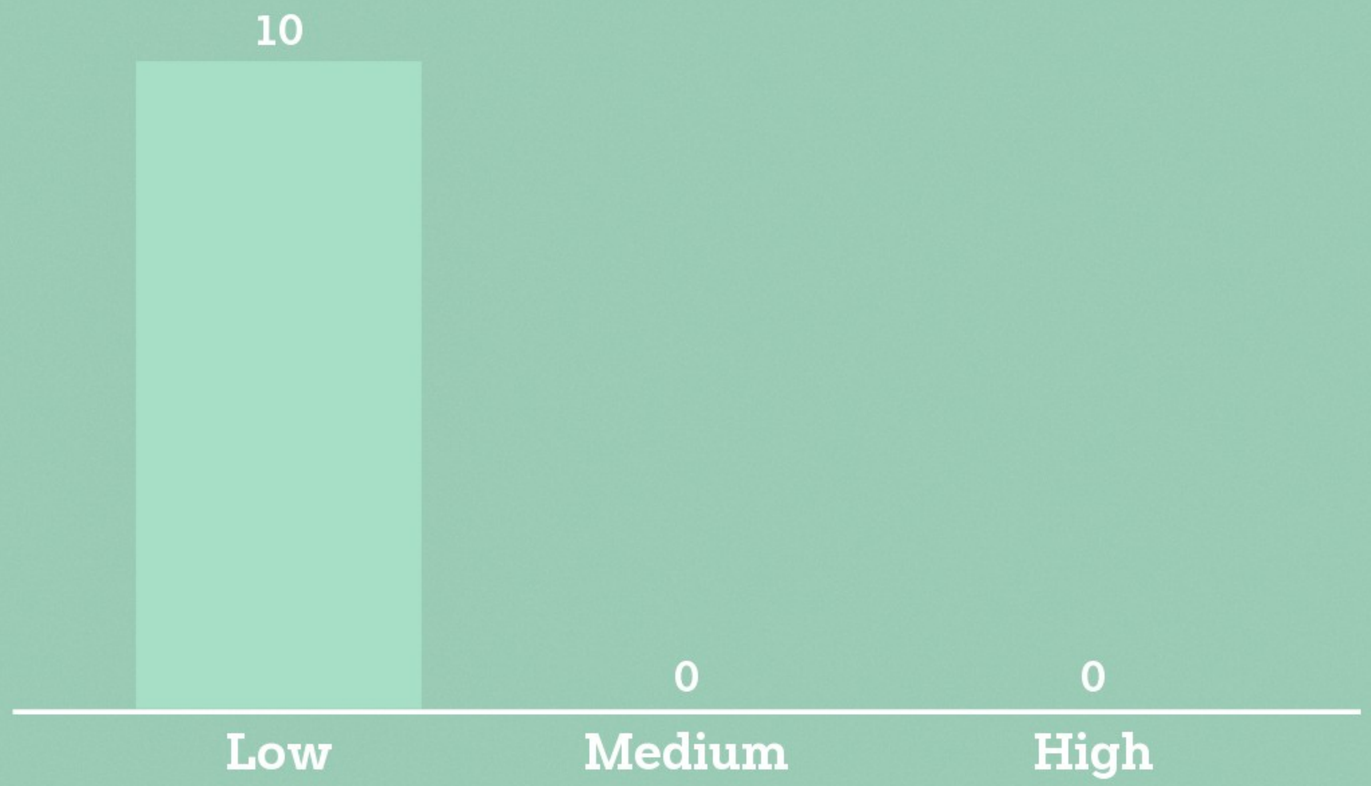
Mentimeter

Drought = Med Risk



Mentimeter

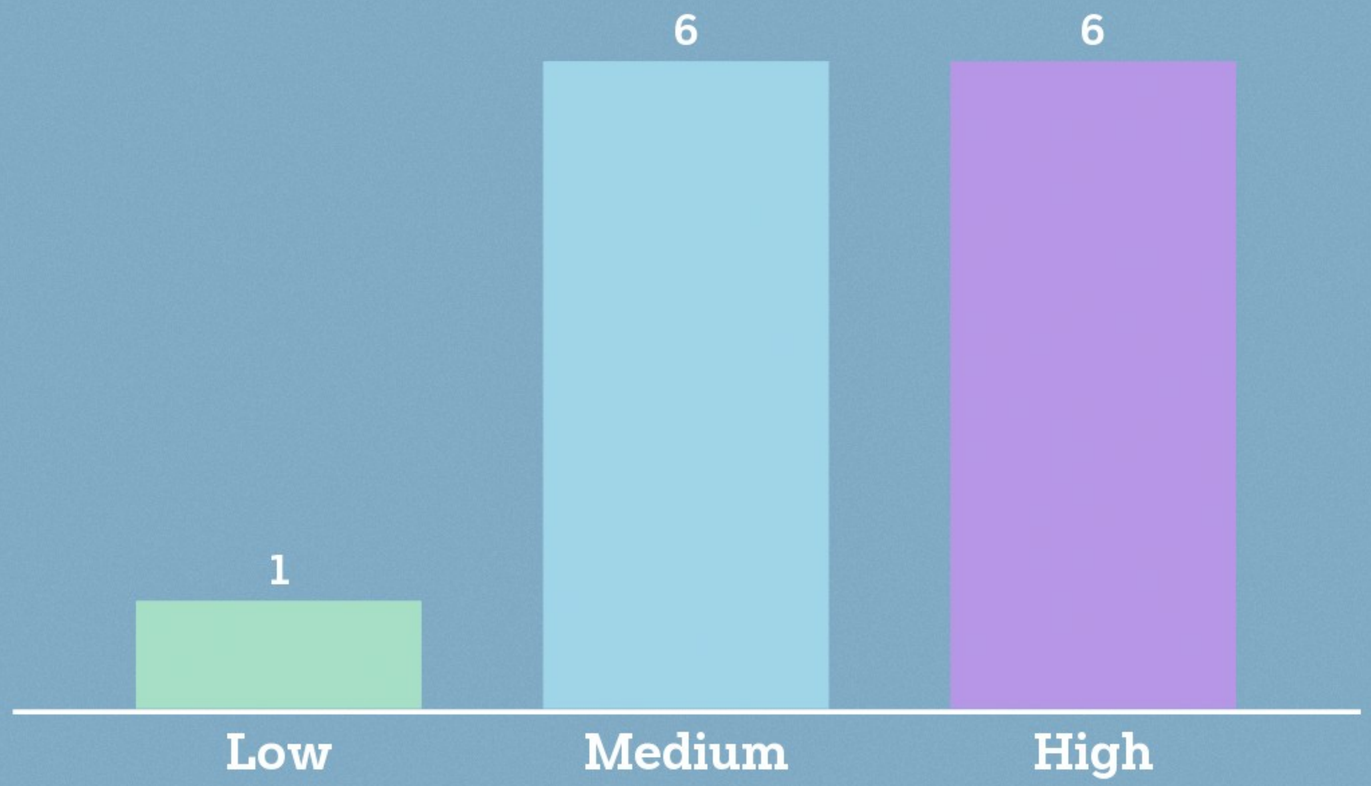
Earthquake = Low Risk



10

Mentimeter

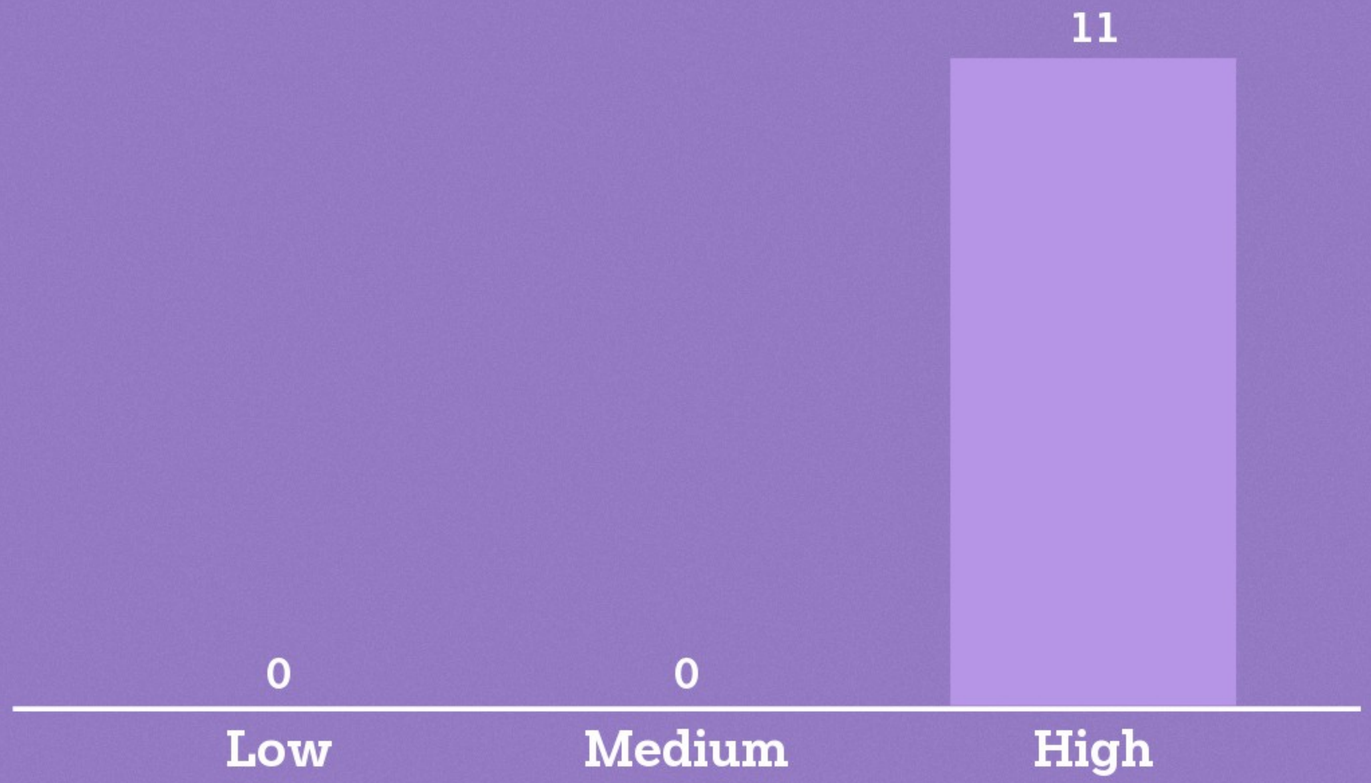
Extreme Temperature = High Risk



11

Mentimeter

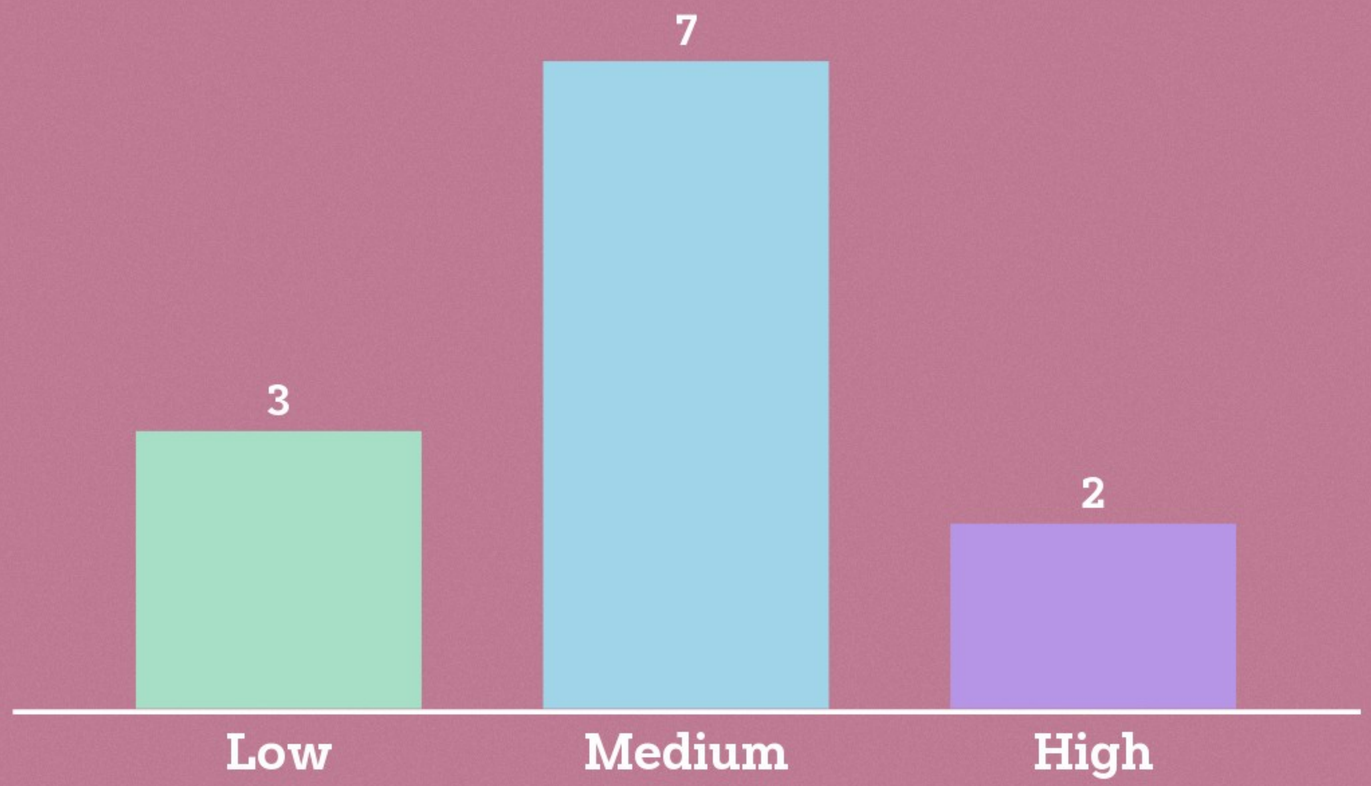
Flood = High Risk



11

Mentimeter

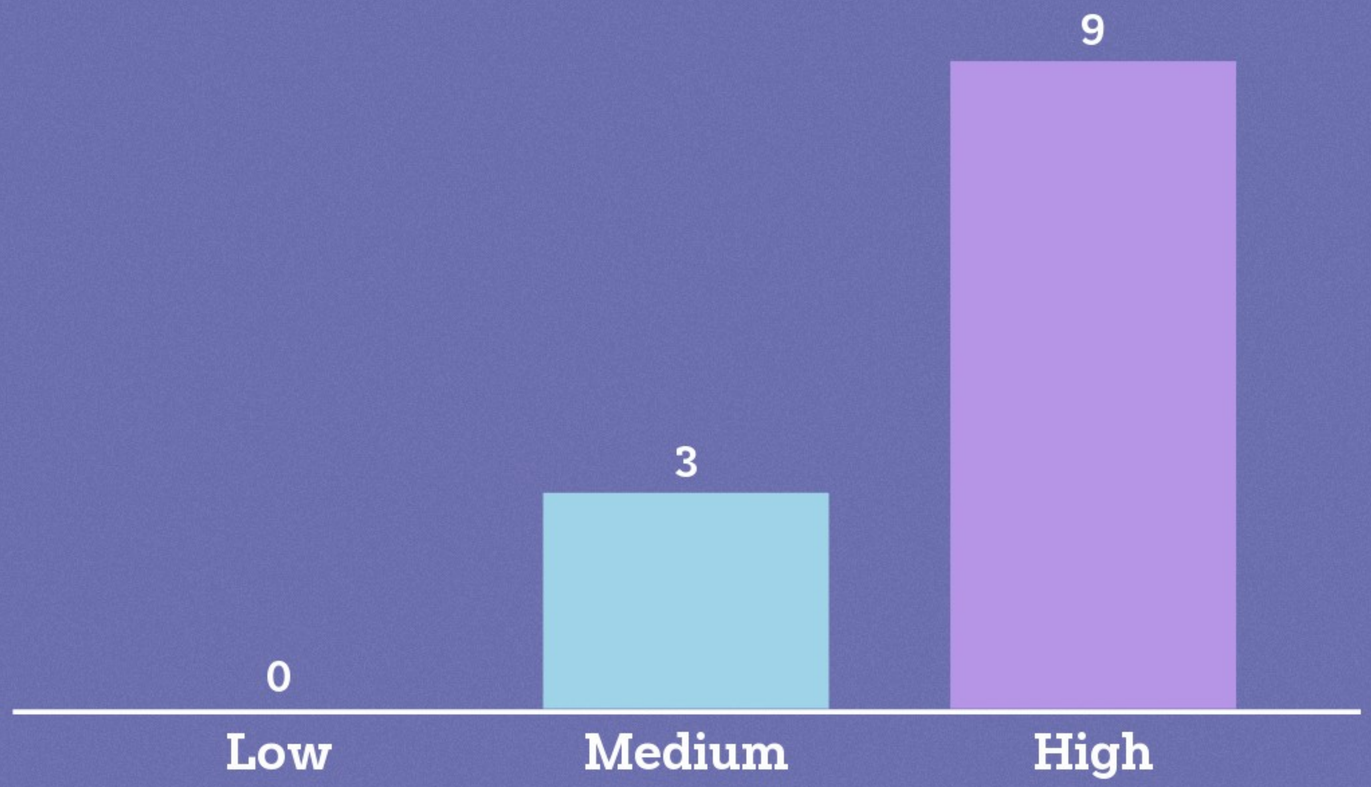
Invasive Species = Med Risk



12

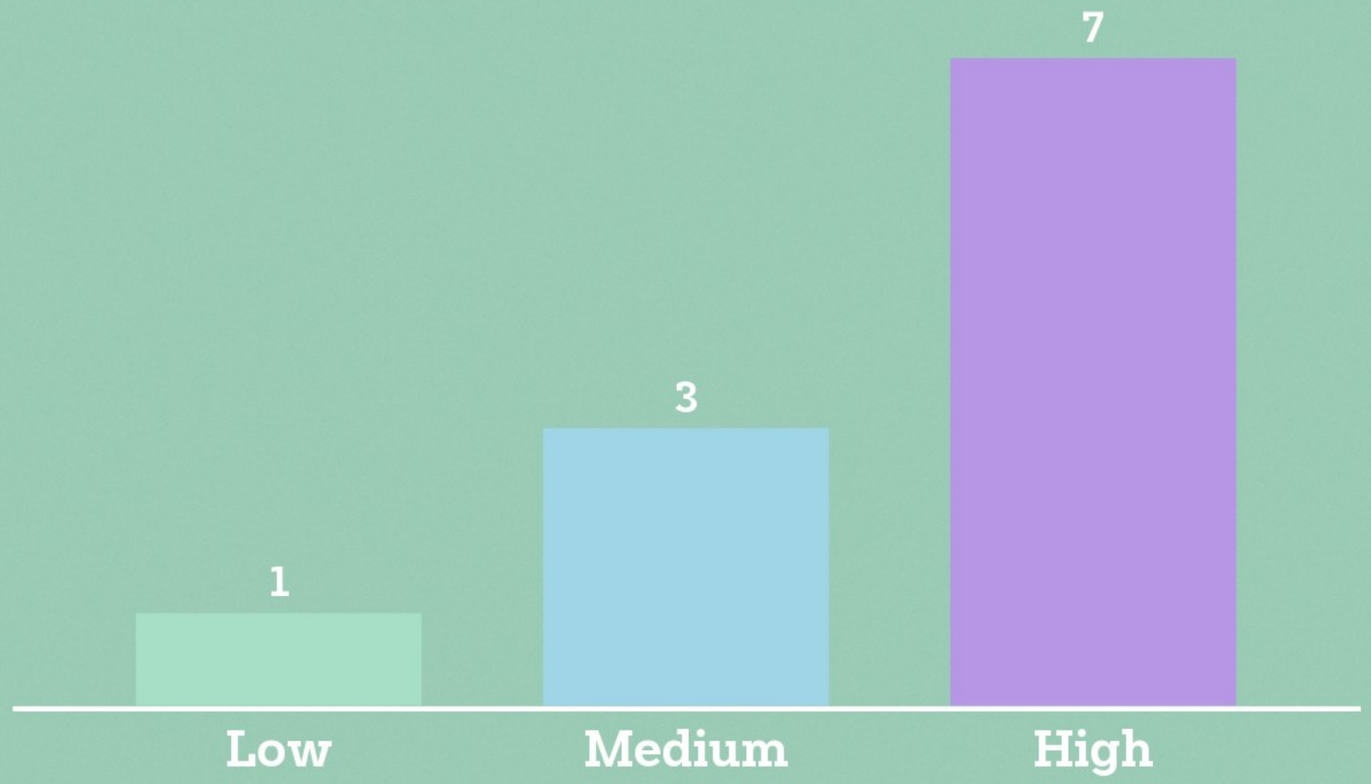
Mentimeter

Severe Weather = High Risk



Mentimeter

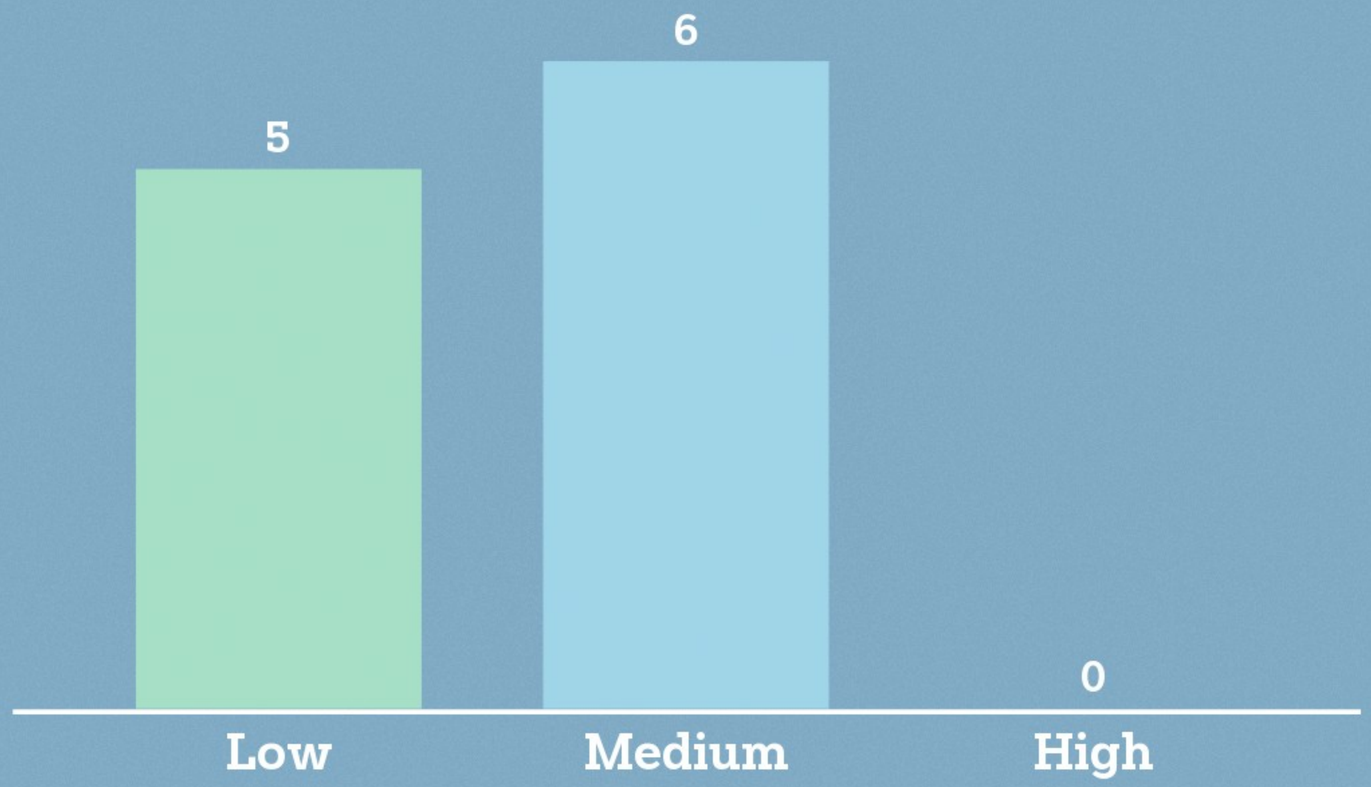
Winter Weather = High Risk



11

Mentimeter

Wildfire = Med Risk



Mentimeter



Thank you for your participation!

1

1. Summary

Meeting tit	Broome County HMP | Steering Committee Risk Assessment Meeting - December 6th
Attended p	22
Start time	12/06/23, 9:55:51 AM
End time	12/06/23, 11:06:46 AM
Meeting du	1h 10m 54s
Average at	1h 1m 34s

2. Participants

Name	First Join	Last Leave	In-Meeting	Email	Participant	Role
Apgar, Hea	12/06/23, 9	12/06/23, 1	1h 10m 49	Heather.Ap	Heather.Ap	Organizer
Altenburg,	12/06/23, 9	12/06/23, 1	1h 10m 30	GRACE.AL	GRACE.AL	Organizer
Lane, Mad	12/06/23, 9	12/06/23, 1	1h 2m 55s	MADDIE.LA	MADDIE.LA	Organizer
Vassallo, E	12/06/23, 9	12/06/23, 1	1h 6m 50s	EMILY.VAS	EMILY.VAS	Organizer
Josh - JC	12/06/23, 9	12/06/23, 1	1h 7m 10s			Attendee
John Mastr	12/06/23, 9	12/06/23, 1	1h 7m 19s	JohnMastr	JohnMastr	Attendee
Gillian	12/06/23, 9	12/06/23, 1	1h 7m 19s			Attendee
Paperman,	12/06/23, 9	12/06/23, 1	1h 7m 18s	Roland.Pa	Roland.Pa	Attendee
Tarasoff, M	12/06/23, 9	12/06/23, 1	1h 7m 19s	Michael.Ta	Michael.Ta	Attendee
Fassold, Al	12/06/23, 9	12/06/23, 1	48m	AKF01169	Amy.Fasso	Attendee
Katie Pierc	12/06/23, 9	12/06/23, 1	1h 7m 19s			Attendee
Brewer, Ste	12/06/23, 9	12/06/23, 1	1h 7m 17s	Stephanie.	Stephanie.	Attendee
aimee (Gu	12/06/23, 9	12/06/23, 1	1h 4m 15s			Attendee
Franco A. I	12/06/23, 1	12/06/23, 1	1h 5m 26s			Attendee
Clapp, Kev	12/06/23, 1	12/06/23, 1	50m 21s	Kevin.Clap	Kevin.Clap	Attendee
Lucas, Bet	12/06/23, 1	12/06/23, 1	1h 4m 28s	Beth.Lucas	Beth.Lucas	Attendee
Justin Pugl	12/06/23, 1	12/06/23, 1	1h 3m 18s			Attendee
Vernon My	12/06/23, 1	12/06/23, 1	1h 1m	vmyers@ve	vmyers@V	Attendee
Haley, Mar	12/06/23, 1	12/06/23, 1	1h 51s	Martin.Hal	Martin.Hal	Attendee
Ron	12/06/23, 1	12/06/23, 1	44m 31s			Attendee
Juliet Berlir	12/06/23, 1	12/06/23, 1	55m 4s	jberling@b	jberling@b	Attendee
Wilkinson,	12/06/23, 1	12/06/23, 1	35m 10s	John.Wilkir	John.Wilkir	Attendee

3. In-Meeting Activities

Name	Join Time	Leave Time	Duration	Email	Role
Apgar, Hea	12/06/23, 9	12/06/23, 1	1h 10m 49	Heather.Ap	Organizer
Altenburg,	12/06/23, 9	12/06/23, 1	1h 10m 30	GRACE.AL	Organizer
Lane, Mad	12/06/23, 9	12/06/23, 1	1h 2m 55s	MADDIE.LA	Organizer
Vassallo, E	12/06/23, 9	12/06/23, 1	1h 6m 50s	EMILY.VAS	Organizer
Josh - JC	12/06/23, 9	12/06/23, 1	1h 7m 10s		Attendee
John Mastr	12/06/23, 9	12/06/23, 1	1h 7m 19s	JohnMastr	Attendee
Gillian	12/06/23, 9	12/06/23, 1	1h 7m 19s		Attendee
Paperman,	12/06/23, 9	12/06/23, 1	1h 7m 18s	Roland.Pa	Attendee
Tarasoff, M	12/06/23, 9	12/06/23, 1	1h 7m 19s	Michael.Ta	Attendee

Fassold, Al	12/06/23, 9	12/06/23, 1	48m	AKF01169	Attendee
Katie Pierc	12/06/23, 9	12/06/23, 1	1h 7m 19s		Attendee
Brewer, Ste	12/06/23, 9	12/06/23, 1	1h 7m 17s	Stephanie.	Attendee
aimee (Gu	12/06/23, 9	12/06/23, 1	1h 4m 15s		Attendee
Franco A. I	12/06/23, 1	12/06/23, 1	1h 5m 26s		Attendee
Clapp, Kev	12/06/23, 1	12/06/23, 1	50m 21s	Kevin.Clap	Attendee
Lucas, Bet	12/06/23, 1	12/06/23, 1	1h 4m 28s	Beth.Lucas	Attendee
Justin Pugl	12/06/23, 1	12/06/23, 1	1h 3m 18s		Attendee
Vernon My	12/06/23, 1	12/06/23, 1	1h 1m	vmyers@ve	Attendee
Haley, Mar	12/06/23, 1	12/06/23, 1	1h 51s	Martin.Hal	Attendee
Ron	12/06/23, 1	12/06/23, 1	44m 31s		Attendee
Juliet Berli	12/06/23, 1	12/06/23, 1	55m 4s	jberling@b	Attendee
Wilkinson,	12/06/23, 1	12/06/23, 1	35m 10s	John.Wilki	Attendee

Broome County Hazard Mitigation Plan – 2024 Update
Broome County Stakeholder Mitigation Workshop
January 16, 2024 | 11:00 am / 3:00 pm

1. **Welcome and Introductions**

2. **Hazard Mitigation Overview**

3. **Hazard Mitigation Planning Process**

4. **Brainstorm Session – Mentimeter**
   - Go to:
     - www.menti.com
     - Code – 7736 3310
   - Provide input on the following topics:
     - Which hazard(s) are the biggest concern in the County?
     - What are some problem areas that impact the County?
     - Identify any potential mitigation actions/projects to increase resilience

5. **Schedule**

6. **Questions/Next Steps/Wrap Up**


TETRA TECH
Broome County Hazard Mitigation Plan – 2024 Update
Stakeholder Workshop
January 16, 2024
If you are joining through Teams, please enter your name and department/agency in the chat.

1


Today's Agenda
1. Welcome and Introductions
2. Hazard Mitigation Overview
3. Hazard Mitigation Planning Process
4. Brainstorm Session - Mentimeter
5. Schedule
6. Questions/Next Steps/Wrap Up

2



Hazard Mitigation Overview

Mitigation planning happens before a disaster strikes. It results in safer, more resilient communities – reducing risk for the residents, businesses, and critical services in Broome County.

3

Hazard Mitigation Planning Overview

TETRA TECH



- ✓ Authorized by the Disaster Mitigation Act of 2000
- ✓ Provides an overview of the impacts of natural hazards on communities
- ✓ Provides a roadmap to reducing the impact of these hazards
- ✓ Requires a FEMA-approved natural hazard mitigation plan to be eligible for Pre-Disaster Mitigation Funding
- ✓ 5-year updates required to maintain eligibility

1) What is hazard mitigation?
2) Why update the plan?
3) What's new for the 2024 HMP?
4) What is the process?

4

What is Hazard Mitigation?

TETRA TECH

Mitigation is a sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event

-or-

Any action taken to reduce future disaster losses



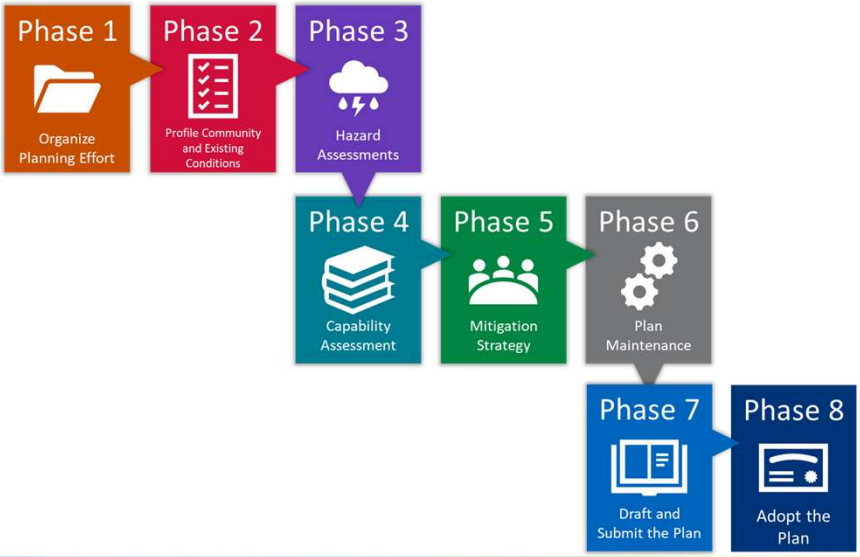
"provides the blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and local ability…" (CFR).



Planning Process Overview

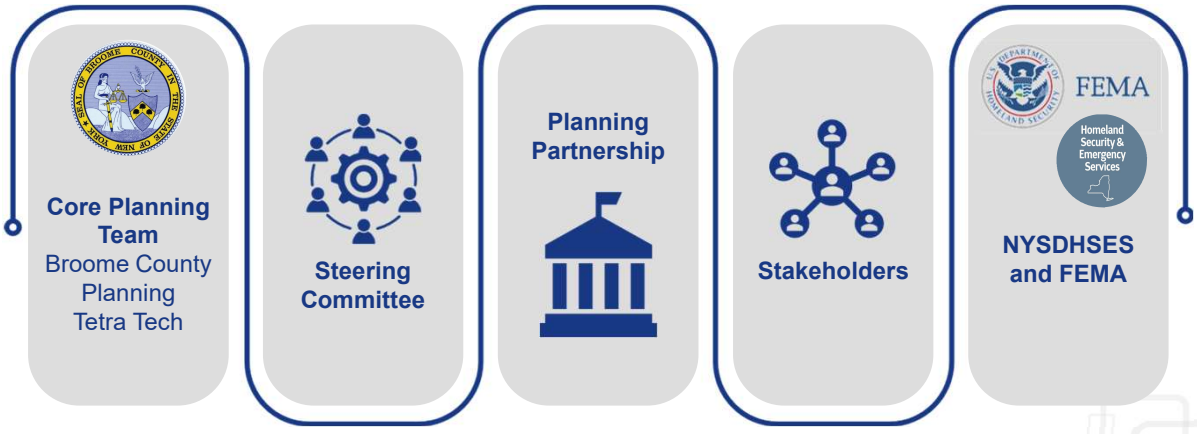
A well-defined planning process is essential to the success of Broome County's HMP Update.

Planning Process Overview



7

Phase 1 | Organize the Planning Effort



8

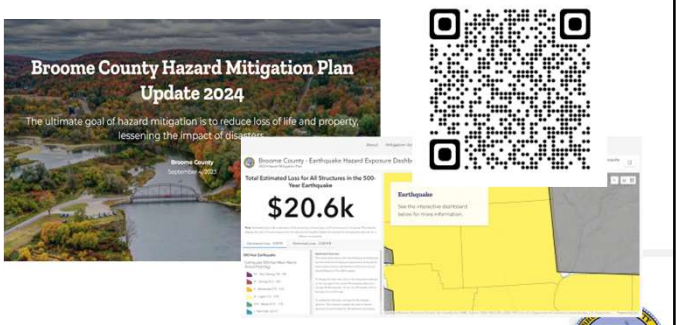
Public Outreach Strategy

- Public Outreach Toolkit
  - Social media templates and posts
  - Press release templates
  - Printable materials
- Surveys
  - Stakeholders
  - Neighboring communities
  - Public
- County Website
- StoryMap



StoryMap

- Explains purpose and planning process
- Interactive hazard mapper and dashboard
  - Learn more about hazards impacting the County
  - Review preliminary Risk Assessment results
- Will host public surveys, meeting information, draft documents, etc.



Phase 2 | Profile the Community and Existing Conditions

TETRA TECH

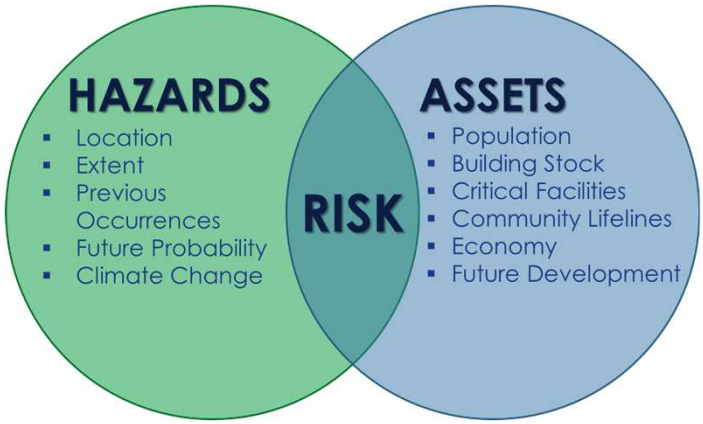
- Data collection and inventory assets
- New and future development
- Update critical facility/community lifeline inventory

A lifeline enables the continuous operation of **critical government and business functions** and is **essential to human health and safety or economic security**.



Phase 3 | Risk Assessment

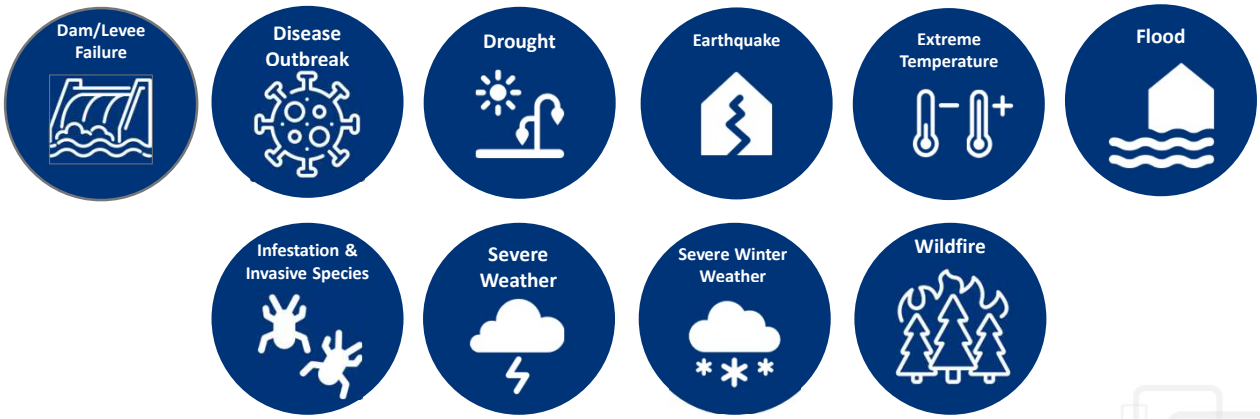
TETRA TECH



- Update Assets
- Examine Previous Impacts
- Analyze Risks
- Review with Steering Committee
- Risk Assessment Meeting

Hazards of Concern

TETRA TECH



13

Phase 4 – Capabilities and Integration

TETRA TECH

- Review existing capabilities and identify how each reduces risk and if it incorporates elements of the HMP
- Describe current and future integration process for the County and each jurisdiction

Regulatory
- Current ordinances that integrate mitigation (e.g., local flood damage prevention ordinance, stormwater management, wetlands protection, etc.).

Operational and Administrative
- County/community boards/departments that integrate mitigation in their current processes and how.

Funding
- Funding sources at the local level that may be used to fund mitigation projects.

Education/Outreach
- Current action the County/community is taking to integrate mitigation in their outreach and notifications to residents.

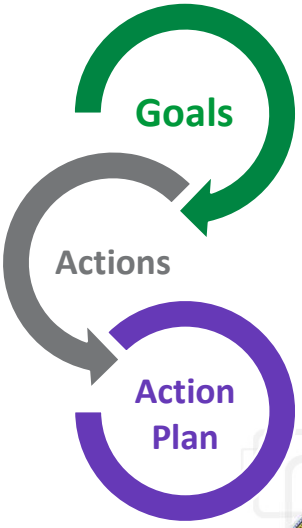
Adaptive Capacity
- Review the County and municipalities' adaptive capacity to deal with the potential impacts of climate change.

14

Phase 5 – Mitigation Strategy

TETRA TECH

- Review 2019 mitigation actions
- Review and update goals/objectives
- Problem statements and potential solutions
  - What specific actions will be taken to reduce hazard risk?
- Develop an action plan
  - How will the actions be prioritized and implemented?
  - One mitigation action for every hazard of concern!



Phase 6 – Plan Maintenance

TETRA TECH

- Develop a game plan for maintaining the 2024 HMP over the next 5 years
  - How often will you meet to discuss progress on the HMP?
  - How will the County and jurisdictions integrate the HMP?
  - How will you monitor progress on the 2024 mitigation actions?

Phase 7 – Draft and Submit the HMP

TETRA TECH

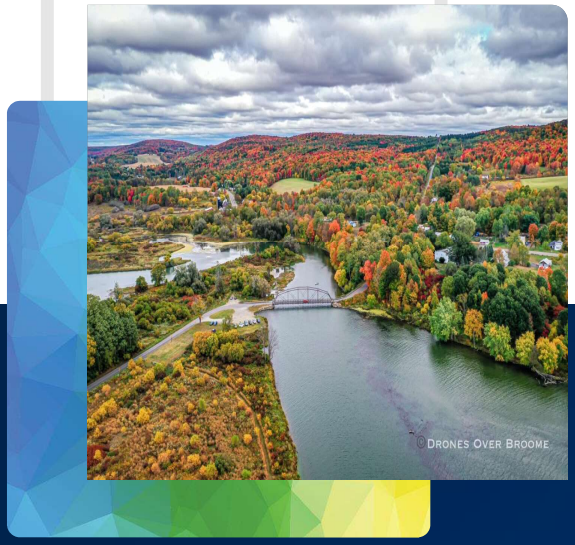
Volume I	Appendices	Volume II
Table of Contents	Sample Adoption Resolution	Planning Team
Executive Summary	Participation Matrix	Jurisdictional Annexes (25)
Introduction	Meeting Documentation	
Planning Process	Public and Stakeholder Outreach	
County Profile	Risk Assessment Information	
Risk Assessment	Mitigation Strategy Support Documentation	
Capability Assessment	Plan Maintenance Tools	
Mitigation Strategies	Linkage Procedures (if applicable)	
Plan Maintenance	Critical Facilities	
Acronyms and Abbreviations		
Glossary		
References		

Phase 8 - Plan Adoption & Integration

TETRA TECH

- Once FEMA approves the HMP, the County and each jurisdiction will need to adopt the plan
- Begin plan implementation and integration





Project Schedule

Upcoming meetings and key milestones throughout the HMP update process

19

Project Schedule

TETRA TECH

- **Planning Process**
  - Ongoing
- **Update Risk Assessment**
  - Discuss risk assessment results
- **Public and Stakeholder Outreach**
  - Ongoing
- **Capability Assessment**
  - Ongoing
- **Mitigation Strategy**
  - Continue working with municipalities
  - Mitigation Strategy Workshop with FEMA and State – **February 1st**

- **Plan Maintenance**
  - Utilizing the BATool to review/update actions from 2019 HMP
  - Finalize plan maintenance procedures by **February 2024**
- **Develop Plan**
  - Draft Plan to Steering Committee by **March 2024**
  - Draft Plan Presentation in **April 2024**
  - Public Review Period – **April-May 2024**
  - Draft to NYS DHSES – **May 2024**
  - Draft to FEMA – **August/September 2024**
  - Adoption – **October/November 2024**

20

Brainstorm session!

Scan the QR code to participate in the interactive Mentimeter to brainstorm hazards, problem areas, and mitigation actions.

21



Questions?

Use the raise hand function to come off mute and ask your question-- Or type a comment in the chat!

22


Thank You!
Broome County Project Contact
Stephanie Brewer, Senior Planner
607-778-2390 | Stephanie.Brewer@broomecountyny.gov
Tetra Tech Project Contacts
Heather Apgar, Project Manager
(973) 630-8046 | heather.apgar@tetratech.com
©DRONES OVER BROOME

23

Purpose of Meeting:	Stakeholder Meeting
Location of Meeting:	*Virtual - Teams*
Date of Meeting:	January 16, 2024 | 11:00 a.m. – 12:00 p.m.
Attendees:	• Patrick Amering, Greenlight Network • Steve Bachman, Four County Library System • Michael Bender, Broome County Health Department • Stephanie Brewer, Broome County Planning • Kevin Clapp, NYS DHSES • Aimee Dailey, Broome County Planning • Elisa Eaton, Johnson City School District • Collin Elliot, Binghamton YMCA • Brenda Gowe, Broome County Parks, Recreation, and Youth Services • Mina Hoblitz, Greater Binghamton Chamber of Commerce • Paul Hoole, FEMA Region II • Marvin Lamoreaux, ? • Stacy Mastrogiacomo, Community Foundation for South Central New York • Mary McFadden, Broome County Health Department • Isabella Paulley, Broome County Planning • Gillian Sloan, Broome County Planning • Jason Somers, Mayor, Village of Whitney Port • John Wilkinson, NYS DHSES • Heather Apgar, Tetra Tech • Grace Altenburg, Tetra Tech • Madeleine Lane, Tetra Tech
Agenda Summary:	Provide an overview of hazard mitigation and the planning process; discuss the project schedule; and solicit feedback on hazards of concern, problem areas, and mitigation actions.

Item No.	Agenda Topic and Discussion	Action item(s):
1	**Welcome**	County – Tetra Tech -
2	**Hazard Mitigation Overview** • Mitigation is a sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event • It is part of the emergency management cycle – by mitigating hazards it helps communities prepare for or prevent an event from occurring and reducing or eliminate response and recovery measures. • To help us achieve mitigation, we need to start with the Hazard Mitigation Plan. Having an HMP helps us - ○ Increase education and awareness on natural hazards and community vulnerabilities	County –

Item No.	Agenda Topic and Discussion	Action item(s):
	○ Build partnerships with government, organizations, businesses and the public to reduce risk ○ Identify long-term strategies for risk reduction with input from stakeholders and the public ○ Identify cost-effective mitigation actions that focus resources on the greatest risks areas ○ Integrate planning efforts and risk reduction with other community planning efforts ○ Align risk reduction with other county or municipal objectives ○ Communicate priorities to potential funders ○ Access FEMA funds – by participating in and adopting the HMP, the county and all municipalities that adopt the plan will remain eligible for FEMA pre- and post-disaster mitigation funding (HMGP, FMA, BRIC, and PDM)	Tetra Tech –
3	**Planning Process Overview** • Will use 8 phase process to update the HMP. • Phase 1: Organizing Planning Effort ○ Includes Core Planning Team, Steering Committee, Planning Partnership, Stakeholders, DHSES, and FEMA ○ Conducting public outreach, including surveys, county website, and StoryMap, is important for soliciting feedback on the plan • Phase 2: Profile the Community and Existing Conditions ○ Includes data collection and inventorying assets, as well as new and future development ○ Update critical facility/community lifeline inventory • Phase 3: Risk Assessment ○ Review and update the hazards of concern ○ Update assets – critical facilities and community lifelines ○ Look at the impacts of each hazard since the last HMP ○ Analyze the risk to each asset ○ Review the findings with stakeholders ○ Hazards of Concern for the 2025 HMP: ▪ Dam & Levee Failure ▪ Disease Outbreak ▪ Drought ▪ Earthquake ▪ Extreme Temperature ▪ Flood ▪ Infestation & Invasive Species ▪ Severe Weather ▪ Severe Winter Weather ▪ Wildfire • Phase 4: Capabilities and Integration ○ A capability assessment helps the county understand the various programs, plans, codes, and staff that can currently reduce losses related to disasters or could be used to reduce losses in the future. ○ The HMP must include a description of existing codes/programs/plans/resources available to accomplish hazard mitigation • Phase 5: Mitigation Strategy ○ Review 2019 mitigation actions ○ Review and update goals/objectives ○ Draft problem statements and potential solutions ○ Develop an action plan • Phase 6: Plan Maintenance ○ Develop a game plan for maintaining the 2024 HMP over the next 5 years • Phase 7: Draft and Submit the HMP • Phase 8: Plan Adoption and Integration ○ Once FEMA approves the HMP, the County and each jurisdiction will need to adopt the plan	County – Tetra Tech –

Item No.	Agenda Topic and Discussion	Action item(s):

4	**Project Schedule**
	• **Planning Process**
	  ○ Ongoing
	• **Update Risk Assessment**
	  ○ Discuss risk assessment results
	• **Public and Stakeholder Outreach**
	  ○ Ongoing
	• **Capability Assessment**
	  ○ Ongoing
	• **Mitigation Strategy**
	  ○ Continue working with municipalities
	  ○ Mitigation Strategy Workshop with FEMA and State – **February 1st**
	• **Plan Maintenance**
	  ○ Utilizing the BATool to review/update actions from 2019 HMP
	  ○ Finalize plan maintenance procedures by **February 2024**
	• **Develop Plan**
	  ○ Draft Plan to Steering Committee by **March 2024**
	  ○ Draft Plan Presentation in **April 2024**
	  ○ Public Review Period – **April-May 2024**
	  ○ Draft to NYS DHSES – **May 2024**
	  ○ Draft to FEMA – **August/September 2024**
	  ○ Adoption – **October/November 2024**
		County -
		
		Tetra Tech –

5	**Brainstorm Session**
	• Mentimeter Question 1: ***Which are the top three hazards in the county?***
	  ○ #1: Flood
	  ○ #2: Severe Winter Storm
	  ○ #3: Severe Storm
	  ○ #4: Disease
	• Mentimeter Questions 2: ***Where are some general problem areas?***
	  ○ Near bodies of water, mainly rivers
	  ○ Kirkwood, Conklin, downtown Binghamton
	  ○ Urban areas, utility infrastructure, mobile home parks, water/sewer infrastructure, parks
	  ○ Court Street, Binghamton
	  ○ Land near rivers and creeks, low areas
	  ○ Riverbanks along the Chenango and Susquehanna River
	  ○ Rural/remote areas are likely to experience power outages for extended periods of time
	• Mentimeter Question 3: ***What mitigation actions should we pursue?***
	  ○ Property elevations or acquisitions of floodprone/substantially damaged homes
	  ○ Elevate structures, install storm water management retrofits
	  ○ Using public libraries to help spread information and resources. Also, access to broadband for those without access
	  ○ Collaborate with county, emergency response (Fire/EMS/police, etc.), and utilities
	  ○ More greenways and greenspace to be able to absorb rain and flood problems areas floodplain restoration floodbenches
	  ○ Flood hazard safety storm water management, alternative communication methods to homeowners
	  ○ Drainage improvements, sewer/storm water separation projects, green infrastructure
	  ○ Backup power for facilities that serve as heating/cooling centers and/or community shelters during disasters
	  ○ Wetland preservation
	  ○ Create green space to help absorb rain water
		County –
		
		Tetra Tech -

6	**Next Steps/Questions**	County - Tetra Tech -

Purpose of Meeting:	Stakeholder Meeting
Location of Meeting:	*Virtual - Teams*
Date of Meeting:	January 16, 2024 | 3:00 p.m. – 4:00 p.m.
Attendees:	• Stephanie Brewer, Broome County Planning • Andrew Burlingame, Chenango Valley Central School District • Elizabeth Donahue, Chenango Valley Central School District • Kevin Clapp, NYS DHSES • Aimee Dailey, Broome County Planning • Dennis Lange, Facilities at Achieve • Isabella Paulley, Broome County Planning • Katie Pierce, Broome County Office of Emergency Services • Gillian Sloan, Broome County Planning • Michael Tarsoff, NYS DHSES • Wendy Walsh, Upper Susquehanna Coalition • John Wilkinson, NYS DHSES • Heather Apgar, Tetra Tech • Grace Altenburg, Tetra Tech • Madeleine Lane, Tetra Tech
Agenda Summary:	Provide an overview of hazard mitigation and the planning process; discuss the project schedule; and solicit feedback on hazards of concern, problem areas, and mitigation actions.

Item No.	Agenda Topic and Discussion	Action item(s):
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	• Mitigation is a sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event
	• It is part of the emergency management cycle – by mitigating hazards it helps communities prepare for or prevent an event from occurring and reducing or eliminate response and recovery measures.
	• To help us achieve mitigation, we need to start with the Hazard Mitigation Plan. Having an HMP helps us -
	  ○ Increase education and awareness on natural hazards and community vulnerabilities
	  ○ Build partnerships with government, organizations, businesses and the public to reduce risk
	  ○ Identify long-term strategies for risk reduction with input from stakeholders and the public
	  ○ Identify cost-effective mitigation actions that focus resources on the greatest risks areas
	  ○ Integrate planning efforts and risk reduction with other community planning efforts
	  ○ Align risk reduction with other county or municipal objectives
	  ○ Communicate priorities to potential funders
	  ○ Access FEMA funds – by participating in and adopting the HMP, the county and all municipalities that adopt the plan will remain eligible for FEMA pre- and post-disaster mitigation funding (HMGP, FMA, BRIC, and PDM)
		County –
		
		Tetra Tech –

Item No.	Agenda Topic and Discussion	Action item(s):

3	**Planning Process Overview**
	• Will use 8 phase process to update the HMP.
	• Phase 1: Organizing Planning Effort
	  ○ Includes Core Planning Team, Steering Committee, Planning Partnership, Stakeholders, DHSES, and FEMA
	  ○ Conducting public outreach, including surveys, county website, and StoryMap, is important for soliciting feedback on the plan
	• Phase 2: Profile the Community and Existing Conditions
	  ○ Includes data collection and inventorying assets, as well as new and future development
	  ○ Update critical facility/community lifeline inventory
	• Phase 3: Risk Assessment
	  ○ Review and update the hazards of concern
	  ○ Update assets – critical facilities and community lifelines
	  ○ Look at the impacts of each hazard since the last HMP
	  ○ Analyze the risk to each asset
	  ○ Review the findings with stakeholders
	  ○ Hazards of Concern for the 2025 HMP:
	  ▪ Dam & Levee Failure
	  ▪ Disease Outbreak
	  ▪ Drought
	  ▪ Earthquake
	  ▪ Extreme Temperature
	  ▪ Flood
	  ▪ Infestation & Invasive Species
	  ▪ Severe Weather
	  ▪ Severe Winter Weather
	  ▪ Wildfire
	• Phase 4: Capabilities and Integration
	  ○ A capability assessment helps the county understand the various programs, plans, codes, and staff that can currently reduce losses related to disasters or could be used to reduce losses in the future.
	  ○ The HMP must include a description of existing codes/programs/plans/resources available to accomplish hazard mitigation
	• Phase 5: Mitigation Strategy
	  ○ Review 2019 mitigation actions
	  ○ Review and update goals/objectives
	  ○ Draft problem statements and potential solutions
	  ○ Develop an action plan
	• Phase 6: Plan Maintenance
	  ○ Develop a game plan for maintaining the 2024 HMP over the next 5 years
	• Phase 7: Draft and Submit the HMP
	• Phase 8: Plan Adoption and Integration
	  ○ Once FEMA approves the HMP, the County and each jurisdiction will need to adopt the plan
		County –
		
		Tetra Tech –

4	**Project Schedule**
	• **Planning Process**
	  ○ Ongoing
	• **Update Risk Assessment**
	  ○ Discuss risk assessment results
	• **Public and Stakeholder Outreach**
	  ○ Ongoing
	• **Capability Assessment**
	  ○ Ongoing
	• **Mitigation Strategy**
	  ○ Continue working with municipalities
	  ○ Mitigation Strategy Workshop with FEMA and State – **February 1st**
	• **Plan Maintenance**
	  ○ Utilizing the BATool to review/update actions from 2019 HMP
		County -
		
		Tetra Tech –

Item No.	Agenda Topic and Discussion	Action item(s):
	○ Finalize plan maintenance procedures by **February 2024** • **Develop Plan** ○ Draft Plan to Steering Committee by **March 2024** ○ Draft Plan Presentation in **April 2024** ○ Public Review Period – **April-May 2024** ○ Draft to NYS DHSES – **May 2024** ○ Draft to FEMA – **August/September 2024** ○ Adoption – **October/November 2024**	
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6	**Next Steps/Questions**	County - Tetra Tech -



TETRA TECH

Broome County Hazard Mitigation Plan – 2024 Update

Planning Partnership Mitigation Action Workshop

January 31, 2024

Today's Agenda

1. Progress Report
2. Public and Stakeholder Outreach
3. Mitigation Strategy
4. Workshop to Review Previous Actions, Identify New Actions, Complete Municipal Annexes
5. **Check in with Tetra Tech staff before leaving**



Project Schedule

- **Planning Process**
  - Ongoing
- **Update Risk Assessment**
  - Complete
- **Public and Stakeholder Outreach**
  - Ongoing
- **Capability Assessment**
  - Ongoing
- **Mitigation Strategy**
  - Continue working with municipalities
  - Mitigation Strategy Workshop – **TODAY!**
- **Plan Maintenance**
  - Utilizing the BATool to review/update actions from 2019 HMP
  - Finalize plan maintenance procedures by **February 2024**
- **Develop Plan**
  - Draft Plan to Steering Committee by **March 2024**
  - Draft Plan Presentation in **April 2024**
  - Public Review Period – **April-May 2024**
  - Draft to NYS DHSES – **May 2024**
  - Draft to FEMA – **August/September 2024**
  - Adoption – **October/November 2024**

In-Kind Tracking

Jurisdiction: _____

Name: _____ Title: _____

Date	Start Time	End Time	# hours	Task Description	Hourly Rate	Total *# hours x rate*	Comments *describe task in more detail*
					$		

Scan the UR code for the online form to enter your time.

-or-

https://www.surveymonkey.com/r/BroomeInKind

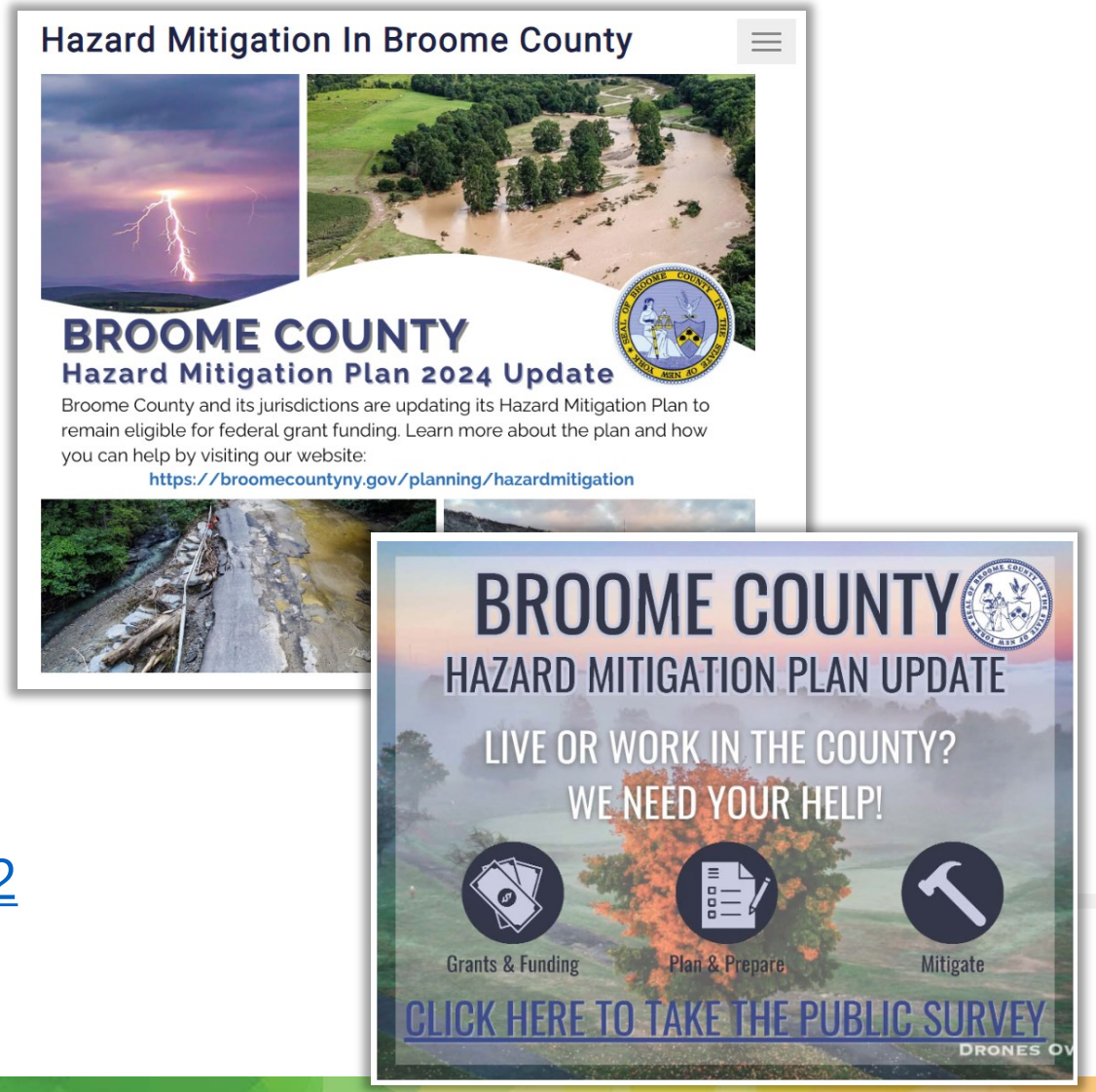
Participation Status

Jurisdiction	Status
Broome County	Need additional input on 2019 actions
Barker (T)	Need additional input on 2019 actions
Binghamton (C)	Need additional input on 2019 actions
Binghamton (T)	Need status of 2019 actions
Chenango (T)	All information received to date
Colesville (T)	Need status of 2019 actions
Conklin (T)	Need status of 2019 actions
Deposit (V)	Need status of 2019 actions
Dickinson (T)	Need status of 2019 actions
Endicott (V)	All information received to date
Fenton (T)	Need status of 2019 actions
Johnson City (V)	All information received to date
Kirkwood (T)	Need status of 2019 actions

Jurisdiction	Status
Lisle (T)	Not Participating
Lisle (V)	Need status of 2019 actions
Maine (T)	Need status of 2019 actions
Nanticoke (T)	All information received to date
Port Dickinson (V)	Need status of 2019 actions
Sanford (T)	Need status of 2019 actions
Triangle (T)	All information received to date
Union (T)	Need additional input on 2019 actions
Vestal (T)	All information received to date
Whitney Point (V)	All information received to date
Windsor (T)	All information received to date
Windsor (V)	All information received to date

Public and Stakeholder Outreach

- Public Outreach Toolkit –
  - Social media templates and posts
  - Printable materials
- Surveys
  - Stakeholders
  - Neighboring communities
  - Public
- HMP website –[2024 Broome County Multi-Jurisdictional Hazard Mitigation Plan Update | Broome County (broomecountyny.gov)]
- StoryMap - https://storymaps.arcgis.com/stories/6f5336592a674f548ff0bd2c360e849d





Mitigation Strategy

The **Mitigation Strategy** is the County's roadmap to reduce the risk of hazards identified in the HMP. The strategy is based on hazard impacts, asset vulnerability, and the County's capabilities.

Purpose of the Mitigation Strategy

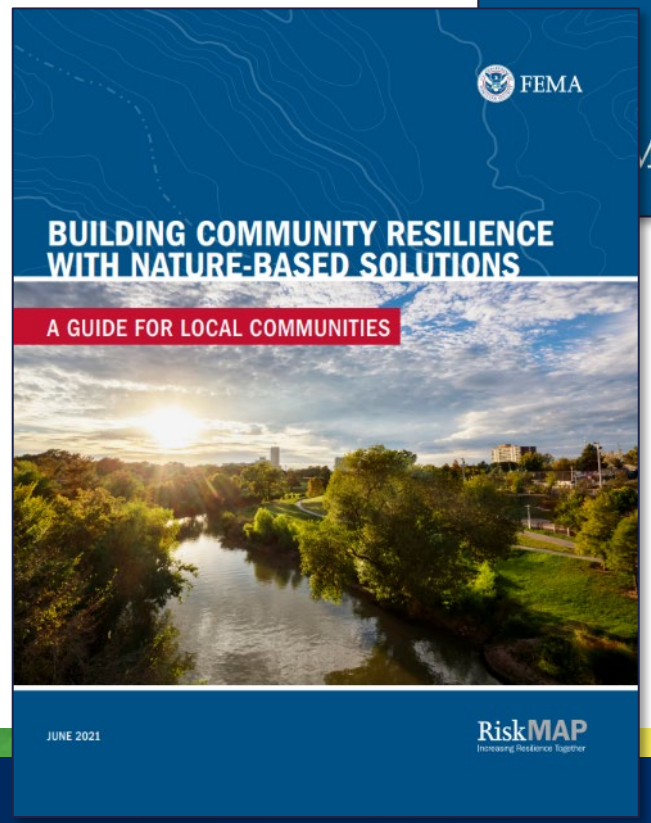
- The **Mitigation Strategy** is the long-term blueprint for reducing the potential losses identified in the risk assessment.
- **Mitigation Actions** are specific activities, such as policies, projects, and studies, that stakeholders identify to reduce risk.
- Need to think about the following…
  - Goals - What outcomes do you want to achieve?
  - Actions - What actions will be taken to reduce risk?
  - Action Plan - How will the action be prioritized and implemented?



How do you reduce risk?

- How do you reduce risk for a hazard?
  - **Manipulate the Hazard**
    - Structural flood control (e.g., flood walls, levees)
  - **Reduce/Eliminate Exposure**
    - Acquire floodprone properties
  - **Reduce Vulnerability**
    - Retrofit (e.g., floodproofing structures)
  - **Increase Capability**
    - $, preparation, technical assistance, planning enforcement



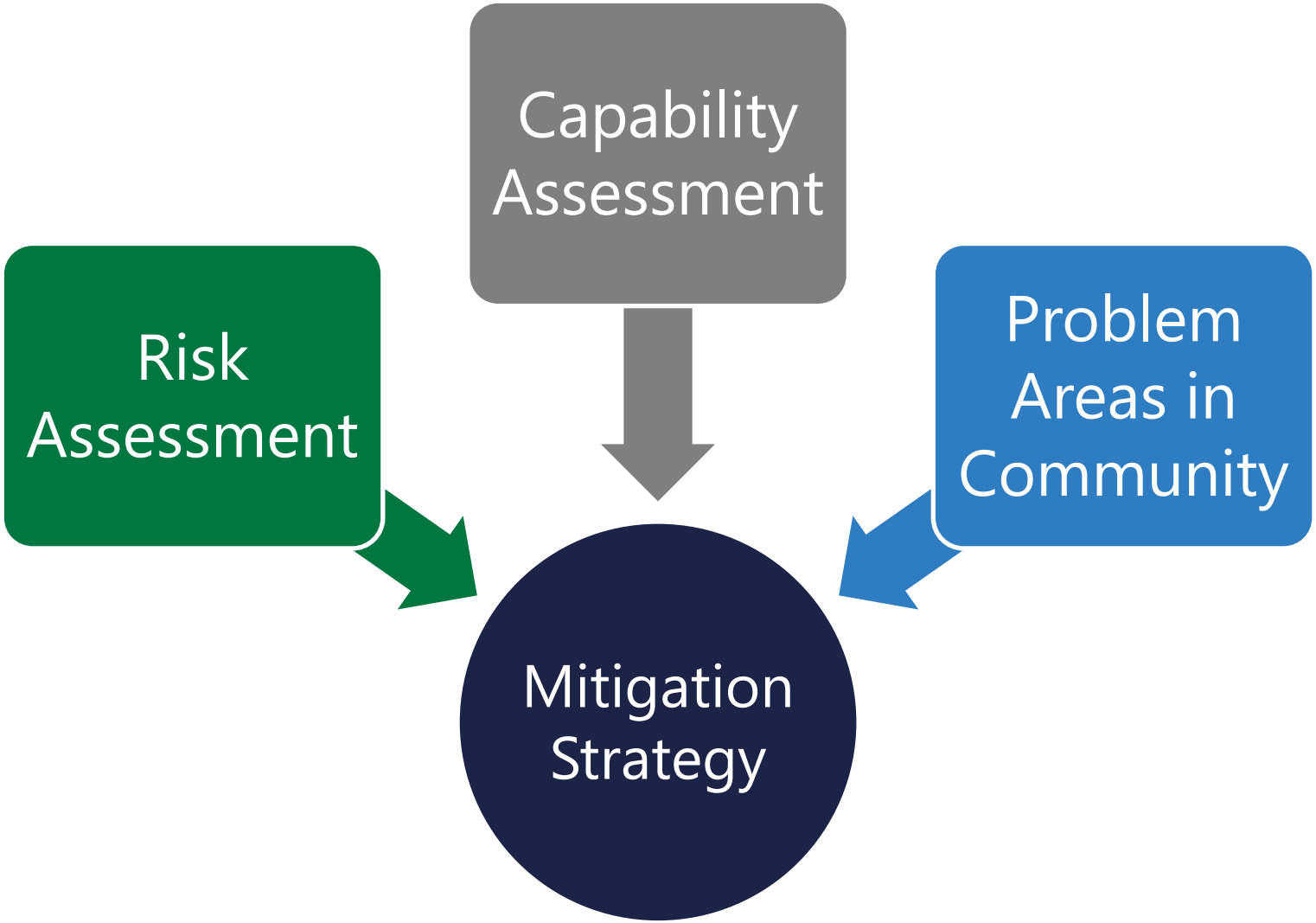


Using Your Mitigation Strategy to Reduce Risk

- What is a ***Mitigation Strategy***?
  - A group of projects or actions to reduce the impacts of the hazards of concern on your community
    - Plans and Regulations
    - Structure and Infrastructure Studies and Projects
    - Natural Systems Protection Studies and Projects
    - Education and Awareness Programs
- Terms to describe the Mitigation Strategy include:
  - **Mitigation Action Plan** or **Action Plan**
  - **Mitigation Projects** or **Initiatives** or **Actions**

Your Mitigation Strategy table is included in your annex. We will use online forms to collect details on the actions you will include in the 2024 Update.

Connecting to the Mitigation Strategy



Where do you need to focus?

- **Quality not quantity** each action needs detailed information on the why, who, what, and when of the action.
- **Stronger connection** between the risk assessment and mitigation strategy
- **More specific, achievable actions**
  - Specific projects, in specific locations, in a specific timeframe
  - Focus on socially vulnerable populations and underserved communities
- **2019 Projects**
  - If a project is not finished and still a priority, include in 2024 HMP
  - Remove general projects or make more specific
  - Remove ongoing capabilities like maintenance or annual outreach
- **Diverse actions**
  - You need at least **one action per hazard of concern**. Think about actions that can cover multiple hazards.
  - If you have critical facilities in the floodplain, need an action addressing the facility
  - If you have RL/SRL properties, need an action to mitigate those properties
  - Include a variety of action types (e.g., plans, floodproof critical facilities, outreach programs, etc.)

Other Mitigation Actions to Consider

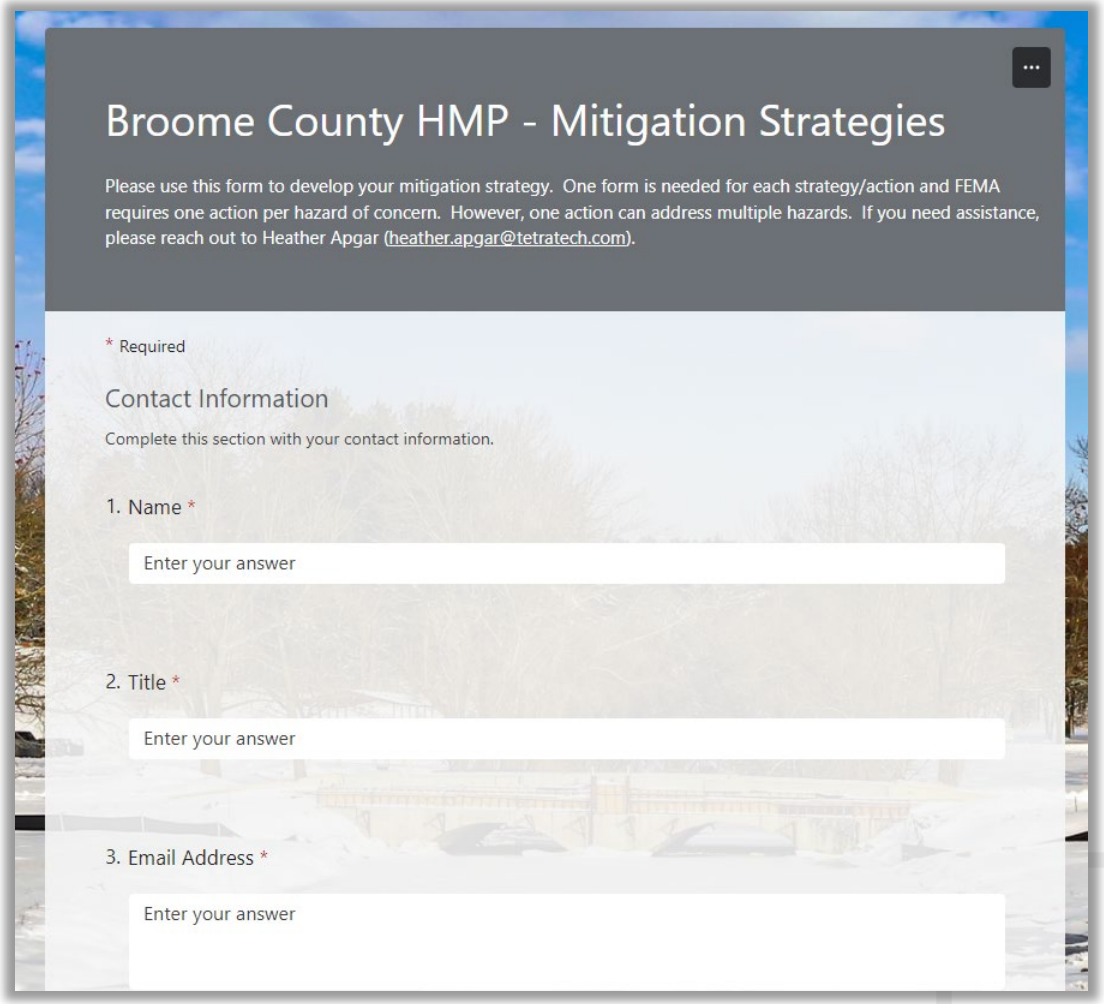


- Local Disaster Debris Management Plans
- Substantial Damage Management Plan
- Actions to address high-hazard or significant-hazard dams
- Public education and outreach programs
- Generators at critical facilities and community lifelines
- Floodproofing critical facilities and community lifelines
- Addressing repetitive and severe repetitive loss properties

Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Status (In Progress, Ongoing Capability, No Progress, Complete)	Next Steps 1. Project to be included in the 2024 HMP or Discontinue 2. If including action in the 2024 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
T. Dickinson-1	Broome Community College Pump Station	Flood, Severe Storm	Town Engineer, Public Works Superintendent	Pump station located near Broome Community College, serves the jail, businesses, residential areas. During flood it backs up, put in additional holding build adjacent, tear down the first one negotiate with the county. Engineering design, plans, specs for construction, water and sewer rates.		1. 2. 3.
T. Dickinson-2	College Pumping Station increased storage capacity.	Flood, Severe Storm	Town Engineer, Public Works Superintendent	The Town of Dickinson will replace pipes to double the storage capacity of the College Pumping Station to prevent overflow.		1. 2. 3.
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Mitigation Strategy Online Form

- We will be collecting input on mitigation actions through on online form
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- We will be providing additional information to help with the actions
- Any questions, reach out!
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Action Name:	Warming and Cooling Centers	
Description of the Problem:	The Town lacks warming and cooling centers. Extreme temperature events, particularly cold weather events, warrant the establishment of appropriate facilities to fill this need.	
Hazard(s) of Concern: Check all that apply	☐Dam/Levee Failure ☐Disease Outbreak ☐Drought ☐Earthquake X Extreme Temperature	☐Flood ☐Infestation and Invasive Species X Severe Storm X Severe Winter Storm ☐Wildfire
Description of the Solution:		
Lead Agency:		
Supporting Agencies:		

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Supporting Agencies:		

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Lead Agency:	Town Board and Planning	
Supporting Agencies:	Town Engineer	

Impact on Critical Facilities/Lifelines:	This project is related to community lifelines in the Town; the project will allow the lifelines to serve as heating/cooling centers as needed.	
Estimated Cost:		
Potential Funding Sources:		
Implementation Timeline:		
Goals Met:		
Benefits:		
Mitigation Action Type: **Check all that apply**	☐Local Plans and Regulations (LPR) ☐Structure and Infrastructure Project (SIP)	☐Natural Systems Protection (NSP) ☐Education and Awareness Programs (EAP)
CRS Category: **Complete if address flooding**	☐Preventative Measures (PR) ☐Property Protection (PP) ☐Public Information (PI)	☐Natural Resource Protection (NR) ☐Structural Flood Control Projects (SP) ☐Emergency Services (ES)

Impact on Critical Facilities/Lifelines:	This project is related to community lifelines in the Town; the project will allow the lifelines to serve as heating/cooling centers as needed.	
Estimated Cost:	$25,000+	
Potential Funding Sources:	FEMA Emergency Food and Shelter Program, NYS Climate Smart Grant Program, FEMA HMA (HMGP), Town Budget	
Implementation Timeline:	Within 5 years	
Goals Met:		
Benefits:	Warming and cooling centers established; resources available to residents during power outages or times of extreme heat/cold	
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Potential Funding Sources:	FEMA Emergency Food and Shelter Program, NYS Climate Smart Grant Program, FEMA HMA (HMGP), Town Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 4, 5	
Benefits:	Warming and cooling centers established; resources available to residents during power outages or times of extreme heat/cold	
Mitigation Action Type: Check all that apply	X Local Plans and Regulations (LPR) X Structure and Infrastructure Project (SIP)	☐Natural Systems Protection (NSP) ☐Education and Awareness Programs (EAP)
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Impact on Socially Vulnerable Populations:	This project will provide additional services to socially vulnerable and/or underserved communities by providing heating/cooling centers to use during power outages and extreme temperature events.		
Impact on Future Development:	No known impacts on future development		
Climate Change Considerations:			
Priority: Check one	☐High	☐Medium	☐Low

Impact on Socially Vulnerable Populations:	This project will provide additional services to socially vulnerable and/or underserved communities by providing heating/cooling centers to use during power outages and extreme temperature events.		
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Priority: Check one	☐High	☐Medium	☐Low

Impact on Socially Vulnerable Populations:	This project will provide additional services to socially vulnerable and/or underserved communities by providing heating/cooling centers to use during power outages and extreme temperature events.		
Impact on Future Development:	No known impacts on future development		
Climate Change Considerations:	The project does not directly address anticipated impacts of climate change; however, projections are showing increased temperatures which can lead to an increase in the need for heating/cooling centers.		
Priority: Check one	X High	☐Medium	☐Low

Criteria	Description	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	How effective will the action be at protecting lives and preventing injuries? Will the proposed action adversely affect one segment of the population?	1	Provides sheltering
Property Protection	How significant will the action be at eliminating or reducing damage to structures and infrastructure? Developing in the floodplain or high-risk areas?	0	-
Cost-Effectiveness	Are the costs to implement the project or initiative commensurate with the benefits achieved?	1	Benefits outweigh the costs
Political	Is there overall public support for the action? Is there the political will to support it? Is the action at odds with development pressures?	1	There is political support for this project.
Legal	Does the jurisdiction have the authority to implement the action?	1	The Town has authority to implement the project.
Fiscal	Can the action be funded under existing program budgets (i.e., is this initiative currently budgeted for)? Or would it require a new budget authorization or funding from another source such as grants?	0	The Town needs grant funding to complete project.
Environmental	What are the potential environmental impacts of the action? Will it comply with environmental regulations? Are there co-benefits of this action?	0	-
Social Vulnerability	Does the action benefit socially vulnerable populations and underserved communities? Additional considerations can include the SVI index and other appropriate measures of social vulnerability.	1	This project will provide additional services to socially vulnerable and/or underserved communities by providing heating/cooling centers to use during power outages and extreme temperature events.

Criteria	Description	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Administrative	Does the jurisdiction have the personnel and administrative capabilities to implement the action and maintain it or will outside help be necessary?	1	-
Hazards of Concern	Does the action address one or more of the jurisdiction's high-ranked hazards?	1	Extreme Temperature, Severe Weather, Severe Winter Weather
Climate Change	Does the action incorporate climate change projections for the jurisdiction? Is the action designed to withstand/address long-term conditions?	0	The project does not directly address anticipated impacts of climate change; however, projections are showing increased temperatures which can lead to an increase in the need for heating/cooling centers.
Timeline	Can the action be completed in less than 5 years (within the planning horizon of the HMP)?	1	Within 5 years
Community Lifelines	Does this project benefit community lifelines?	1	This project is related to community lifelines in the Town; the project will allow the lifelines to serve as heating/cooling centers as needed.
Other Objectives	Does the action advance other entity objectives, such as capital improvements, economic development, environmental quality, or open-space preservation? Does it support the policies of other plans and programs?	1	-
Total		10	
Priority (High/Med/Low)		High	

Helpful Information

- Mitigation Worksheet Instructions
- Mitigation Catalog
- Problem Statements
- Action Worksheet Examples
- Types of Mitigation Actions
- FEMA Grant Priorities



Project Schedule and Next Steps

Upcoming meetings and key milestones throughout the HMP update process

Next Steps

Item	Due Date
Mitigation Action Workshop	TODAY!
Mitigation actions	Friday, March 1st
Finalize annexes	Friday, March 29th
Draft plan presentation (virtual)	April 2024
Adopt HMP	June-July 2024



Questions?



Thank You!

Broome County Project Contact

Stephanie Brewer, Senior Planner
607-778-2390 |
Stephanie.Brewer@broomecountyny.gov

Tetra Tech Project Contacts

Heather Apgar, Project Manager
(973) 630-8046 | heather.apgar@tetratech.com


TETRA TECH
Broome County Hazard Mitigation Plan – 2024 Update
Planning Partnership Mitigation Action Workshop
January 31, 2024
Leading with Science®

1


Today's Agenda
1. Progress Report
2. Public and Stakeholder Outreach
3. Mitigation Strategy
4. Workshop to Review Previous Actions, Identify New Actions, Complete Municipal Annexes
5. Check in with Tetra Tech staff before leaving
DRONES OVER BROOME

2

Project Schedule

TETRA TECH

- **Planning Process**
  - Ongoing
- **Update Risk Assessment**
  - Complete
- **Public and Stakeholder Outreach**
  - Ongoing
- **Capability Assessment**
  - Ongoing
- **Mitigation Strategy**
  - Continue working with municipalities
  - Mitigation Strategy Workshop – **TODAY!**
- **Plan Maintenance**
  - Utilizing the BATool to review/update actions from 2019 HMP
  - Finalize plan maintenance procedures by **February 2024**
- **Develop Plan**
  - Draft Plan to Steering Committee by **March 2024**
  - Draft Plan Presentation in **April 2024**
  - Public Review Period – **April-May 2024**
  - Draft to NYS DHSES – **May 2024**
  - Draft to FEMA – **August/September 2024**
  - Adoption – **October/November 2024**

In-Kind Tracking

TETRA TECH

Jurisdiction: _____

Name: _____ Title: _____

Date	Start Time	End Time	# hours	Task Description	Hourly Rate	Total *# hours x rate*	Comments *describe task in more detail*
					$		

Scan the UR code for the online form to enter your time.

-or-

https://www.surveymonkey.com/r/BroomeInKind

Participation Status

TETRA TECH

Jurisdiction	Status
Broome County	Need additional input on 2019 actions
Barker (T)	Need additional input on 2019 actions
Binghamton (C)	Need additional input on 2019 actions
Binghamton (T)	Need status of 2019 actions
Chenango (T)	All information received to date
Colesville (T)	Need status of 2019 actions
Conklin (T)	Need status of 2019 actions
Deposit (V)	Need status of 2019 actions
Dickinson (T)	Need status of 2019 actions
Endicott (V)	All information received to date
Fenton (T)	Need status of 2019 actions
Johnson City (V)	All information received to date
Kirkwood (T)	Need status of 2019 actions

Jurisdiction	Status
Lisle (T)	Not Participating
Lisle (V)	Need status of 2019 actions
Maine (T)	Need status of 2019 actions
Nanticoke (T)	All information received to date
Port Dickinson (V)	Need status of 2019 actions
Sanford (T)	Need status of 2019 actions
Triangle (T)	All information received to date
Union (T)	Need additional input on 2019 actions
Vestal (T)	All information received to date
Whitney Point (V)	All information received to date
Windsor (T)	All information received to date
Windsor (V)	All information received to date

Public and Stakeholder Outreach

TETRA TECH

- Public Outreach Toolkit –
  - Social media templates and posts
  - Printable materials
- Surveys
  - Stakeholders
  - Neighboring communities
  - Public
- HMP website –2024 Broome County Multi-Jurisdictional Hazard Mitigation Plan Update | Broome County (broomecountyny.gov)
- StoryMap - https://storymaps.arcgis.com/stories/6f5336592a674f548ff0bd2c360e849d





Mitigation Strategy

The **Mitigation Strategy** is the County's roadmap to reduce the risk of hazards identified in the HMP. The strategy is based on hazard impacts, asset vulnerability, and the County's capabilities.

7

Purpose of the Mitigation Strategy

TETRA TECH

- The **Mitigation Strategy** is the long-term blueprint for reducing the potential losses identified in the risk assessment.
- **Mitigation Actions** are specific activities, such as policies, projects, and studies, that stakeholders identify to reduce risk.
- Need to think about the following…
  - Goals - What outcomes do you want to achieve?
  - Actions - What actions will be taken to reduce risk?
  - Action Plan - How will the action be prioritized and implemented?

Goals

What long-term goals do you want to achieve?

Actions

What specific actions will Broome County and its communities take to reduce risk to hazards?

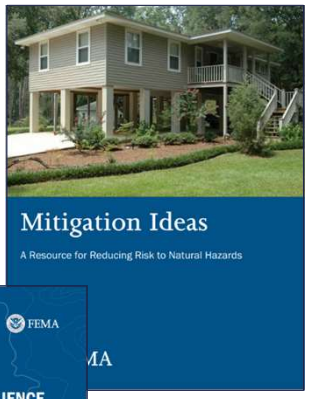
Action Plan

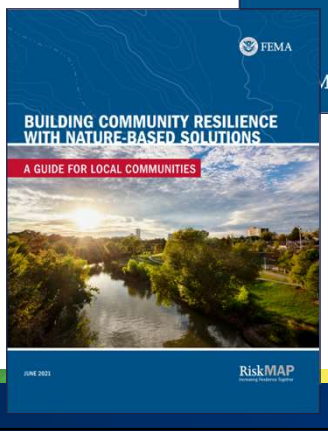
How will the actions be prioritized and implemented?

8

How do you reduce risk?

- How do you reduce risk for a hazard?
  - **Manipulate the Hazard**
    - Structural flood control (e.g., flood walls, levees)
  - **Reduce/Eliminate Exposure**
    - Acquire floodprone properties
  - **Reduce Vulnerability**
    - Retrofit (e.g., floodproofing structures)
  - **Increase Capability**
    - $, preparation, technical assistance, planning enforcement





Using Your Mitigation Strategy to Reduce Risk

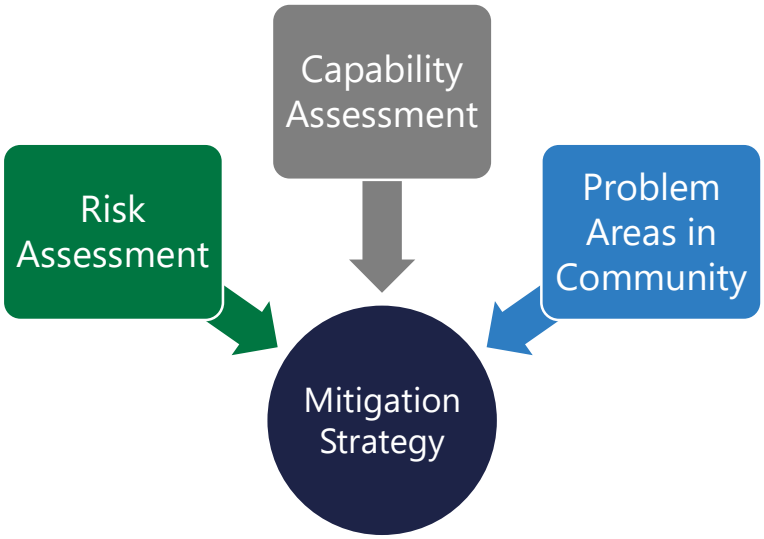
TETRA TECH

- What is a ***Mitigation Strategy***?
  - A group of projects or actions to reduce the impacts of the hazards of concern on your community
    - Plans and Regulations
    - Structure and Infrastructure Studies and Projects
    - Natural Systems Protection Studies and Projects
    - Education and Awareness Programs
- Terms to describe the Mitigation Strategy include:
  - **Mitigation Action Plan** or **Action Plan**
  - **Mitigation Projects** or **Initiatives** or **Actions**

Your Mitigation Strategy table is included in your annex. We will use online forms to collect details on the actions you will include in the 2024 Update.

Connecting to the Mitigation Strategy

TETRA TECH



Where do you need to focus?

TETRA TECH

- **Quality not quantity** each action needs detailed information on the why, who, what, and when of the action.
- **Stronger connection** between the risk assessment and mitigation strategy
- **More specific, achievable actions**
  - Specific projects, in specific locations, in a specific timeframe
  - Focus on socially vulnerable populations and underserved communities
- **2019 Projects**
  - If a project is not finished and still a priority, include in 2024 HMP
  - Remove general projects or make more specific
  - Remove ongoing capabilities like maintenance or annual outreach
- **Diverse actions**
  - You need at least **one action per hazard of concern**. Think about actions that can cover multiple hazards.
  - If you have critical facilities in the floodplain, need an action addressing the facility
  - If you have RL/SRL properties, need an action to mitigate those properties
  - Include a variety of action types (e.g., plans, floodproof critical facilities, outreach programs, etc.)

Other Mitigation Actions to Consider

TETRA TECH



2022 New York State Hazard Mitigation Planning Standards

(Supersedes the 2017 NYS Hazard Mitigation Planning Standards)

Congratulations on taking the first steps to update a multi-hazard mitigation plan for your community!

The goal of both the New York State Division of Homeland Security and Emergency Services (NYS DHSES) and FEMA is that all jurisdictions develop robust mitigation plans and tangible mitigation actions that will contribute to long-term risk reduction.

The 2022 NYS Hazard Mitigation Planning Standards reduce the 2017 Hazard Mitigation Planning Standards. Any plan currently in development, regardless of date funded, will be held only to these reduced standards.

PLEASE NOTE:

On April 19, 2023, FEMA's new Local Mitigation Planning Policy will take effect. Plans approved on or after this date must meet requirements as outlined in the linked Policy Guide.

https://www.fema.gov/sites/default/files/documents/fema_local-mitigation-planning-policy-guide_042022.pdf

The additional state requirements detailed below are intended to improve the quality of hazard mitigation plans and encourage the development of the most appropriate and effective mitigation projects for your community. It is recognized that many jurisdictions have inherent constraints and certain information may be difficult to provide. NYS DHSES and FEMA will work with you throughout the entire planning process to ensure the successful development of your community's hazard mitigation plan.

There are a multitude of resources that exist to provide guidance and support throughout the planning process, developed by Federal and State agencies, as well as private and research-based groups. We urge you to contact us so that we may direct you to additional resources and provide you with the most comprehensive technical assistance possible.

For questions and comments, please call our offices at 518-292-2304.

Additional contact information will be provided to sub-recipients for more direct assistance.

Mitigation Ideas

A Resource for Reducing Risk to Natural Hazards

- Local Disaster Debris Management Plans
- Substantial Damage Management Plan
- Actions to address high-hazard or significant-hazard dams
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13

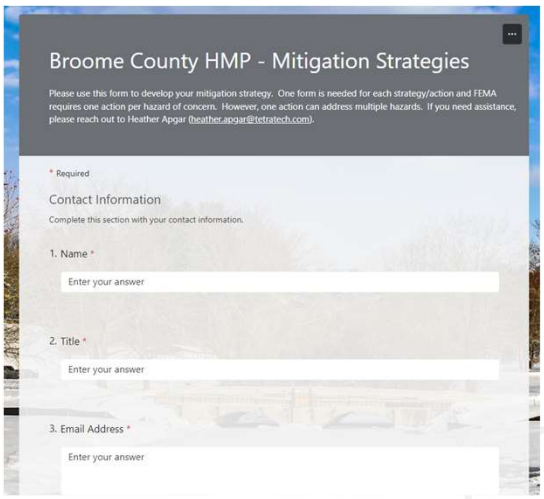
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14

Mitigation Strategy Online Form

TETRA TECH

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15

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Description of the Solution:		
Lead Agency:		
Supporting Agencies:		

16

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Lead Agency:		
Supporting Agencies:		

17

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Lead Agency:	Town Board and Planning	
Supporting Agencies:	Town Engineer	

18

Impact on Critical Facilities/Lifelines:	This project is related to community lifelines in the Town; the project will allow the lifelines to serve as heating/cooling centers as needed.	
Estimated Cost:		
Potential Funding Sources:		
Implementation Timeline:		
Goals Met:		
Benefits:		
Mitigation Action Type: Check all that apply	☐Local Plans and Regulations (LPR) ☐Structure and Infrastructure Project (SIP)	☐Natural Systems Protection (NSP) ☐Education and Awareness Programs (EAP)
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19

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Implementation Timeline:		
Goals Met:		
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20

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Implementation Timeline:	Within 5 years	
Goals Met:	1, 4, 5	
Benefits:	Warming and cooling centers established; resources available to residents during power outages or times of extreme heat/cold	
Mitigation Action Type: Check all that apply	X Local Plans and Regulations (LPR) X Structure and Infrastructure Project (SIP)	☐Natural Systems Protection (NSP) ☐Education and Awareness Programs (EAP)
CRS Category: Complete if address flooding	☐Preventative Measures (PR) ☐Property Protection (PP) ☐Public Information (PI)	☐Natural Resource Protection (NR) ☐Structural Flood Control Projects (SP) ☐Emergency Services (ES)

21

Impact on Critical Facilities/Lifelines:	This project is related to community lifelines in the Town; the project will allow the lifelines to serve as heating/cooling centers as needed.	
Estimated Cost:	$25,000+	
Potential Funding Sources:	FEMA Emergency Food and Shelter Program, NYS Climate Smart Grant Program, FEMA HMA (HMGP), Town Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 4, 5	
Benefits:	Warming and cooling centers established; resources available to residents during power outages or times of extreme heat/cold	
Mitigation Action Type: Check all that apply	X Local Plans and Regulations (LPR) X Structure and Infrastructure Project (SIP)	☐Natural Systems Protection (NSP) ☐Education and Awareness Programs (EAP)
CRS Category: Complete if address flooding	☐Preventative Measures (PR) ☐Property Protection (PP) ☐Public Information (PI)	☐Natural Resource Protection (NR) ☐Structural Flood Control Projects (SP) ☐Emergency Services (ES)

22

Impact on Socially Vulnerable Populations:	This project will provide additional services to socially vulnerable and/or underserved communities by providing heating/cooling centers to use during power outages and extreme temperature events.		
Impact on Future Development:			
Climate Change Considerations:			
Priority: Check one	☐High	☐Medium	☐Low

23

Impact on Socially Vulnerable Populations:	This project will provide additional services to socially vulnerable and/or underserved communities by providing heating/cooling centers to use during power outages and extreme temperature events.		
Impact on Future Development:	No known impacts on future development		
Climate Change Considerations:			
Priority: Check one	☐High	☐Medium	☐Low

24

Impact on Socially Vulnerable Populations:	This project will provide additional services to socially vulnerable and/or underserved communities by providing heating/cooling centers to use during power outages and extreme temperature events.		
Impact on Future Development:	No known impacts on future development		
Climate Change Considerations:	The project does not directly address anticipated impacts of climate change; however, projections are showing increased temperatures which can lead to an increase in the need for heating/cooling centers.		
Priority: Check one	X High	☐Medium	☐Low

25

Criteria	Description	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	How effective will the action be at protecting lives and preventing injuries? Will the proposed action adversely affect one segment of the population?	1	Provides sheltering
Property Protection	How significant will the action be at eliminating or reducing damage to structures and infrastructure? Developing in the floodplain or high-risk areas?	0	-
Cost-Effectiveness	Are the costs to implement the project or initiative commensurate with the benefits achieved?	1	Benefits outweigh the costs
Political	Is there overall public support for the action? Is there the political will to support it? Is the action at odds with development pressures?	1	There is political support for this project.
Legal	Does the jurisdiction have the authority to implement the action?	1	The Town has authority to implement the project.
Fiscal	Can the action be funded under existing program budgets (i.e., is this initiative currently budgeted for)? Or would it require a new budget authorization or funding from another source such as grants?	0	The Town needs grant funding to complete project.
Environmental	What are the potential environmental impacts of the action? Will it comply with environmental regulations? Are there co-benefits of this action?	0	-
Social Vulnerability	Does the action benefit socially vulnerable populations and underserved communities? Additional considerations can include the SVI index and other appropriate measures of social vulnerability.	1	This project will provide additional services to socially vulnerable and/or underserved communities by providing heating/cooling centers to use during power outages and extreme temperature events.

26

Criteria	Description	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Administrative	Does the jurisdiction have the personnel and administrative capabilities to implement the action and maintain it or will outside help be necessary?	1	-
Hazards of Concern	Does the action address one or more of the jurisdiction's high-ranked hazards?	1	Extreme Temperature, Severe Weather, Severe Winter Weather
Climate Change	Does the action incorporate climate change projections for the jurisdiction? Is the action designed to withstand/address long-term conditions?	0	The project does not directly address anticipated impacts of climate change; however, projections are showing increased temperatures which can lead to an increase in the need for heating/cooling centers.
Timeline	Can the action be completed in less than 5 years (within the planning horizon of the HMP)?	1	Within 5 years
Community Lifelines	Does this project benefit community lifelines?	1	This project is related to community lifelines in the Town; the project will allow the lifelines to serve as heating/cooling centers as needed.
Other Objectives	Does the action advance other entity objectives, such as capital improvements, economic development, environmental quality, or open-space preservation? Does it support the policies of other plans and programs?	1	-
Total		10	
Priority (High/Med/Low)		High	

27

Helpful Information

TETRA TECH

- Mitigation Worksheet Instructions
- Mitigation Catalog
- Problem Statements
- Action Worksheet Examples
- Types of Mitigation Actions
- FEMA Grant Priorities

28



Project Schedule and Next Steps

Upcoming meetings and key milestones throughout the HMP update process

29

Next Steps

TETRA TECH

Item	Due Date
Mitigation Action Workshop	TODAY!
Mitigation actions	Friday, March 1st
Finalize annexes	Friday, March 29th
Draft plan presentation (virtual)	April 2024
Adopt HMP	June-July 2024

30



Questions?

31

Thank You!

Broome County Project Contact

Stephanie Brewer, Senior Planner
607-778-2390 |
Stephanie.Brewer@broomecountyny.gov

Tetra Tech Project Contacts

Heather Apgar, Project Manager
(973) 630-8046 | heather.apgar@tetratech.com

32

Broome County, NY – Hazard Mitigation Plan 2024 Update
Mitigation Action Support Meeting | Meeting Minutes

Purpose of Meeting:	Mitigation Action Support Meeting
Location of Meeting:	Teleconference
Date of Meeting:	March 15, 2024 @ 11:00AM

Attendees:

- **Broome County**
  - Stephanie Brewer, Senior Planner, BC Planning
  - Cortni Brienza, EM Associate, Broome County OES
  - Aimee Dailey, Senior Planner, BC Planning
  - Justin Puglisi, District Manager, Broome SWCD
  - Isabella Paullay, Planner, BC Planning
  - Gillian Sloan, Planner, BC Planning
  - Patrick Dewing, Director, Broome County OES
  - Katie Pierce, EM Associate, Broome County OES
  - Kerby Sainclair, Public Safety Coordinator, Broome County OES
  - Michael Bender, Public Health Program Coordinator, DOH
  - Marty Haley, Engineer, Public Works
- **Binghamton (C)**
  - Franco A. Incitti, Engineering
  - Ron Lake, Engineering
- **Binghamton (T)**
  - Zack Soboleski, Asst. Code Enforcement Officer
  - Nick Pappas, Code Enforcement Officer
- **Chenango (T)**
  - Joy Kasmarcik, Town of Chenango
  - Michael Lumsden, Town of Chenango
  - Derin Kraack, Town of Chenango
  - Alex Urda, Engineering
- **Colesville (T)**
  - Bradford McAvoy, Enforcement Officer
- **Conklin (T)**
  - John Mastronardi, Engineer
- **Deposit (V)**
  - Karen Budine, Clerk / Treasurer
  - Steve Evans, Public Works Supervisor
- **Dickinson (T)**
  - Joel Kie, Commissioner of Public Works
  - Mike Marinaccio, Town of Dickinson
  - Ron Lake, Engineering
- **Endicott (V)**
  - Cameron Williams, VOE
- **Fenton (T)**
  - John Mastronardi, Engineer
- **Johnson City (V)**
  - Josh Holland, JC Director of Public Services
  - Stephanie Yezzi, Director of Planning
- **Kirkwood (T)**
  - John Mastronardi, Engineer
- **Maine (T)**
  - Bob Lawler, Code Enforcement
- **Sanford (T)**
  - Kenny Wist, Town Supervisor
- **Triangle (T)**
  - Charles Manasee, Town Supervisor
- **Union (T)**
  - Conor Johns, Deputy Planning Director
- **Vestal (T)**
  - Vernon Myers - Town of Vestal
- **Windsor (T)**
  - Richard Osborne Town and Village of Windsor
  - Shelly Johnson-Bennett, Planning Board Chair
  - John Mastronardi, Engineer
- **Windsor (V)**
  - Richard Osborne Town and Village of Windsor
- **Tetra Tech**
  - Heather Apgar, Project Manager
  - Lisa Danner, Deputy Project Manager
  - Jessica Stokes, Lead Planner
  - Grace Altenburg, Planner
  - Maddie Lane, Planner
  - Emily Vassallo, Planner
  - Emma Kilkelly, Planner
- Unknown
  - 607-757-2424
  - 607-427-5352

Agenda Summary: The purpose of the meeting was to give any additional assistance to Broome County and its participating municipalities in the identification and creation of mitigation actions for the Broome County 2024 Hazard Mitigation Plan mitigation strategy.

Item No.	Description	Action item(s):
1	**Introductions** • Each person on the call was asked to include their name, title, and affiliation in the meeting chat. • Reminder to jurisdictions to complete in-kind racking	-

2	**Developing Mitigation Actions**
	• Questions to think of:
	  ○ Which structures are most vulnerable to flooding or other hazards?
	  ○ How reliable is your infrastructure and utilities?
	  ○ What are the main challenges you face during hazard events?
	  ○ Are there any resource gaps (staff, training, data, funding)?
	  ○ Who are the vulnerable populations that struggle to receive assistance during hazard events?
	  ○ What goes wrong with assets during/after a storm event? What can you do now to prevent future damages?
	• Ideas to get started:
	  ○ Enhance outreach focusing on natural hazards
	  ○ Protecting critical facilities in the floodplain
	  ○ Mitigating RL and SRL properties
	  ○ Debris management plans
	  ○ Flood warning systems
	  ○ Roadway elevations
		-

3	**Next Steps** • Mitigation actions to Tetra Tech – Friday, March 22nd ○ Submit one form per action (https://forms.office.com/r/y3a6nhmMkU) • Tetra Tech distributes annexes to municipalities – Friday, March 29th • Municipalities review/provide input – Friday, April 5th • Draft Plan Review Period – April 30th - May 30th • Draft Plan Review Meeting – TBD (mid-May) • Submit draft to DHSES – June 2024 • Submit draft to FEMA – July 2024 • Adopt HMP – August-September 2024	**Tetra Tech** • Distribute draft annexes to jurisdictions on March 25 **Planning Partnership** • Submit mitigation actions to Tetra Tech by March 22 • Review draft annexes and provide input by April 5

4	**Planner Contact Information**
	• Maddie Lane, maddie.lane@tetratech.com, (919) 485-2076
	  ○ Broome County
	  ○ Barker (T)
	  ○ Binghamton (C)
	  ○ Binghamton (T)
	  ○ Chenango (T)
	  ○ Colesville (T)
	  ○ Conklin (T)
	• Grace Altenburg, grace.altenburg@tetratech.com, (352) 455-1822
	  ○ Dickinson (T)
	  ○ Endicott (V)
	  ○ Fenton (T)
	  ○ Johnson City (V)
	  ○ Kirkwood (T)
	  ○ Triangle (T)
	  ○ Union (T)
	  ○ Vestal (T)
	• Emily Vassallo, emily.vassallo@tetratech.com, (717) 545-3580
	  ○ Lisle (V)
	  ○ Maine (T)
	  ○ Nanticoke (T)
	  ○ Port Dickinson (V)
		Planning Partnership
		• Contact your Tetra Tech Planner with any questions, comments, or concerns

	○ Sanford (T) ○ Whitney Point (V) ○ Windsor (T) ○ Windsor (V) • Jessica Stokes, jessica.stokes@tetratech.com, (973) 630-8017 ○ Deposit (V)	



1

In-Kind Tracking

TETRA TECH

Jurisdiction: _____

Name: _____ Title: _____

Date	Start Time	End Time	# hours	Task Description	Hourly Rate	Total *# hours x rate*	Comments *describe task in more detail*
					$		

Scan the UR code for the online form to enter your time.

-or-

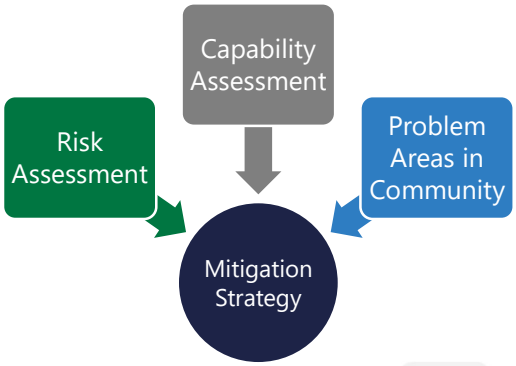
https://www.surveymonkey.com/r/BroomeInKind

2

Today's Meeting

TETRA TECH

- Helping each of you develop mitigation actions for your community
- At least one action for every hazard of concern
- Actions should address…
  - Municipal assets
  - Vulnerable and underserved populations
  - Climate change
  - Problem areas within municipality



Developing Mitigation Actions

TETRA TECH

- **Some things to think about…**
  - Which structures are most vulnerable to flooding or other hazards?
  - How reliable is your infrastructure and utilities?
  - What are the main challenges you face during hazard events?
  - Are there any resource gaps (staff, training, data, funding)?
  - Who are the vulnerable populations that struggle to receive assistance during hazard events?
  - What goes wrong with assets during/after a storm event? What can you do NOW to prevent future damages?

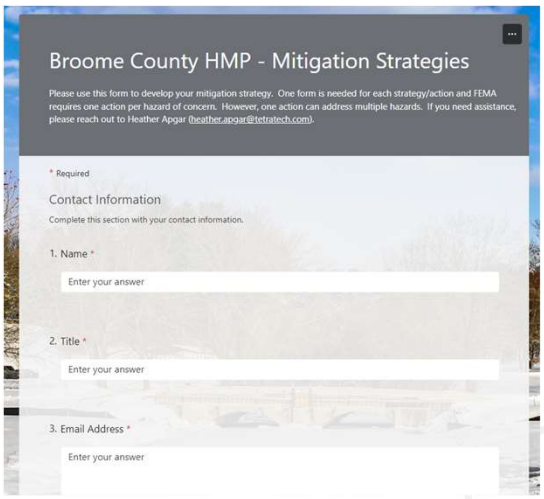
HMP actions should focus on what you can realistically use and implement over the next five years.



Mitigation Strategy Online Form

TETRA TECH

- We will be collecting input on mitigation actions through on online form
- Complete one form per action (https://forms.office.com/r/y3a6nhmMkU)
- We will be providing additional information to help with the actions
- Any questions, reach out!
- All forms are **due March 22nd**



Ideas to get you started…

TETRA TECH

- Enhance outreach focusing on natural hazards
- Protecting critical facilities in the floodplain
- Mitigating RL and SRL properties
- Debris management plans
- Flood warning systems
- Roadway elevations

Grant funding available to complete these projects!!

Let's hear from you!

TETRA TECH

- Broome County
- Barker (T)
- Binghamton (C)
- Binghamton (T)
- Chenango (T)
- Colesville (T)
- Conklin (T)
- Deposit (V)
- Dickinson (T)
- Endicott (V)
- Fenton (T)
- Johnson City (V)
- Kirkwood (T)
- Lisle (V)
- Maine (T)
- Nanticoke (T)
- Port Dickinson (V)
- Sanford (T)
- Triangle (T)
- Union (T)
- Vestal (T)
- Whitney Point (V)
- Windsor (T)
- Windsor (V)

7



Project Schedule and Next Steps

Upcoming meetings and key milestones throughout the HMP update process

8

Next Steps

TETRA TECH

Item	Due Date
Mitigation actions to Tetra Tech	Friday, March 22nd
Tetra Tech distributes annexes to municipalities	Friday, March 29th
Municipalities review/provide input	Friday, April 5th
Draft Plan Review Period	April 30th – May 30th
Draft Plan Review Meeting	TBD (mid-May)
Submit draft to DHSES	June 2024
Submit draft to FEMA	July 2024
Adopt HMP	August-September 2024

9



Questions?

10

Contact Information

TETRA TECH

- Broome County
- Barker (T)
- Binghamton (C)
- Binghamton (T)
- Chenango (T)
- Colesville (T)
- Conklin (T)

Maddie Lane
maddie.lane@tetratech.com
(919) 485-2076

- Lisle (V)
- Maine (T)
- Nanticoke (T)
- Port Dickinson (V)
- Sanford (T)
- Whitney Point (V)
- Windsor (T)
- Windsor (V)

Emily Vassallo
emily.vassallo@tetratech.com
(717) 545-3580

- Dickinson (T)
- Endicott (V)
- Fenton (T)
- Johnson City (V)
- Kirkwood (T)
- Triangle (T)
- Union (T)
- Vestal (T)

Grace Altenburg
grace.altenburg@tetratech.com
(352) 455-1822

- Deposit (V)

Jessica Stokes
jessica.stokes@tetratech.com
(973) 630-8017

11

Action Name:	Warming and Cooling Centers	
Description of the Problem:	The Town lacks warming and cooling centers. Extreme temperature events, particularly cold weather events, warrant the establishment of appropriate facilities to fill this need.	
Hazard(s) of Concern: Check all that apply	☐Dam/Levee Failure ☐Disease Outbreak ☐Drought ☐Earthquake X Extreme Temperature	☐Flood ☐Infestation and Invasive Species X Severe Storm X Severe Winter Storm ☐Wildfire
Description of the Solution:		
Lead Agency:		
Supporting Agencies:		

12

Action Name:	Warming and Cooling Centers	
Description of the Problem:	The Town lacks warming and cooling centers. Extreme temperature events, particularly cold weather events, warrant the establishment of appropriate facilities to fill this need.	
Hazard(s) of Concern: Check all that apply	☐Dam/Levee Failure ☐Disease Outbreak ☐Drought ☐Earthquake X Extreme Temperature	☐Flood ☐Infestation and Invasive Species X Severe Storm X Severe Winter Storm ☐Wildfire
Description of the Solution:	The Town will review available facilities that could fit the needs of warming and cooling centers. Factors to consider will include capacity, access, and backup power. Facilities identified as appropriate locations for warming and cooling centers will have the necessary upgrades made (HVAC, backup power generation) as necessary. Outreach will be conducted on the availability of these locations for sheltering during extreme temperature events.	
Lead Agency:		
Supporting Agencies:		

13

Action Name:	Warming and Cooling Centers	
Description of the Problem:	The Town lacks warming and cooling centers. Extreme temperature events, particularly cold weather events, warrant the establishment of appropriate facilities to fill this need.	
Hazard(s) of Concern: Check all that apply	☐Dam/Levee Failure ☐Disease Outbreak ☐Drought ☐Earthquake X Extreme Temperature	☐Flood ☐Infestation and Invasive Species X Severe Storm X Severe Winter Storm ☐Wildfire
Description of the Solution:	The Town will review available facilities that could fit the needs of warming and cooling centers. Factors to consider will include capacity, access, and backup power. Facilities identified as appropriate locations for warming and cooling centers will have the necessary upgrades made (HVAC, backup power generation) as necessary. Outreach will be conducted on the availability of these locations for sheltering during extreme temperature events.	
Lead Agency:	Town Board and Planning	
Supporting Agencies:	Town Engineer	

14

Impact on Critical Facilities/Lifelines:	This project is related to community lifelines in the Town; the project will allow the lifelines to serve as heating/cooling centers as needed.	
Estimated Cost:		
Potential Funding Sources:		
Implementation Timeline:		
Goals Met:		
Benefits:		
Mitigation Action Type: Check all that apply	☐Local Plans and Regulations (LPR) ☐Structure and Infrastructure Project (SIP)	☐Natural Systems Protection (NSP) ☐Education and Awareness Programs (EAP)
CRS Category: Complete if address flooding	☐Preventative Measures (PR) ☐Property Protection (PP) ☐Public Information (PI)	☐Natural Resource Protection (NR) ☐Structural Flood Control Projects (SP) ☐Emergency Services (ES)

15

Impact on Critical Facilities/Lifelines:	This project is related to community lifelines in the Town; the project will allow the lifelines to serve as heating/cooling centers as needed.	
Estimated Cost:	$25,000+	
Potential Funding Sources:	FEMA Emergency Food and Shelter Program, NYS Climate Smart Grant Program, FEMA HMA (HMGP), Town Budget	
Implementation Timeline:		
Goals Met:		
Benefits:		
Mitigation Action Type: Check all that apply	☐Local Plans and Regulations (LPR) ☐Structure and Infrastructure Project (SIP)	☐Natural Systems Protection (NSP) ☐Education and Awareness Programs (EAP)
CRS Category: Complete if address flooding	☐Preventative Measures (PR) ☐Property Protection (PP) ☐Public Information (PI)	☐Natural Resource Protection (NR) ☐Structural Flood Control Projects (SP) ☐Emergency Services (ES)

16

Impact on Critical Facilities/Lifelines:	This project is related to community lifelines in the Town; the project will allow the lifelines to serve as heating/cooling centers as needed.	
Estimated Cost:	$25,000+	
Potential Funding Sources:	FEMA Emergency Food and Shelter Program, NYS Climate Smart Grant Program, FEMA HMA (HMGP), Town Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 4, 5	
Benefits:	Warming and cooling centers established; resources available to residents during power outages or times of extreme heat/cold	
Mitigation Action Type: Check all that apply	X Local Plans and Regulations (LPR) X Structure and Infrastructure Project (SIP)	☐Natural Systems Protection (NSP) ☐Education and Awareness Programs (EAP)
CRS Category: Complete if address flooding	☐Preventative Measures (PR) ☐Property Protection (PP) ☐Public Information (PI)	☐Natural Resource Protection (NR) ☐Structural Flood Control Projects (SP) ☐Emergency Services (ES)

17

Impact on Critical Facilities/Lifelines:	This project is related to community lifelines in the Town; the project will allow the lifelines to serve as heating/cooling centers as needed.	
Estimated Cost:	$25,000+	
Potential Funding Sources:	FEMA Emergency Food and Shelter Program, NYS Climate Smart Grant Program, FEMA HMA (HMGP), Town Budget	
Implementation Timeline:	Within 5 years	
Goals Met:	1, 4, 5	
Benefits:	Warming and cooling centers established; resources available to residents during power outages or times of extreme heat/cold	
Mitigation Action Type: Check all that apply	X Local Plans and Regulations (LPR) X Structure and Infrastructure Project (SIP)	☐Natural Systems Protection (NSP) ☐Education and Awareness Programs (EAP)
CRS Category: Complete if address flooding	☐Preventative Measures (PR) ☐Property Protection (PP) ☐Public Information (PI)	☐Natural Resource Protection (NR) ☐Structural Flood Control Projects (SP) ☐Emergency Services (ES)

18

Impact on Socially Vulnerable Populations:	This project will provide additional services to socially vulnerable and/or underserved communities by providing heating/cooling centers to use during power outages and extreme temperature events.		
Impact on Future Development:			
Climate Change Considerations:			
Priority: Check one	☐High	☐Medium	☐Low

19

Impact on Socially Vulnerable Populations:	This project will provide additional services to socially vulnerable and/or underserved communities by providing heating/cooling centers to use during power outages and extreme temperature events.		
Impact on Future Development:	No known impacts on future development		
Climate Change Considerations:			
Priority: Check one	☐High	☐Medium	☐Low

20

Impact on Socially Vulnerable Populations:	This project will provide additional services to socially vulnerable and/or underserved communities by providing heating/cooling centers to use during power outages and extreme temperature events.		
Impact on Future Development:	No known impacts on future development		
Climate Change Considerations:	The project does not directly address anticipated impacts of climate change; however, projections are showing increased temperatures which can lead to an increase in the need for heating/cooling centers.		
Priority: Check one	X High	☐Medium	☐Low

21

Criteria	Description	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	How effective will the action be at protecting lives and preventing injuries? Will the proposed action adversely affect one segment of the population?	1	Provides sheltering
Property Protection	How significant will the action be at eliminating or reducing damage to structures and infrastructure? Developing in the floodplain or high-risk areas?	0	-
Cost-Effectiveness	Are the costs to implement the project or initiative commensurate with the benefits achieved?	1	Benefits outweigh the costs
Political	Is there overall public support for the action? Is there the political will to support it? Is the action at odds with development pressures?	1	There is political support for this project.
Legal	Does the jurisdiction have the authority to implement the action?	1	The Town has authority to implement the project.
Fiscal	Can the action be funded under existing program budgets (i.e., is this initiative currently budgeted for)? Or would it require a new budget authorization or funding from another source such as grants?	0	The Town needs grant funding to complete project.
Environmental	What are the potential environmental impacts of the action? Will it comply with environmental regulations? Are there co-benefits of this action?	0	-
Social Vulnerability	Does the action benefit socially vulnerable populations and underserved communities? Additional considerations can include the SVI index and other appropriate measures of social vulnerability.	1	This project will provide additional services to socially vulnerable and/or underserved communities by providing heating/cooling centers to use during power outages and extreme temperature events.

22

Criteria	Description	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Administrative	Does the jurisdiction have the personnel and administrative capabilities to implement the action and maintain it or will outside help be necessary?	1	-
Hazards of Concern	Does the action address one or more of the jurisdiction's high-ranked hazards?	1	Extreme Temperature, Severe Weather, Severe Winter Weather
Climate Change	Does the action incorporate climate change projections for the jurisdiction? Is the action designed to withstand/address long-term conditions?	0	The project does not directly address anticipated impacts of climate change; however, projections are showing increased temperatures which can lead to an increase in the need for heating/cooling centers.
Timeline	Can the action be completed in less than 5 years (within the planning horizon of the HMP)?	1	Within 5 years
Community Lifelines	Does this project benefit community lifelines?	1	This project is related to community lifelines in the Town; the project will allow the lifelines to serve as heating/cooling centers as needed.
Other Objectives	Does the action advance other entity objectives, such as capital improvements, economic development, environmental quality, or open-space preservation? Does it support the policies of other plans and programs?	1	-
Total		10	
Priority (High/Med/Low)		High	

23

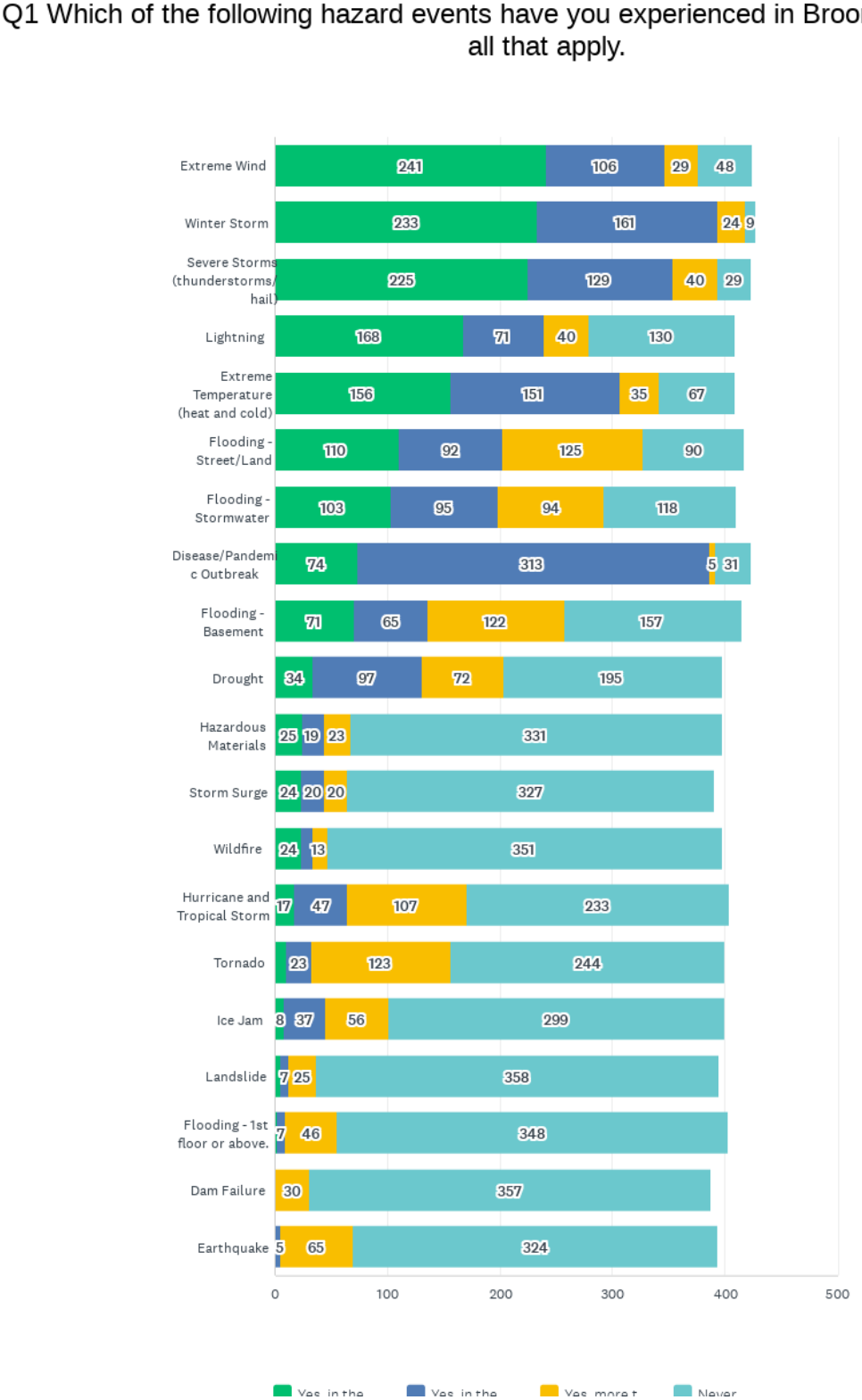
APPENDIX D: PUBLIC AND STAKEHOLDER OUTREACH

This appendix provides documentation of public and stakeholder outreach. Stakeholder involvement in this planning process was broad and productive as discussed and further documented in Section 2 (Planning Process). Public and stakeholder input has been incorporated throughout this HMP as appropriate, as identified in Section 2 and the References section, as well as within specific mitigation initiatives identified within the jurisdictional annexes (Section 9). Respondent feedback filtered by jurisdiction is included in each jurisdictional annex as available to provide an indication of community resident concerns related to natural hazards.

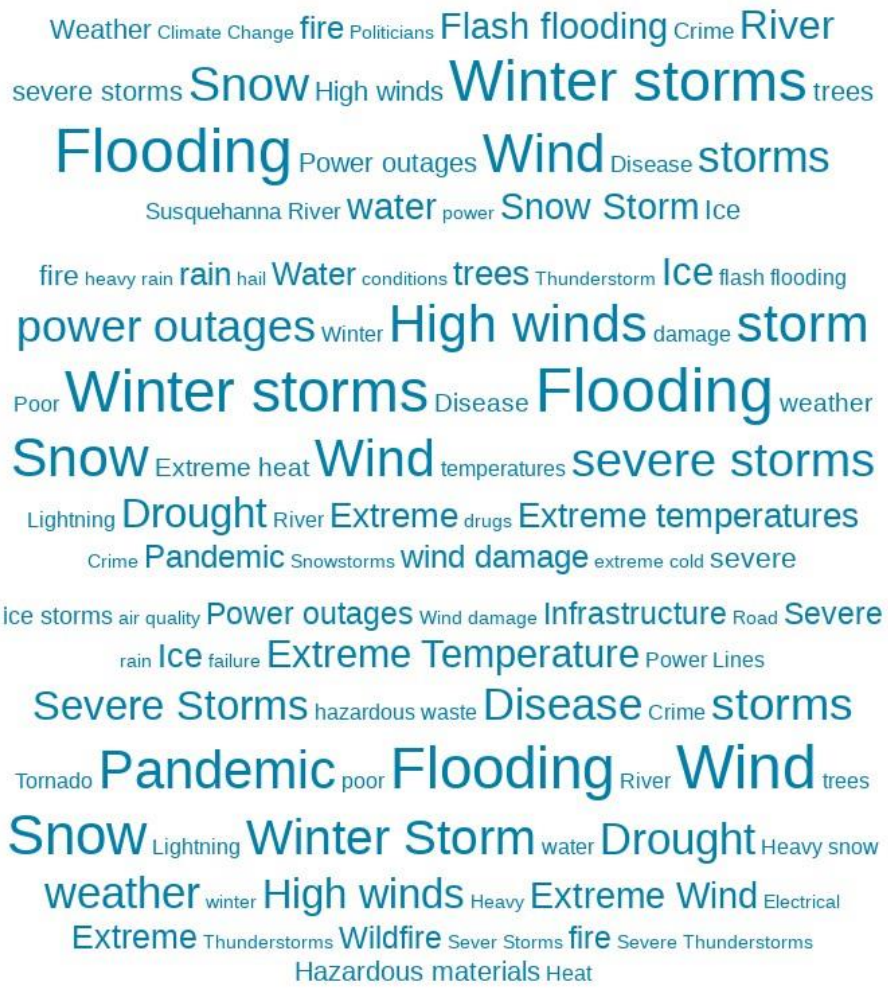
1.1 BROOME COUNTY CITIZEN SURVEY RESULTS

This section contains information and results gathered from the Broome County Citizen Survey. The main objective of this survey was to gather information from citizens regarding their level of knowledge regarding hazard vulnerability and knowledge of hazard mitigation information for their local communities. The survey was available on the Broome County Planning Department website beginning in August 2023. Over a period of six months during the planning process, 438 respondents completed this survey. Six respondents completed the survey after its closure date for a total of 444 participants, and these responses are not reflected in Section 2. Respondents primarily consisted of individuals who have lived in Broome County for 20 years or more, own and live in a single-family home and are older than 50 years old. Survey respondents indicated that flooding was the hazard of greatest concern. Mitigation projects identified by survey respondents to reduce the effects of hazards included enhancing stream and tree maintenance programs, working with developers and landowners to encourage resilient practices, and installing protective structures, such as flood barriers. Figure 1 summarizes the public survey results.

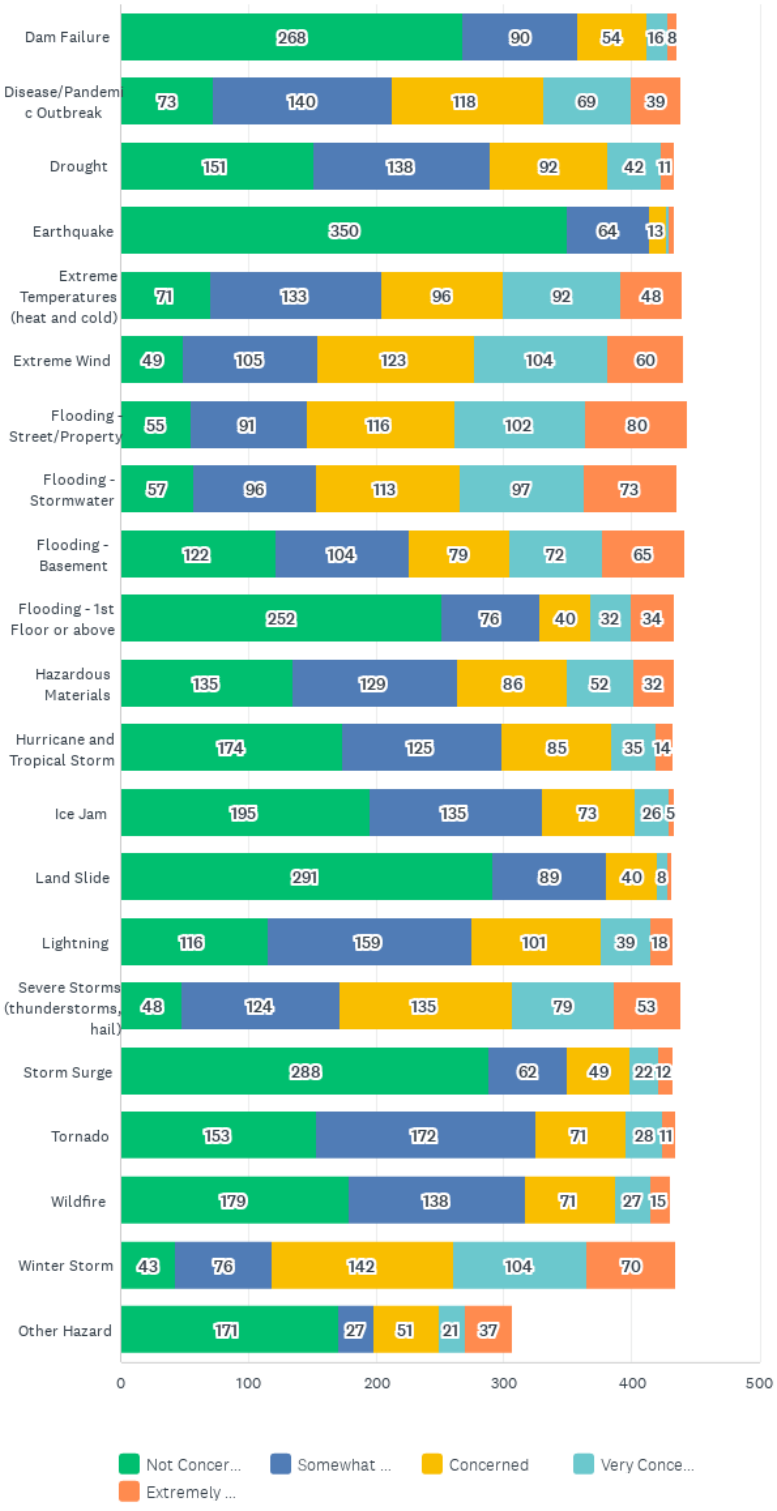
Figure 1. Broome County Public Survey Results



Q2 What are the top three (3) hazards that pose the highest threat to the County?

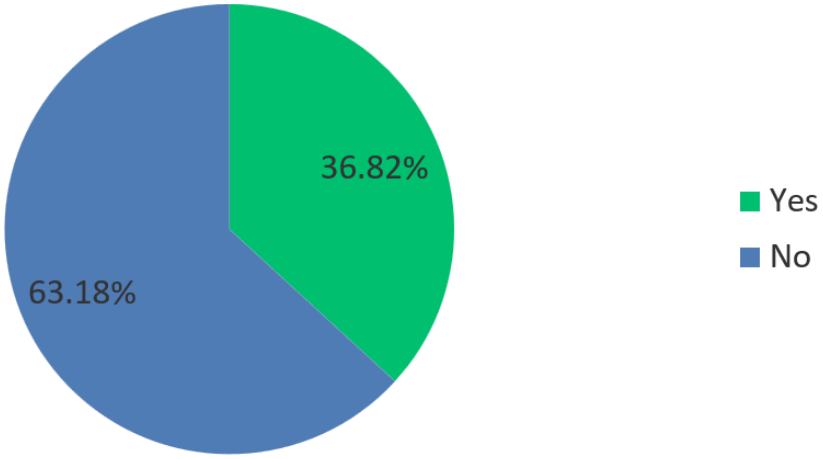


Q3 How concerned are you about the following hazards in Broome County? Please check one for each hazard.



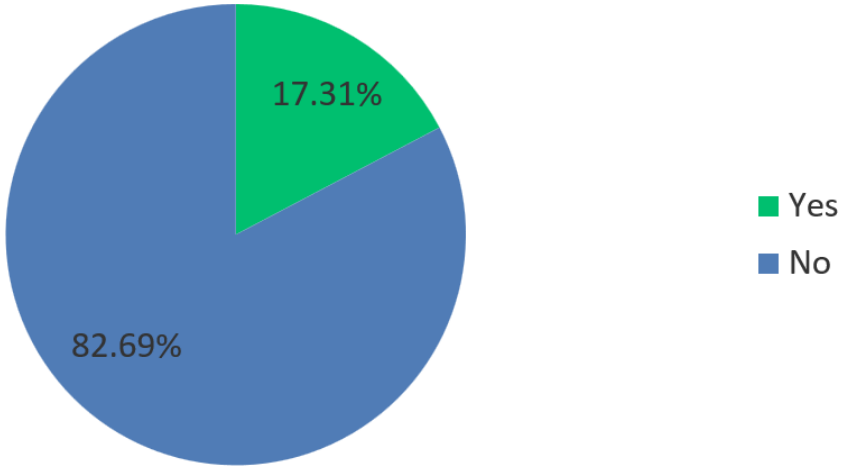
Q4: In the past, has your home been damaged by a hazard event (i.e., flood waters entering the first floor of your home or pipes freezing during periods of cold temperatures).

Answered: 440 Skipped: 4



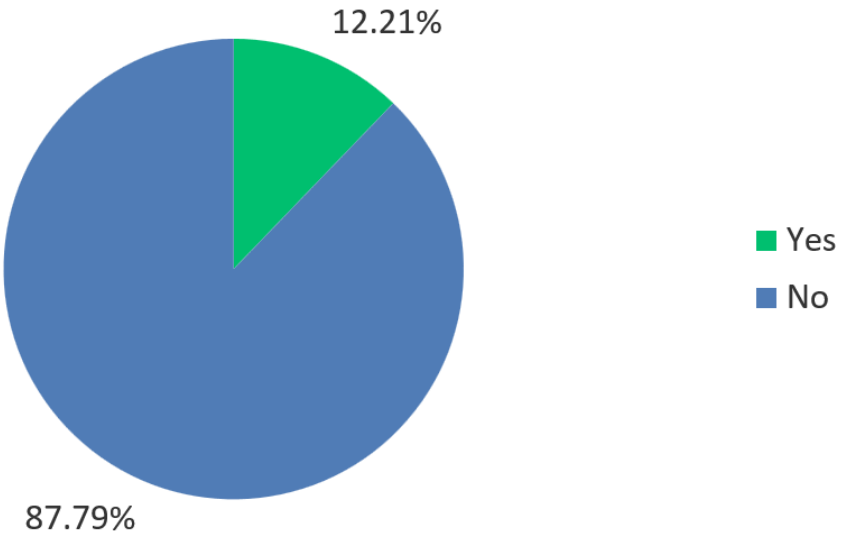
Q5: If you answered 'yes' above, did you report the damages to your local police or fire departments or to an emergency management agency?

Answered: 312 Skipped: 132



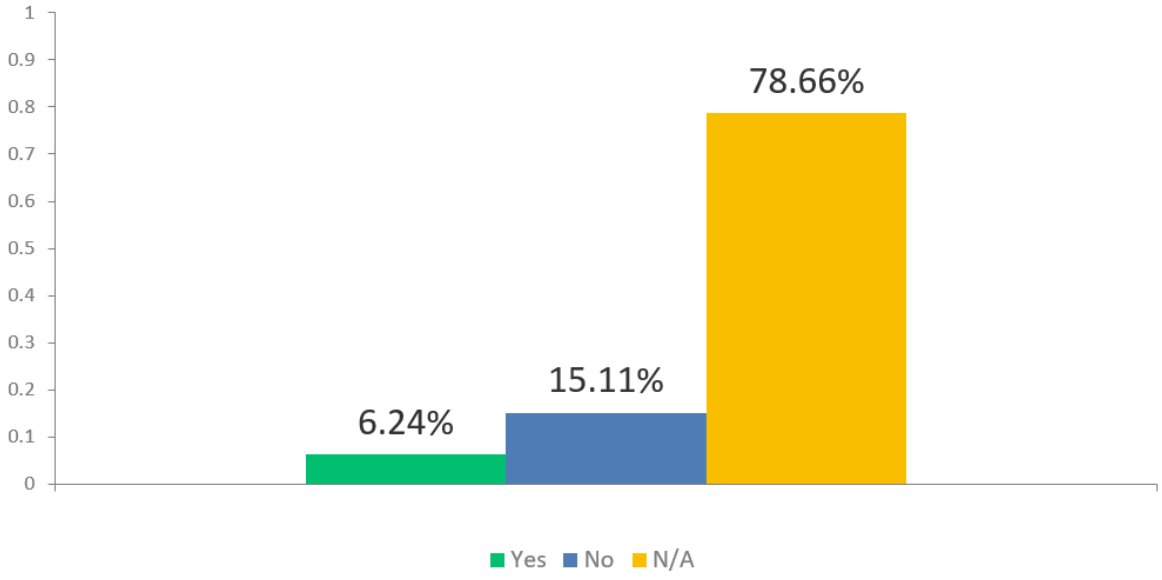
Q6: To the best of your knowledge, is your property located in a designated floodplain? If you do not know, click here to find out.

Answered: 434 Skipped: 10



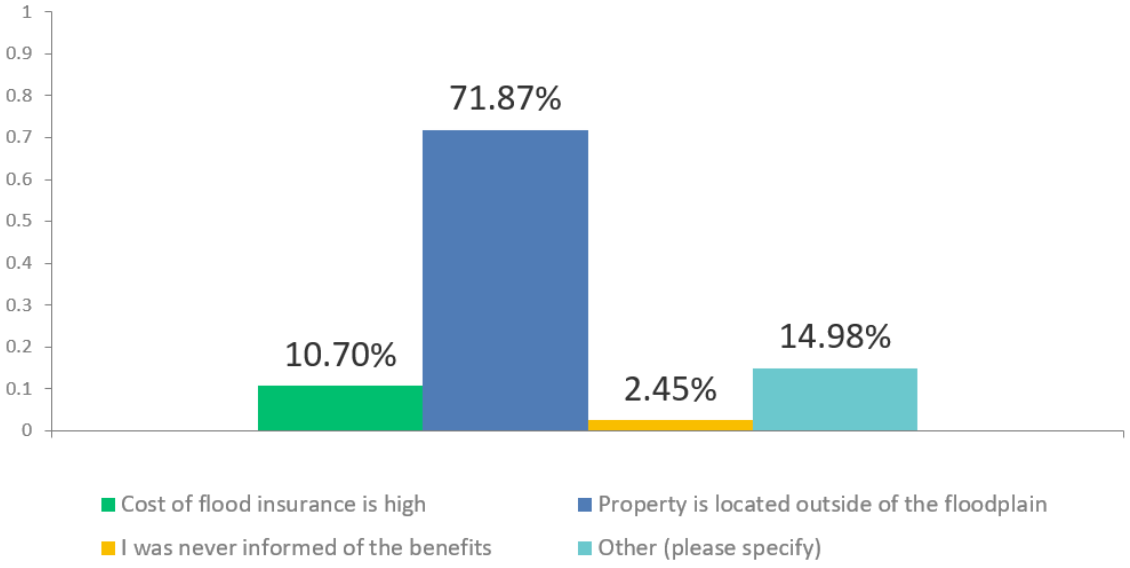
Q7: If your property is in the floodplain, do you have flood insurance?

Answered: 417 Skipped: 27

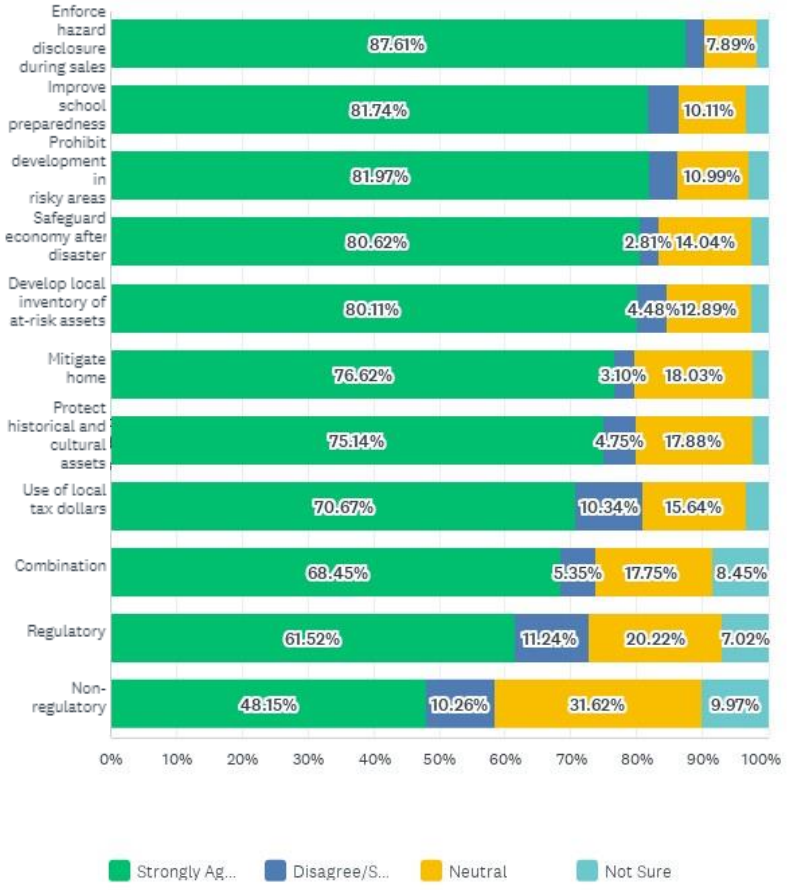


Q8: If you do not have flood insurance, please specify the reason(s) why.

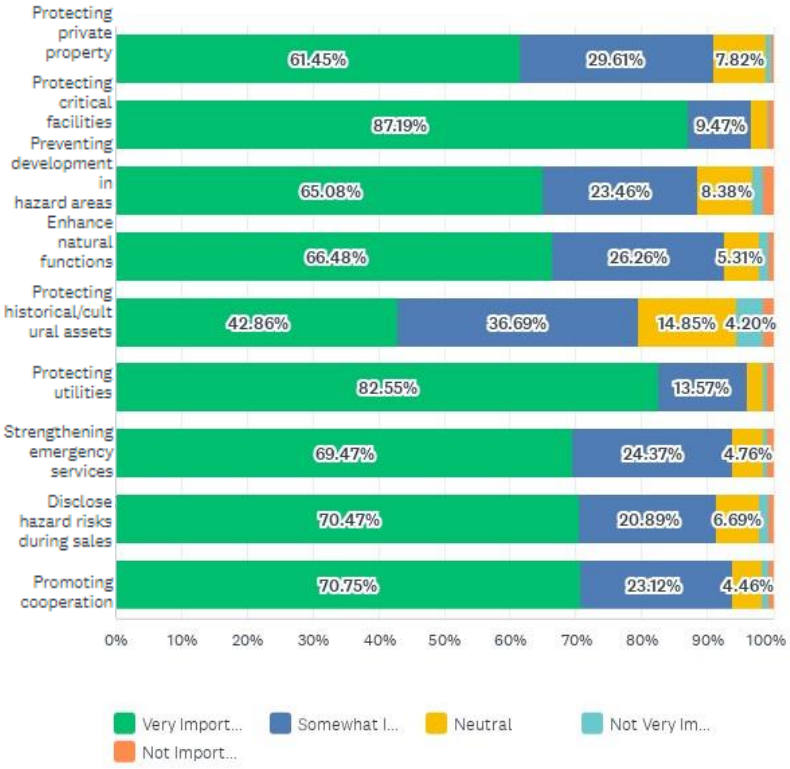
Answered: 327 Skipped: 117



Q9 A number of activities can reduce your community's risk from natural hazards. These activities can be both regulatory and non-regulatory. Please check the box that best represents your opinion on the following strategies to reduce the risk and loss associated with natural hazards in Broome County.



Q10 Natural hazards can have a significant impact on a community, but planning for these events can help lessen the impacts. The following statements will help us determine the priorities of our residents regarding planning for natural hazards in Broome County. Please tell us how important each one is to you.



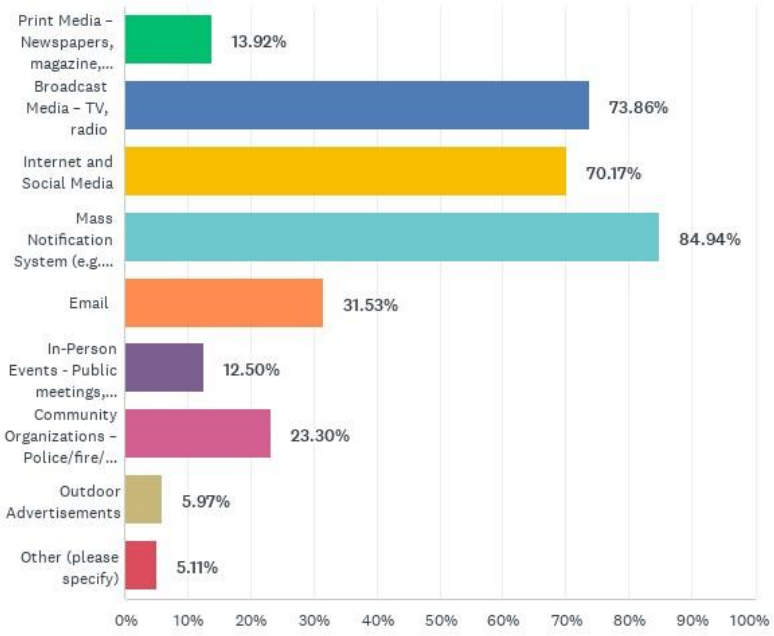
Q11 Please identify any specific vulnerabilities that you are aware of in or outside of your city/town/village (e.g., flood-prone areas or specific properties, critical facilities that lack backup power, etc.). Please list street names and other specific identifiers if possible.



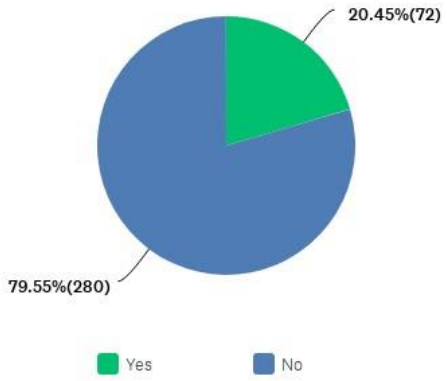
Q12 Critical facilities are defined by FEMA as those structures from which essential services and functions for survival, continuation of public safety actions, and disaster recovery are performed or provided. examples include shelters, emergency operation centers; public health, public drinking water, sewer and wastewater facilities are all examples of critical facilities. Have you ever had difficulty or could not access a critical facility within your community? Please elaborate below.



Q13 Effective communication and information sharing is crucial for communities to improve their hazard awareness and readiness, enhance response and recovery efforts, and build long-term resiliency. To ensure information is being shared effectively, identify the top three (3) methods for emergency communication and information sharing that will help you before, during, and after a disaster:



Q14 Would you prefer information or communications be shared in a language other than English?



Q15. Do you have any other comments, questions, or concerns regarding hazard mitigation in Broome County?

Answered 191

Skipped 253

Responses

Broome County should hold Emergency Preparedness seminars throughout the year either, in person at local schools or libraries or on Zoom, to train community members so they can become turn-key trainers for smaller groups of people they know personally. I have taught Emergency Preparedness to children and adults as a public school and an independent living skills teacher. I would definitely be willing to teach community members how to teach their friends and family to be prepared for all types of emergencies.
A significant amount of abandoned and non-maintained housing can be a hazard to the environment, economy/land value, health, crime, and more.
Power goes out in the Binghamton upper front street area way to often. The grid needs upgrading.
Ability to adapt and respond to climate events. Investment is needed in green infrastructure.
Stop with the low income housing and weed out the welfare lifestyle.
How many times does Route 26 have to flood for serious mitigation to occur?
the outer small towns get little attention. The 1970's small stream dams should be revisited for increased rainfall and the change in lands ability (tree removal) to absorb rain due to urban/rural development.
Immediate communication.
GOVERNMENT SHOULD BE MORE OPEN, INTERACTIVE WITH COMMUNITY PARTNERS, AND ABLE TO SHARE/PRACTICE ANNUALLY.
Why don't we recycle household batteries?
Glad to hear you are working on this.
Remove the dead Ash trees as a result of EAB BEFORE they create problems to infrastructure.
concerned about the amount of vehicle resources given to non-field response Office of Emergency Services personal with little or no consideration to Deputy Fire Coordinator and Fire Investigation staff or ensuring critical response trailers have proper tow vehicles

Responses

what would the elderly do if living alone with no power and no way to get alerts if no phones, computer, etc. Should there be a database of elderly people in this situation who could be checked on in an emergency.
Snow/Ice removal is a top priority and plow drivers need to be better trained/prepared to do their jobs more efficiently than they currently do. Certain side roads in and around Binghamton and Broome County are on hills and need more attention than level roads.
I think Broome County has come a long way in being prepared for hazard mitigation
Flood control is being addressed by finally getting the last of the flood walls in Binghamton repaired. Concerns about electric lines being knocked down, probably due to the ash trees dying and not being removed. It seems that Burr Avenue in Binghamton has been a victim of this a lot in the last 2 years, even tho there is a substation on their street, they have had a number of outages.
Incentivizing installation of whole house battery backup systems. Power outages can pose the greatest widespread threat to life for those dependent on at-home medical care equipment as well as temperature control, well pumps, etc. Battery backups are also safer and require no maintenance as compared to mobile/fixed generators which require maintenance (and thereby neglected and not functional when needed) or can be misused and cause carbon monoxide poisoning to those not properly educated on their use.
Please do a thorough hazard mitigation investigation at BHA exchange st, Binghamton management not ripping out asbestos, roaches in our food, and no ventilation we are disabled seniors for gosh' sake!
During and after the 2011 flood, it would have been helpful to receive official information about how to handle natural gas powered appliances that had been flooded. Unethical plumbing/heating companies were engaged in fear-mongering.
don't forget - air pollution (smoke) and even nuclear radiation - plus long-term loss of electrical grid due to cyber-attack.
I do not know what was meant by regulatory/non-regulatory in Question #9
ALL emergency notifications need to be offered in multiple languages so that all people living in our community are informed! Shocking that is even a question on this survey
Extreme weather is going to get worse. I'm glad to see you are adressing it. There is a difference in the needs of people that live in rural areas relative to those living more populated areas.
Just to be kept informed of anything in my area
Is what is "upstream" ...dams, industry drainage, etc responsible for the devastating floods in the recent past years.. they were within 5 years of each other
Would appreciate local Town of Binghamton take our concerns serious regarding Orchard Park area speed issues, local residents, Fed Ex, UPS and other delivery services.
Better detailed info from NYSEG on power outages.
FEMA Floodplain maps include areas that have never flooded.
Please exercise extra concern for our vulnerable populations such as the unhoused, elderly, and low-income families. They may not have access to other resources and depend on the county to assist them in disasters.
I think it's necessary to consider that there are non-english speaking, and without access to reliable internet. Someone shouldn't have to have social media accounts (including email) to be informed of what is going on in their community.
I think the funding or approval of any development (public or private) should include an environmental review and require the best mitigation measures available to reduce runoff, increase carbon capture, and maintain open space.
Fix the roads. Give emergency personal money funds
Electrical outages are becoming more common, even when there seems to be no cause.
So many of our buildings that house critical infrastructure are old and outdated. The corrections department, the police departments, some of the fire houses, all need critical electronic updates and better working environments. How can you protect us if your ceiling is leaking, your doors and walkways aren't even ADA compliant. I have been in the city building and winced at how horrible the conditions are for the officers inside. Upgrade, update, protect our workers in order to provide better service to the community. Ask for community help, some of us would volunteer our time in order to serve those who serve us.
Hazardous waste is being trucked through our area - what is the plan for a toxic spill?
Taking up land, trees, to put up bidens ridiculous solar panels, windmills
Please consider protecting hilltops from being developed. Vegetation controls run off and should be valued.
Climate Change is increasing the incidence rate and severity of many of the problems asked about in this survey and is likely to eventually result in food shortages, too as well as supply chain problems. We are still sleep walking toward Climate Catastrophe. Climate Change needs much more urgent action at appropriate scale and officials need to be addressing this and communicating about it!

Responses

We should be doing more about industrial pollution. when we get flooding that goes everywhere. The walkway by the parkway should have some barrier between the people and the cars because of the air pollution. A physical barrier (plants?) could block some of the particulate matter, lead, etc. Hurts people who are exercising. Substandard housing is vulnerable, which means renters are. Landlords don't always fix problems then tenants have to pay money to keep home livable.
Dredge the rivers in populated areas to keep the rivers below flood wall flood heights.
Need to develop a community that is aware of disaster risks, especially in regards to floods - where to find flood forecasts (National Weather Service) and what they mean, understanding historical flood potential of certain areas, etc
Questionnaire was a little confusing. I filled it out for my personal experience but I wasn't sure if you wanted it filled out for my perception of the whole county.
Good job
Please dredge the river. Looked trucking has offered for free! To keep the stone. A win/win.
preventative actions are the best way to limit damages compared to many other areas and states this area falls behind and behaviors are reactive rather than proactive maybe after events that have occurred have finally opened some eyes
Better snow removal from county roads on the weekends.
Information about pollutants that are new and historical from businesses that are here currently and historical ones
we need trees away from powerlines. thats where our power outages are coming from.
How do we prepare and protect.
Do it now
This area is a major catastrophic disaster waiting to happen and when it does. It will be just as in the past. Remain the same until the next one. Remember 1946??
Clean out the creeks, rivers to prevent flooding. I know DEC will bitch but they need to realize that saving 1 fish is not worth trying to save buildings
Text alerts would be helpful. Not everyone has access to local TV or radio stations 24 hours a day.
Yes-- I am also concerned with NYC trash/ waste being shipped here.
This survey is a good starting point. Thanks for asking for community input.
I am impressed with the governor of NYS & Broome County executive & Binghamton mayor for their combined efforts to inform & protect us.
The flood plain maps that were shared via links within this survey were dated 1977. Have there been any updates? If so, I think this should be a priority as our weather has significantly changed since 1977 with some significant incidences of flooding.
Rural communities need more support than more metro areas. If we have no power, we have no water, no heat, no shelters, etc. Trying to get by without power for days on end is much more difficult than it is in town.
Please do the sensible, responsible and right thing by the law and use common sense for our children's and family safety. You can always get more money but not a lost life.
You can't control the weather. It's not broome county's fault some of the local municipalities have lacked in areas such as fixing the flooding issues or that the power goes out alot. But if you could be more timely with your response or more logical (if it's freezing outside I can use my deck as a fridge can I have something like a warm meal instead warm cup of coffee or hot chocolate would do)
Broome County needs to step up and spend money on decent drainage on its hillsides
Stop focusing on climate agenda. Climate change is a scam that's been around since the 1960's and wasted billions of tax payer dollars. Common sense erosion control and environmental protection is a better route. Hazards have always existed and always will exist so preparedness comes from being aware and not putting yourself in harms way.That means controlling what is constructed/renovated and where to ensure water can go where it needs to and buildings can withstand basic storms.
Ensure enforcement of existing environmental and safety regulations. Enforcement of town codes. Investigate and eliminate government officials conflicts of interest
NYSEG needs to upgrade its facilities. We are constantly undergoing power outages.
Old infrastructure needs replacing. Power grid is prehistoric in certain parts of the county
Need 100% communication and cooperation between all government and emergency agencies
I would appreciate great attention being given to a plan for unhoused and economically marginalized populations during environmental emergencies.

Responses

Protect our utility lines. Promote internet competition
The questions are understandably focused on flooding, but what will be done to mitigate extreme heat? Many of this area's homes lack central air.
Please focus on reclaiming wetlands clearing streams that feed into the susquehanna, and co-use floodplains like community/insect gardens, native riparian plantings and parks. Further, cull the deer population that is browsing understory plants that assist with absorbing heavy rains and retaining soil during drought/rain cycles.
I personally do not need information in a language other than English. however, my community has a growing population of Spanish and Creole speaking residents.
When will something start to help people with flooding
River flooding is the most likely disaster. Mitigation technology and policies are well-known. Political will and trust are needed.
Spanish and French for us Canadians
Thank you for all you do!
signage like they have in Florida for evacuation route in flood prone areas
During big winter or other weather events often a conflict on open-vs closed for roads etc between sheriff and county executive or mayor, authority structure needs better definition
We need to work with nature, rathering than fighting it. Would like to see natural climate mitigation solutions play a more prominent role in our response.
Environmental pollution caused by overuse of hazardous, often carcinogenic chemicals by lawn service companies threatens my health and my pet's health and local wildlife's health. Regulation and enforcement should be strengthened regarding this issue.
More can be done
Regarding question 14; while I prefer communications/information be provided in English, I also know there is a need for information to be provided in other languages.
We don't need beautification projects/funds. We need infrastructure improvements. Why try to attract people or businesses if the water is bad, roads/bridges are bad and power outages are frequent?
More flood barriers is not the solution. It just makes the problem worse for others. More wetlands adjacent to rivers and more upstream retention ponds would be more beneficial.
Applaud work on Susquehanna dike walls. Seems they should be higher yet …
Due to the nature of elected government, there is often "interest/activity" from an adminstration that does not transend the election cycle - and important tribal information, documentation, and continuity of progress is stunted or halted altogether. This area is prone to natural disaster, but there are many other types of "accidents" that can impact the community and it's preparedness/resiliency from an event. It would be good to invest in continuity of planning - across municipalities, schools, and private industry - to help reduce duplication and pool available resources to meet the needs of our community. There is a significant reduction in anxiety when folks "have a plan" or "know there is a plan" (because it is widely publicized and reinforced) - instead of the anger disillusionment that can occur when the same citizens who "don't want government" - assume - that "government" (whomever that is for them) - wasn't already planned and resourced for - an unexpected event. Hazard Mitigation is largely environmental - but it can be more impactful if it is co-deployed with "Emotional/Practical Personal" preparedness.
Keep an eye on Veolia, the mega-billion $ company that Rich David and his GOP City Council brought into our lives (completely unnecessarily). Veolia's track record of disasters in Flint, MI and Pittsburgh, PA (and around the world; they own the majority of the Suez Canal) and their response to those disasters is dismaying, to say the least.
I would really like more communication via email from the county (and the city of Binghamton). I've read a few articles about how post-disaster communities rarely follow up on the measures that need to be taken to prevent the next disaster, and that seems to be true in my experience with places I've lived before that dealt with tornados or wildfires. Sounds like Broome County is working hard to prevent that, which is great. :) I know the pandemic is an unpopular topic but I'd love to see attention given to better ventilation in schools and other public institutions. COVID aside, there's wintertime PM 2.5 pollution from fireplaces, the wildfire issues like we had last summer (which will likely recur), and so on. Anyway, thanks for your hard work on these touchy subjects!
Social media like fb and Twitter share it to late or even days after the fact. Useless
Public libraries can be a key partner in helping with communication and aftermath. They can offer warming/cooling, public computing, and wifi, among others

Q16 In the following list, please check those activities that you have done in your home, plan to do in the near future, have not done, or are unable to do. Please check one answer for each activity that you or someone in your household have done.



Q17. Do you have any relevant questions or comments for Broome County?

Answered 147
Skipped 297

Responses

The power grid is very prone to failure. Natural gas appears much more reliable.
Yes. I don't know for sure if unreality is hazardous, however I do think to know that unreality needs to be recycled. To me unreality appears most often as things on the ground, not the grass for some reason though. In addition these small objects stand out against the rest of the environment as having a transparent and blurry 'filter' around them, not extending farther than the object more than an inch. I pick up most unreality and recycle it when I see it in small containers when the volume of collected unreality can mostly fill the container. (i.e. L coffee cup, small box) in the recycling dumpster behind speedway/McDonald's on old Front street Binghamton.
Is there a lockdown law in Johnson City????
Maine NY does not have a shelter system really. When bridges are not available cannot get to most areas. Hamlet region has no shelter outside of flood area. We need one.
Traffic and vehicle law enforcement is inadequate and has become a hazard.
Aging, outdated, antiquated, inadequate buildings for Critical Facilities as defined by FEMA are a real issue.
If certain areas are prone to flooding, but there are significant debris build ups in the river, why don't the rivers get dredged?
Having experienced various extreme weather events in this community for more than 30years, I feel comfortable and confident in the response provided by the town, county and state to ensure access to necessary services and quick recovery from these events. Good job and thank you for continuing to improve.
only that stream restoration should be done where needed

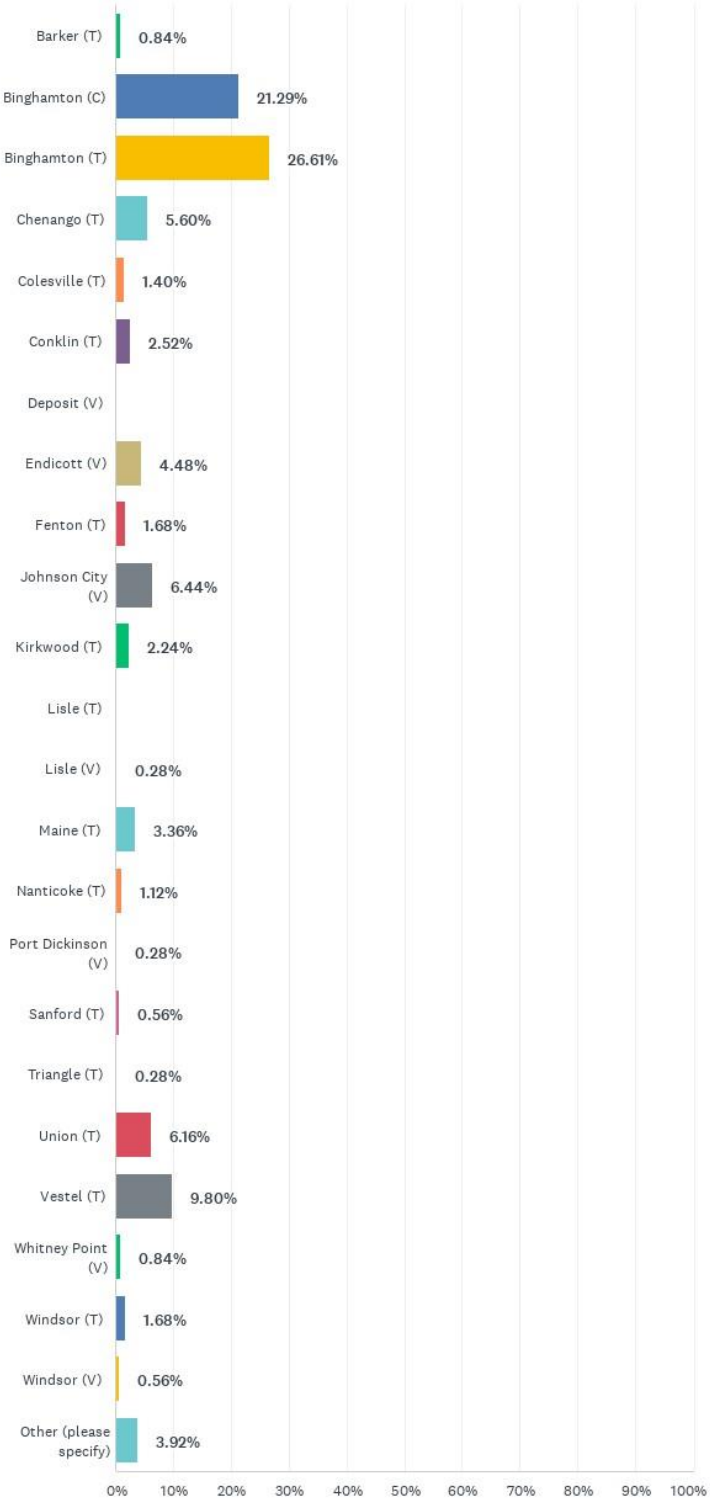
Responses

I feel the First Ward area has been neglected, particulary the Charles Street Business Park. The areas that are city property are unkept. Dog feces everywhere, the sidewalk on Charles St could use a cleaning, and grass should be mowed.
MAGA Republicans - Election Deniers - Trump supporters need to be excluded from planning. . . .They seem to want the world to end, so let's stop asking their opinions or trying to include them in planning.
Do you k ow what a gem Becky Smith is in the Binghamton Hall?
where do you get info on utility shut off precedures?
Addressing the lack of adequate affordable housing. Addressing the homeless problem
What can renters do to be prepared?
We should be tapping into all available funding for mitigation and adaptation to climate change.
This survey was constructed poorly. Allowing multiple selection options (checkboxes) that should've been a single selection (radio button), and not enforcing number of selected items when asking for "select 3," or not having N/A options when it's a question formatted as "if you said yes to the previous question." The data is most likely have inaccuracies as a result.
Dead trees that fall can create power outage,block roads from emergency vehicles, cause property damage. 100s of trees on city town right aways. Costly for a private citizen to hire it done.
It's disappointing that the new dog park at Otsiningo is always flooded, and that it wasn't built on higher ground.
Dredge the rivers
How can I become more involved on a volunteer basis?
The County needs to do more to communicate about and address Climate Change including, mitigation, adaptation, and resilience.
Is our drinking water safe in the event of river flooding? Is the sewage treatment plant available to operate in the event of the type of flooding that we have had?
many of these actions should be provided to residents however raising taxes is not the answer I drive past the Chenango River everyday and have to wonder if the river was cleaned out of islands and trees how much less flooding there would be this is just one example of how things could be improved and yeah I know there is some salamander that supposedly is the reason river is not dredged stupidity save a salamander at the expense of homes and lives
Yeah your snow removal sucks
What do you do if you don't have access to the electric box for your apartment?
Include disaster education for middle and high school students and include this important subject as a college course
Why can't we dredge the rivers. That used to be done and we didn't worry about gas lines what is lying in the bottom of the river. We need to worry about citizens.
Stop wasting money by allowing bosses to take their vehicles home. Plus more enforcement of employees driving home in a County vehicle for lunch when they're not even close.
What are the next steps? As a former school administrator I'd like to know how school districts will be involved in future planning?
I think it is essential to be as proactive as possible and take as many significant steps to prevent flooding in Broome County as possible.
Enforce the speeding and immigration laws please? if you need more money , just ask after explaining the potential negative outcomes to our county if not enforced.
What is the country's plan to deal with excessive rain & flooding, water mitigation etc since it's only going to get worse.
Relevant to Bevier Street when is Broome County going to fix the water issues on the hill
Compliments on the pothole reporting response from the county. They did a good job last spring.
Don't join the climate smart nonsense, it's detrimental.
Investigate the Town of Binghamton. Look at code enforcement and the volunteer fire department.
In storm situations - Are there additional preparations that people with underground street wiring need to take? How does Broom County monitor the wear and tear on the unseen/underground wiring?
Any future information on grants for home improvement aid for residents?
It is time to stop giving out free needles and such to those who are doing drugs in our County. The needles are piling up in our parks, on riverbanks, parking lots, private property, etc. Enough is enough. If those people want to choose drugs, then it is up to them whether they live or die. Let's help those who need diabetes supplies, cancer supplies, etc.

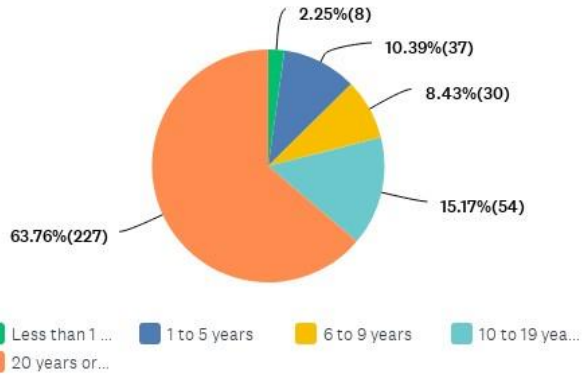
Responses

what is being done to fill all the vacant positions in Social Services?
What is the plan for the most vulnerable in our community?
Glad you're asking about this
Who manages the storm drains and streams? Is it the homeowner that adds rocks and clears leaves, is it the town, is it the county?
What is the structure of any bodies that can recommend/establish/enforce any mitigation efforts?
Who's next?
Thank you for keeping the residents of Broome County safe, healthy, and engaged!
Why is it so hard to get help, or straight answers when people need it? We are told for the past 12 years that we cant be helped unless our house is in danger. Now that our house is in danger, there is no help.
Doubt backflow preventers work on the dike walls … never seen anyone test or work on these devices along the river. A failure waiting to happen!
I am making a copy of the list of actions in question 16 and adding them to my to-do list! Just filling out the survey has made me more aware.
Question #5 - should offer a "N/A" options (such as was done for #7). Question #14 perhaps could have included a "specify" box if "yes" was the indicated response.
Just again, thank you for doing this hard work.

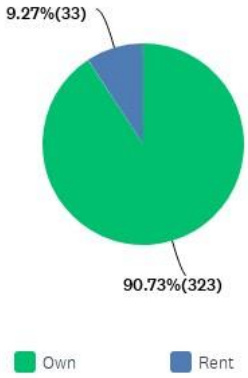
Q18 Please indicate the municipality in which you live:



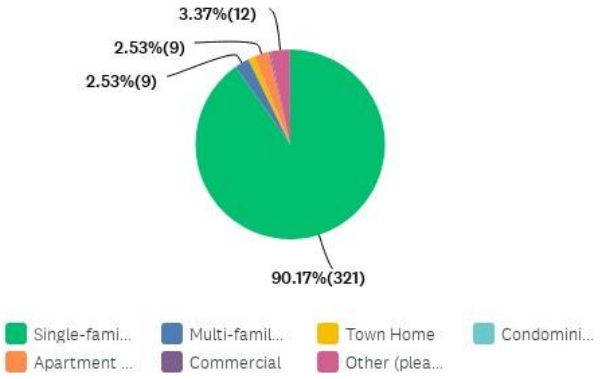
Q19 How long have you lived here?



Q20 Do you own or rent your place of residence?



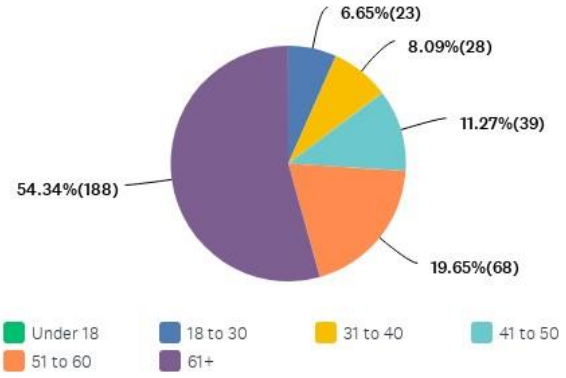
Q21 What type of residence do you live in?



Q22 What street is your property on? (optional, will be kept confidential - only used to identify hazard areas such as flood prone areas).

Answered: 290 Skipped: 154

Q23 Please indicate your age range:



1.2 STAKEHOLDER SURVEYS

In addition to collecting information from residents of Broome County, surveys were developed for the agencies and stakeholders in the county. Unlike steering committee or planning partnership members,

stakeholders may not be involved in all stages of the planning process, but they may have information or input to provide. In order to gather that information, the surveys were sent to the following stakeholders: law enforcement, firefighters, emergency medical services, highway and public works, business and commerce, hospitals and health care providers, and utilities. Results of the surveys are provided below, with personal information redacted.

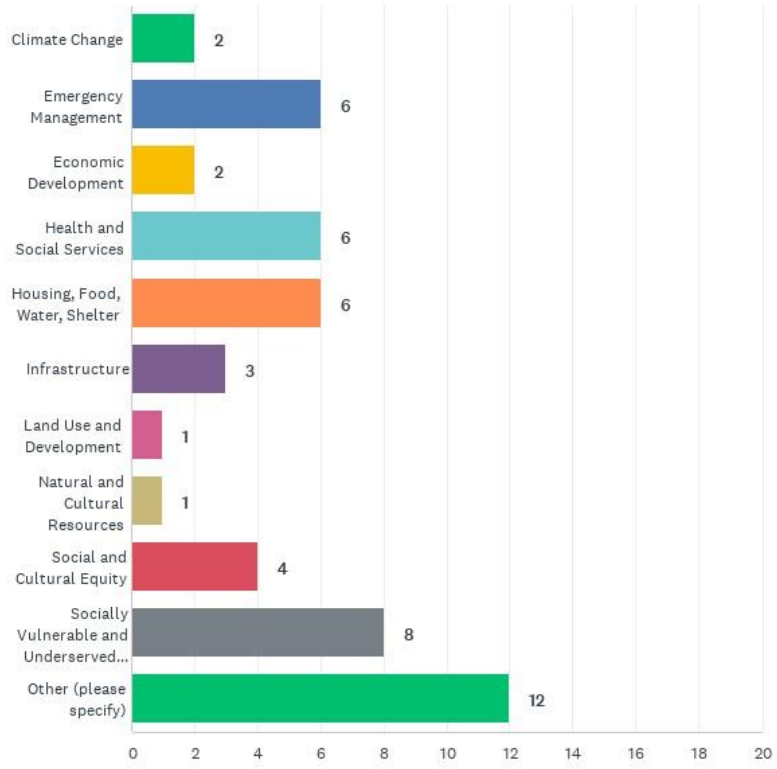
Figure 2. Broome County Stakeholder Survey Results

Q1

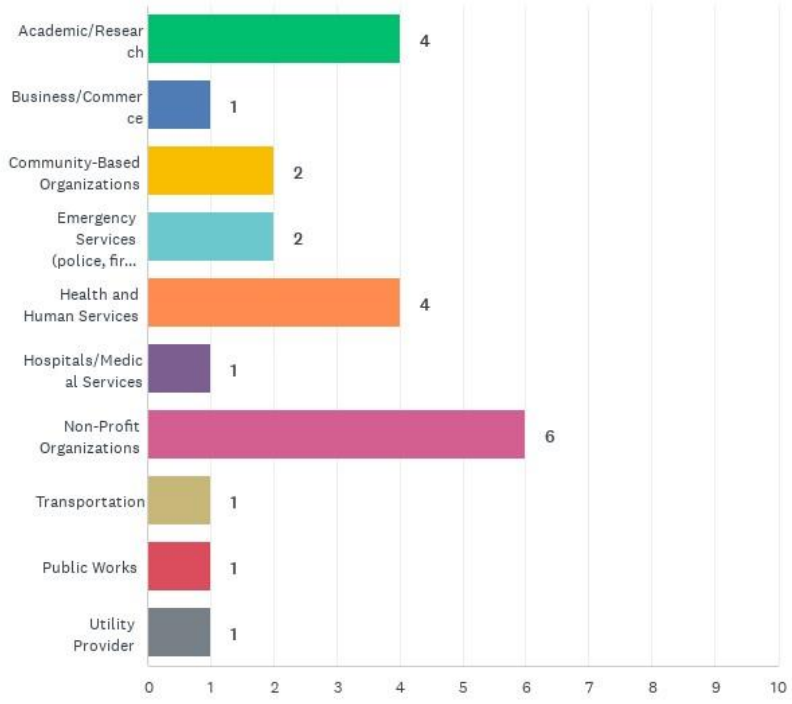
Contact Information

Answered: 24 Skipped: 0

Q2 Which of the following sectors and areas of expertise do you represent? Mark all that apply.



Q3 What category does your facility operation/service fall under?



Q4. Based on the above category, please provide additional description and information as to what your organization does or offers (please explain).

Answered 21
Skipped 3

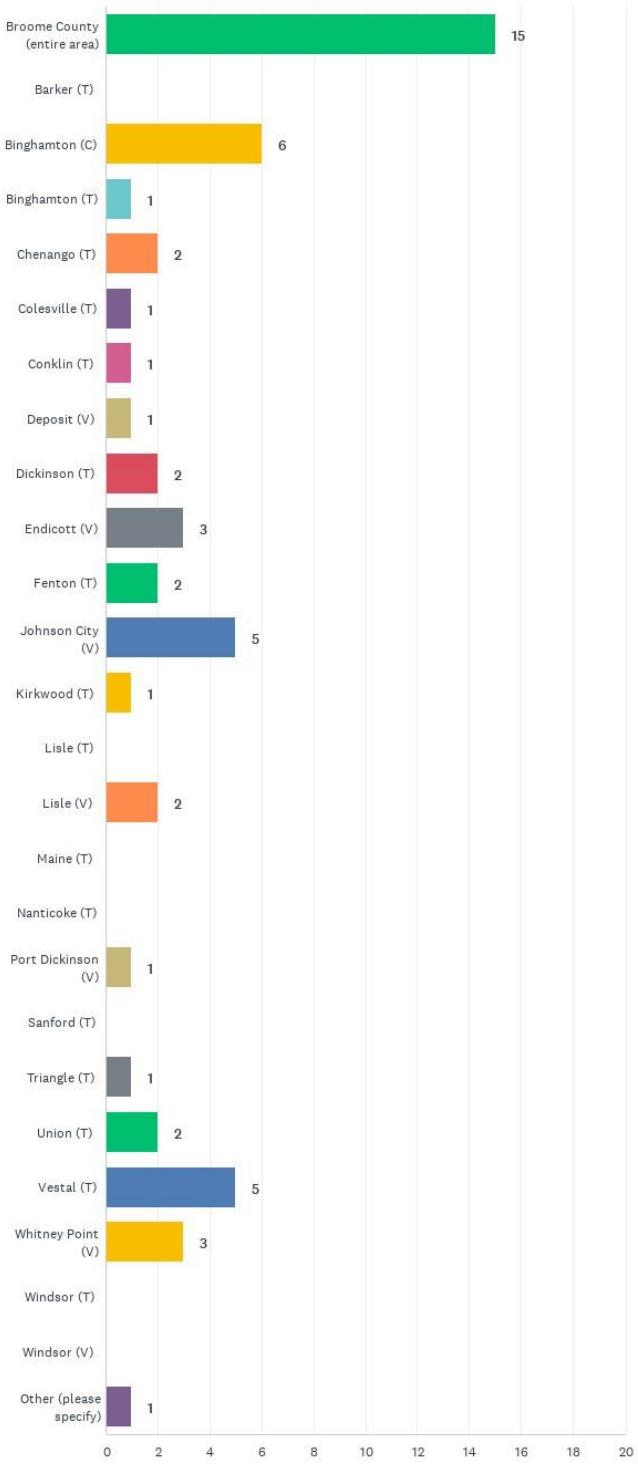
Responses

Low Income Public Housing
Library services, meeing space for community groups
Binghamton University is a community of over 20,000 people with our own public works department, police department, and EMS (ambulance) agency. We are a Carnegie R1 research institution and have a resident population of approximately 7,500 students.
Food distribution, shopper program, volunteer services
Village maintenance workers
Public School district
internet access over fiber optic network

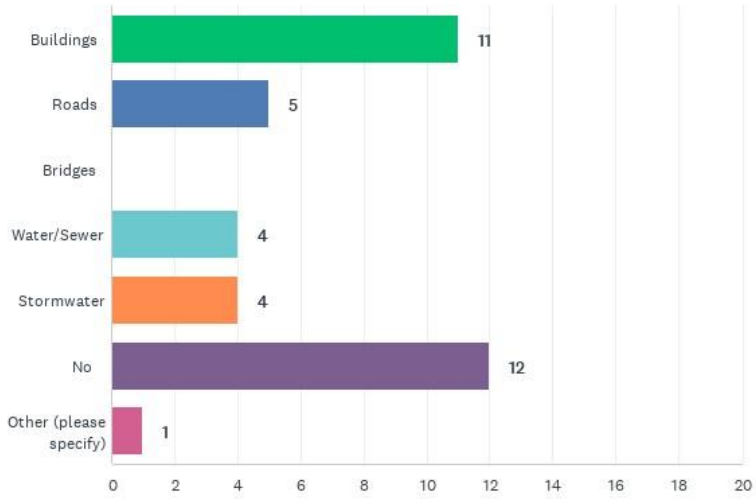
Responses

Village services provide water, sewage treatment, street maintenance (DPW), code enforcement and parking enforcement.
NYS Public school
We have 16+ competitive grant cycles a year and will take urgent requests off cycle. We pride ourselves on being out in the community and helping our NP's in whatever capacity we can to help meet the needs of the community.
Fire Operations Resource Management
4CLS provides consortial services to the public libraries in Broome, Chenango, Delaware, & Otsego County. We also provide services to unserved populations in the region. During a disaster we can play a role in disseminating information and resources through the libraries to the public.
Provides mobility management assistance through a call center primarily to seniors, ind's with disabilities, and the low income population of South Central New York.
Multi-hospital system. Regional Stroke & Trauma Center.
Works with older adults and their Caregivers to connect them to services.
Immediate response to single and multi family fires as well as floods and other natural disasters providing emergency assistance to include payment to clients for provision of food, clothing and shelter. Establishment of shelters in conjunction with Emergency Managers and other community partners to meet the needs of large groups during natural disasters.Provision of casework and recovery services to clients for longer term of 30 days post immediate need. Preparedness services such as smoke alarm installs, community partnering for smoke alarm installs as well as educational programming.
Community College
regional planning and economic development: providing grants, grant writing assistance, economic development, planning, water quality programming, climate resilience
We contract out to our local mental health clinics in Broome and provide support and linkage to mental health services for both adult and children. BroomeINCLUDES provides support, referral, and community inclusiveness to all of Broome County for those who reside and visit.
Provides support to older adults living in the community through resources, referral, nutrition, social settings and in home supports.
review, and collect plans, educate the public about preparedness, conduct exercises

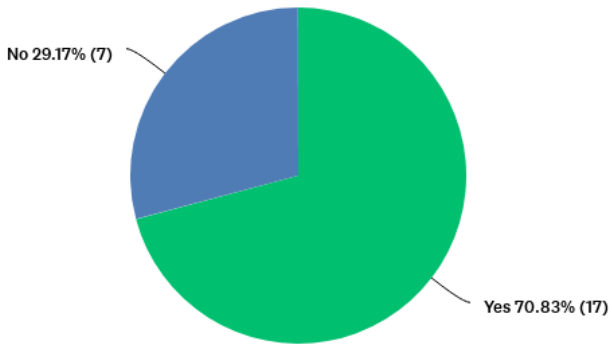
Q5 Please identify the location of your facility(ies) and/ or primary service area. You may choose more than one if your service area covers multiple communities, or “Broome County (entire area)” if your service area is county-wide:



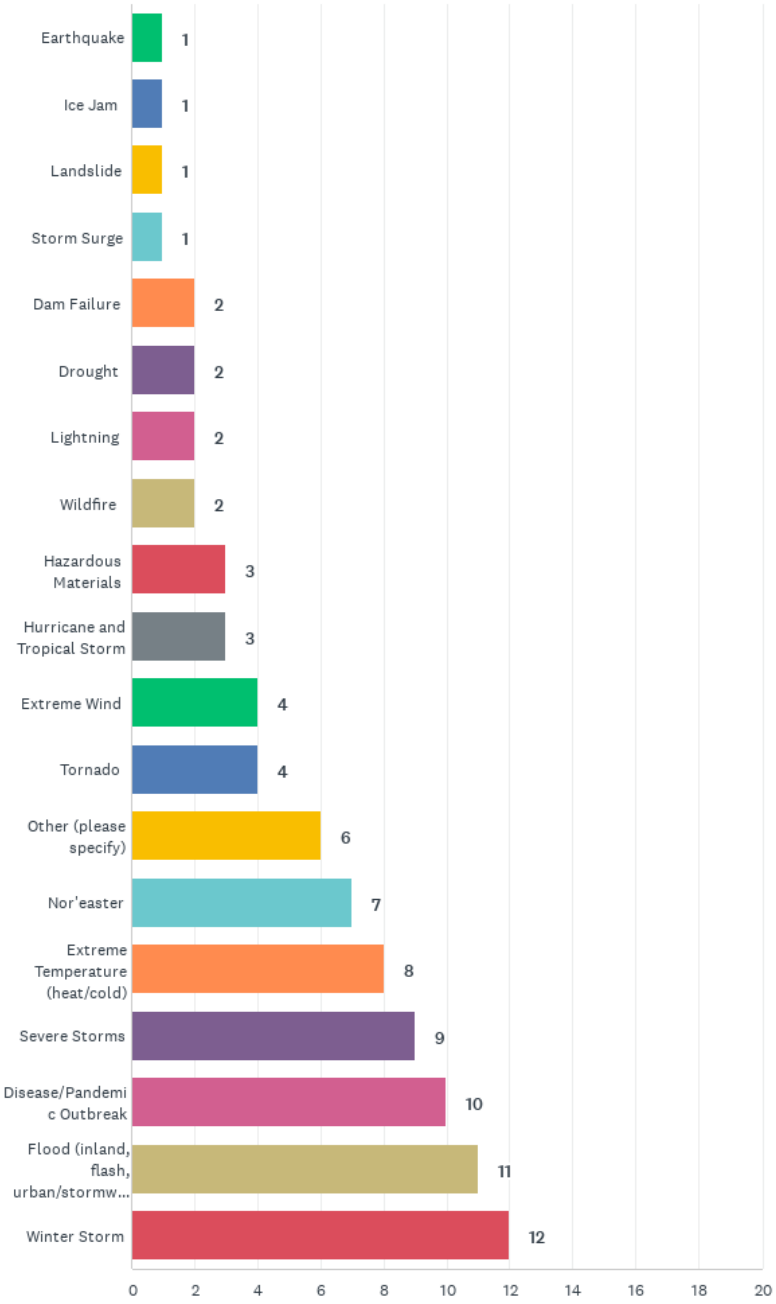
Q6 Does your organization maintain or manage any of the following within your designated service area? If not, answer “No”, otherwise check all that apply.



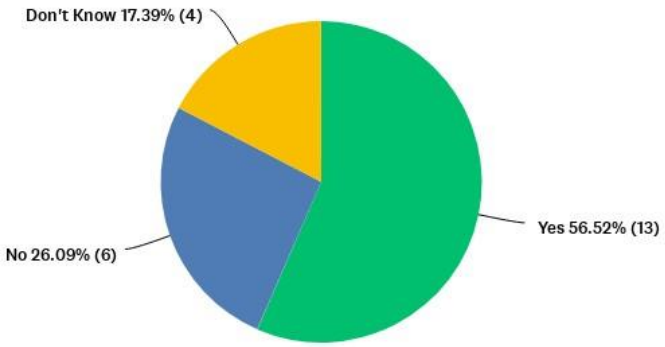
Q7 Does your organization work with or help support socially vulnerable populations that may be at higher risk for hazard impacts? Socially vulnerable populations may be considered "socially vulnerable" because of a variety of factors like socioeconomic status, household composition, minority status, limited proficiency to read or speak English, housing type, and transportation.



Q8 For which hazard(s) do you feel that you or your organization have a special interest and/or expertise? Check all that apply.



Q9 Looking back at previous hazard events, have buildings/facilities/structures you have worked in and/ or are responsible for been impacted by a hazard (ex. damage/closures/etc.)?



Q10. If you answered "Yes" to the above question, please describe the event that caused or is causing (if recurring) damage and loss of service/ property. If quantifiable data is available, please provide that as well (number of damaged structures, monetary loss, etc.) (please explain).

Answered 14
Skipped 10

Responses

Low Income Public Housing
Flood, storms
2011 flood resulted in over $5 million of damages and loss of use for one year of the Binghamton University Downtown Center (UDC)
storm damage due to flooding or excess rain, school closure due to weather, damage due to excess wind
Apartment housing in Johnson City was impacted in 2006 nd 2011. 12 Residents were temporarily set up in other houses throughout the area while the building was renovated.
COVID pandemic; Flood; Winds; Hazard spill on highway; excessive snowfall
Flooding
Our building on East Side was flooded in 2011, before we moved here.
Significant snow accumulations impact the ability to get staff into the facilities. 2006/2011 Flooding caused significant impacts on operations and the ability to provide services to the community.
I believe there was a fire in the building.
flooding, no quantifiable data available
COVID - Power Outages - Snow Storms - Flooding

Responses

Johnson City Senior Center has experienced flood damage on multiple occasions. This is a contracted site so info. is not available at this time. Senior Center in Whitney Point has frequent power outages.
closures, power outage

Q11. Looking at where your facilities or services are located in Broome County, what areas do you believe to be the most vulnerable to hazards? What are these hazards? (please explain).

Answered 21
Skipped 3

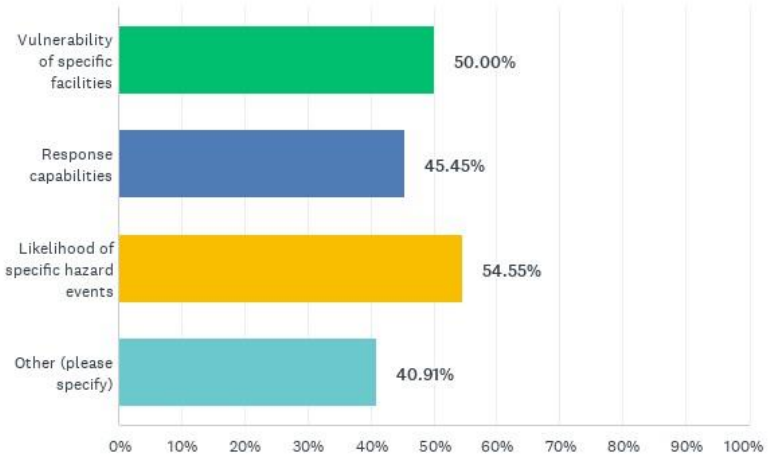
Responses

City of Binghamton
Flooding in Town of Vestal
Binghamton University Downtown Center (UDC) located at the confluence of the Chenango and Susquehanna Rivers. All University property is vulnerable to severe weather. Due to the size of our population and the nature of activities they are often involved with, our community is at enhanced risk to incidents such as lightning, tornado, and other short-notice events impacting people outdoors.
We have a warehouse that potentially could be affected by flooding.
Traffic and infrastructure hazards to persons using bicycling for transportation and/or recreational purposes.
Flooding, railroad derailments (hazardous materials), possible well system contamination, Electrical Grid shutdowns.
weather-related or accident related in vacinity
where ever service is provided via utility poles
Carlton St, Johnson City area and major hazard of concern is flooding.
All low lying areas which could be flooded in the event of a levee failure. All properties which might suffer in the event of a railroad accident, especially a spill.
High school - proximity to highway and train tracks Port Dickinson - proximity to highway and flooding
Unsure
This part of Binghamton is very susceptible to floods from storm events. Not sure what green infrastructure exists to mitigate. Additionally, not sure how road capacity would handle evacuation if necessary. Also, on hot/rainy/windy days, there are few if any shade trees, and very little refuge from the sun or other elements- walking or standing for long periods of time can be hazardous for people. This is case for nearly all of Upper Court St.
Southside Binghamton Johnson City
Flooding- low lying areas for flash flooding and areas near and around rivers streams for general flooding, Fire risk and number of occuring fires higher in some zip codes based on number of fire responses

Responses

Buildings in flood zones & flooding
infrastructure along river bodies, stormwater infrastructure, flooding.
I think our office is most vulnerable to sink-holes due to our location in the Oakdale Commons.
Johnson City Senior Center-Floods Northern Broome Senior Center-Whitney Point Power outages Eastern Broome Senior Center- Harpursville, internet issues
low lying areas

Q12 What are your agency's primary concerns regarding hazards?



Q13. What challenges or barriers to reducing vulnerability in Broome County do you see?

Answered 20
Skipped 4

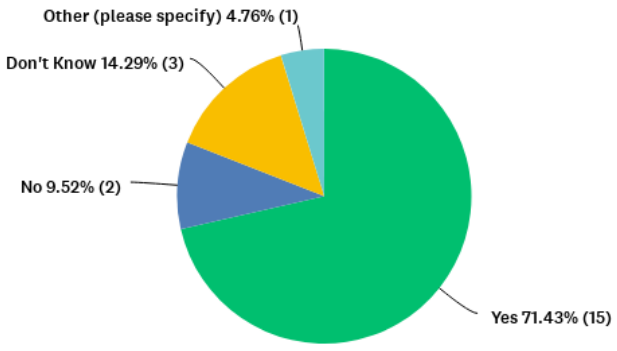
Responses

Age of facilities, populations served, staffing capabilities
Flooding prevention
Money, willingness to do things differently
Need to update the volunteer structure for long term recovery. COAD is looking to reconstitute.

Responses

Improved infrastructure and better education of the motoring and bicycling communities regarding their respective rights and responsibilities.
Oversight on Railroad facilities maintenance as to derailments etc through our village. Federal assistance with funding to examine the river dikes acceptance for flood insurance
communication to all stakeholders in a largescale event-impact to students/families
unknown as to what can be done to stop a major flooding impact.
Uncertain
funding coordination between entities
With so many people being unhoused, they and the underserved populations in our community would be more severely impacted by a hazard event.
Fractured nature of those doing work on different but related projects (different agencies/govt's involved), not enough community input, piecemeal nature/narrow focus of work when done (putting in crosswalks, painting but not addressing comprehensive street issues). A lot of projects seem like band aids that don't address underlying issues.
affordable and accessible housing is limited, demand does not meet supply
Costs
funds, capacity, climate change
Seeking and securing transportation, housing, and primary care services (including mental health).
Flood mitigation, Stronger internet availablity in Windsor/Harpursville area, NYSEG improvements in Whitney Point
areas being owned and operated by different municipalities. relying heavily on volunteers combined with volunteerism being on the decline

Q14 Does your agency own or lease facilities?



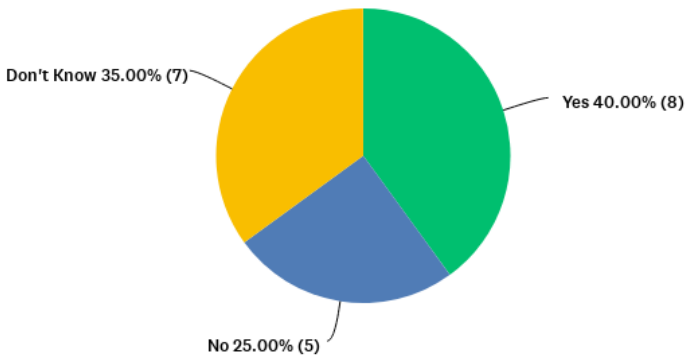
Q15. Of those facilities that your agency owns or leases, are any viewed as critical facilities or community lifelines?

Answered	**18**
Skipped	**6**

Responses

yes
No
Yes
The warehouse for CHOW
Firestation
yes
no
Uncertain
yes
No
Yes
Probably not
unknown, likely not
All; Binghamton General Hospital, Wilson Medical Center
No
Yes
There are 3 senior centers owned by Broome County that are used as warming/cooling shelters or other shelters as needed.
yes the 911 center, and the EOC

Q16 Are your facilities susceptible to impacts from hazards, such as your fire department being in a flood prone area?



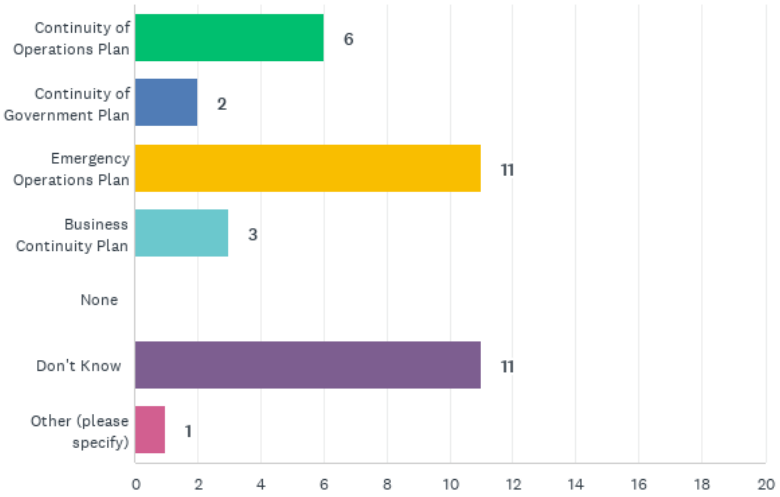
Q17. What support does your organization need from Broome County to help reduce vulnerabilities to your facilities?

Answered 19
Skipped 5

Responses

Infrastructure such as flood walls and flooding mitigation
Increased communication with outages occur, with situational updates associated with the nature of the outage, anticipated time of restoration, etc.
Unsure
Support of educational efforts to inform motoring and bicycling communities of their respective rights and responsibilities.
clarity on use of our facility in an emergency
Due to impact of a major flood event, I am not really sure there is anything that can be done to minimize the potential hazard.
Uncertain
unknown
Unsure if we need any support with this, but would like to be able to offer support if needed.
None
Mostly information when hazards strike
unknown
None
None in particular
We receive great support from Broome County and have strong relationships with emergency services personnel.
We just need to work collaboratively between departments to ensure the safety and to work towards reducing vulnerabilities together.
Internet strengthened in Windsor/Harpursville, Improvement infrastructure for NYSEG in Whitney Point and Flood mitagation in Johnson City.
none that I know of

Q18 Is your organization covered by any of the following plans? Check all that apply



Q20. What plans or studies has your agency developed that relate to hazards, the climate, new or existing facilities, vulnerable populations, or other areas related to hazard mitigation?

Answered 16
Skipped 8

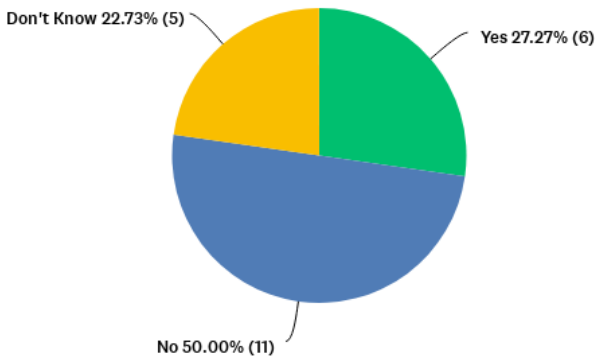
Responses

Needs Assessment on all residential sites
N/A
Significant resources are put into construction of LEEDS compliant buildings. Additionally, the campus community is engaged in educational opportunities to spread information about climate change.
None
District emergency response plan for school
Used information learned from past events and established plans on how to react in the event of future events.
Uncertain
none
None that I am aware of
Locally we have installed a backup generator
Risk Assessments are conducted for all new facility construction or acquisition.
Climate studies and presentations on just about every risk are available through National Red Cross, studies available on vulnerable populations also through National Red Cross based on sheltering operations as well as Disaster Action Team responses
ERP, ERT, EOC

Responses

CEDS
Do not know.
we maintain all the emergency plans for the county, and we collect them from schools, municipalities, and other organizations

Q21 Is your agency currently involved in conducting any studies or developing any programs which would further support Broome County's hazard mitigation program? Studies can include hazard-specific information, data gathering which supports risk assessments, including economic data, or statistical data of other types.



Q22. Please list any projects or programs that you have recently implemented that you believe will reduce your facility's/organization's vulnerability, damage, and losses (including loss of operation/service) due to hazard events.

Answered 19
Skipped 5

Responses

Emergency Action Plan and Needs Assessment
N/A
Installed a generator for the warehouse
Installation of lightning warning strobes / sirens on athletic fields. Installation of weather station. I don't get involved with construction but I am confident there are many projects that include appropriate risk management efforts.
None.
Unknown
emergency and crisis response plan

Responses

For vulnerability and potential losses, we work with our insurance carrier and have them provide risk assessment reviews.
Uncertain
none
Our staff is capable of working fully remote
N/a
Backup generator
call center is mobile and does not require staff to be on site
Replacement of emergency power generators on the Wilson Medical Center campus.
Virtual responses for disaster action team responders if weather or conditions dictate dangerous conditions
CONTINUITY OF OPERATIONS PLAN FOR A STATE DISASTERÂ EMERGENCY INVOLVING A COMMUNICABLE DISEASE
Not applicable.
the radio project is almost complete

Q23. Does your agency currently have any mitigation projects or activities underway? If so, please describe.

Answered 18
Skipped 6

Responses

No
No
No
Unknown.
No.
Just normal maintenance of water & sewer systems
no
Same as stated above
Uncertain
generators being installed at both elementary schools
No
No
No
Ongoing redundant power improvements.
No
no
Not at this time.
i dont know

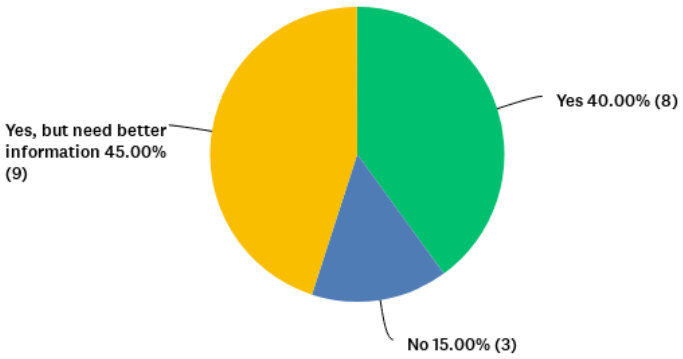
Q24. Please provide a list of projects or programs that your facility or organization would like to complete in order to reduce your vulnerability to damages and losses, including loss of operation/service, to hazard events.

Answered 16
Skipped 8

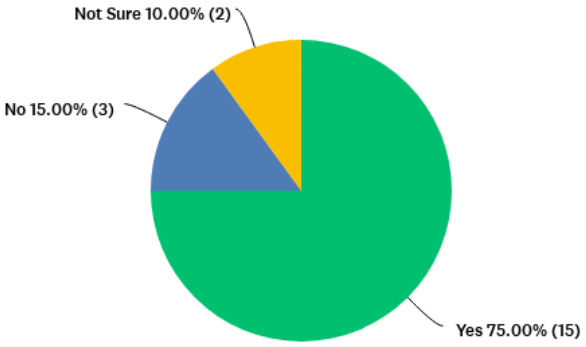
Responses

A flood wall
N/A
It will take a big effort to develop an appropriate list for the University and I cannot create this on my own. I can begin the process of identifying our needs and would need to know the how & to whom I should submit this information to.
Not applicable.
Funding to certify village Levies meet the Corp of Engineers flood specifications by an Engineering study
not sure
None of our critical operations, such as Servers are in a flood prone area
Uncertain
considering additional generator or larger generator at MS/HS location
Unsure
N/a
We are working with another library system to setup a dynamic backup link between our servers so that, in the case of an emergency, we could each run our software from another location
None
n/a
Not applicable.
and EOC update
A flood wall
N/A

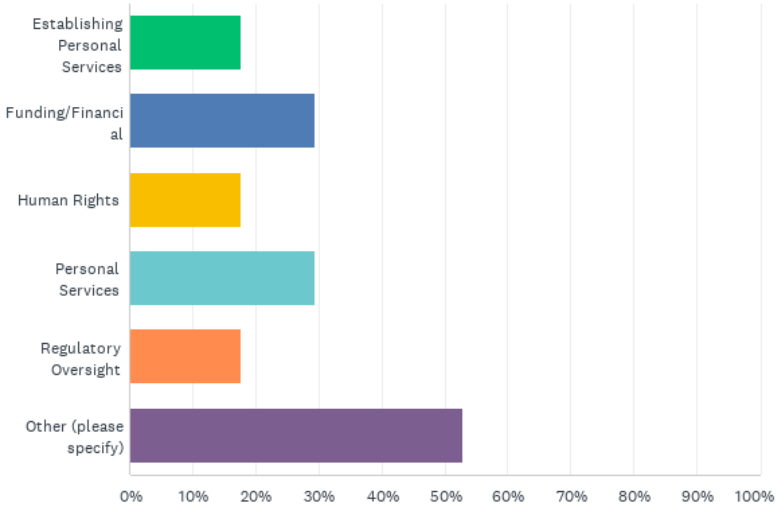
Q25 Are you aware of the number and location of vulnerable populations in your community/operating area?



Q26 Does your agency provide assistance to any socially vulnerable or underserved populations in Broome County?



Q27 If yes, what types of services do you provide?



Q28. Please provide a list of the populations or communities served by your agency.

Answered 15
Skipped 9

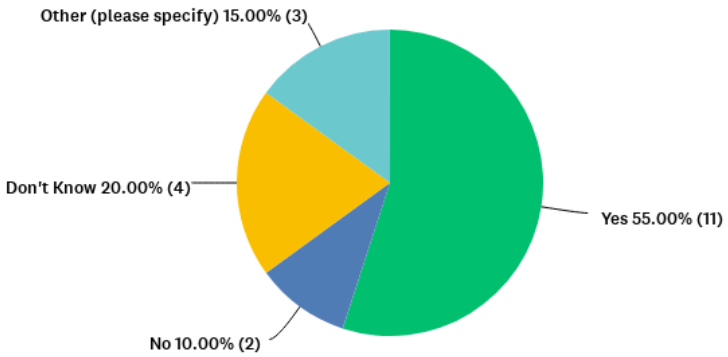
Responses

Low income, elderly and disabled

Responses

Students, staff, faculty, and visitors to Binghamton University property.
Johnson city students and their families
Individuals diagnosed with Metal Disabilities
All residents in the village, approximately 900 people
students located in CV school district
N/a
The bookmobile visits communities without libraries and facilities whose residents can't get to a library (mostly nursing homes)
low income individuals, rural individuals, seniors, individuals with disabilities, mobility challenged individuals, people receiving medical treatment or suffering from chronic conditions
All
Developmentally disabled; Non English speaking; Mentally impaired; Hearing impaired; Financial hardship; Underhoused; Underinsured; Children; Families; Elderly; Disabled/handicapped; Impoverished monetarily
Single mothers, low income
Anyone with a mental health or substance use challenges, including those seeking support, treatment, and resources in the area.
Older adults aged 60+
all of Broome County

Q29 Do you provide these services during times of disaster?



Q30. What barriers and community characteristics exist within Broome County that may create additional vulnerabilities to hazards? This may include but is not limited to access to transportation, broadband access, economic disadvantages, physical health (chronic diseases), limited physical mobility, age (older adults and children), and rural communities.

Answered 15
Skipped 9

Responses

All of the above
Approximately 59% of Binghamton University students and 100% of our employees live in the Greater Binghamton Area. They all rely upon the availability of housing and health care. Many rely upon public transportation. We are aware many of our students do not have access to broadband when they are not on our campus. Our community, particularly the students, are more vulnerable when the leave Binghamton University and they are no longer easily supported by the University. Our students often struggle to access resources and social services like other members of the larger community.
Placement of rumble strips on roadways, in configurations not considerate of bicycling community.
access to transportation and economic disadvantages
everything you state in the comment would pertain
Economic disadvantages
unknown
Everything listed above as well as the unhoused and underserved communities.
People with mobility challenges, rural people difficult to contact or physically reach, and people without any reliable transportation options are very vulnerable to hazards. People with diminished communications skills, as well. Even mild hazards like sun/weather/air event exposure can become harmful for vulnerable populations. Old housing stock, HVAC systems, etc. in urban and rural areas may not be suitable to meet demands of a hazard event.
None
all of the items you have listed above plus mental health, developmental disabilities, hearing impaired, visually impaired
Broadband access, transportation & rural communities
Broome is an aging population, so this could be a vulnerability due to the fact that we have limited geriatric-driven resources/therapies in Broome. Broome also has transportation and housing barriers that hinder the community. Finally, Broome has mobility issues and ensuring inclusiveness of all abilities, which can be a social barrier too.
All the above
lack of knowledge

Q31. Do you have any questions or comments for Broome County?

Answered 8
Skipped 16

Responses

No
Not at this time
Indirectly lack of code enforcement personnel could cause a property hazard. Could Broome County help with this severe shortage?
n/a

Responses

No
How can we continue to improve partership in mitigating hazards and in response and preparedness if such is needed
Not at this time.
no

1.3 WEBSITE AND SOCIAL MEDIA POSTS

Broome County developed several mechanisms to promote public awareness and involvement during the planning process. The County provided text and graphics for participating jurisdictions and stakeholders to post on their social media accounts and physical flyers to hang in their working locations. The County hosted information about the HMP update on its own website and developed an interactive StoryMap to introduce users to the HMP process and ways they could be involved. Throughout the planning process, several municipalities posted at least one of the provided social media graphics to their accounts, including Town of Chenango, Village of Johnson City, Town of Windsor, and Town of Vestal. A local news television station, Binghamton News Channel 34 (WIVTV) aired a one-minute segment publicizing the planning process and encouraging viewers to participate in the public survey.

The following section provides screenshots of websites, news articles, and social media posts.

Figure 3. Broome County HMP Public Survey Social Media Post #1

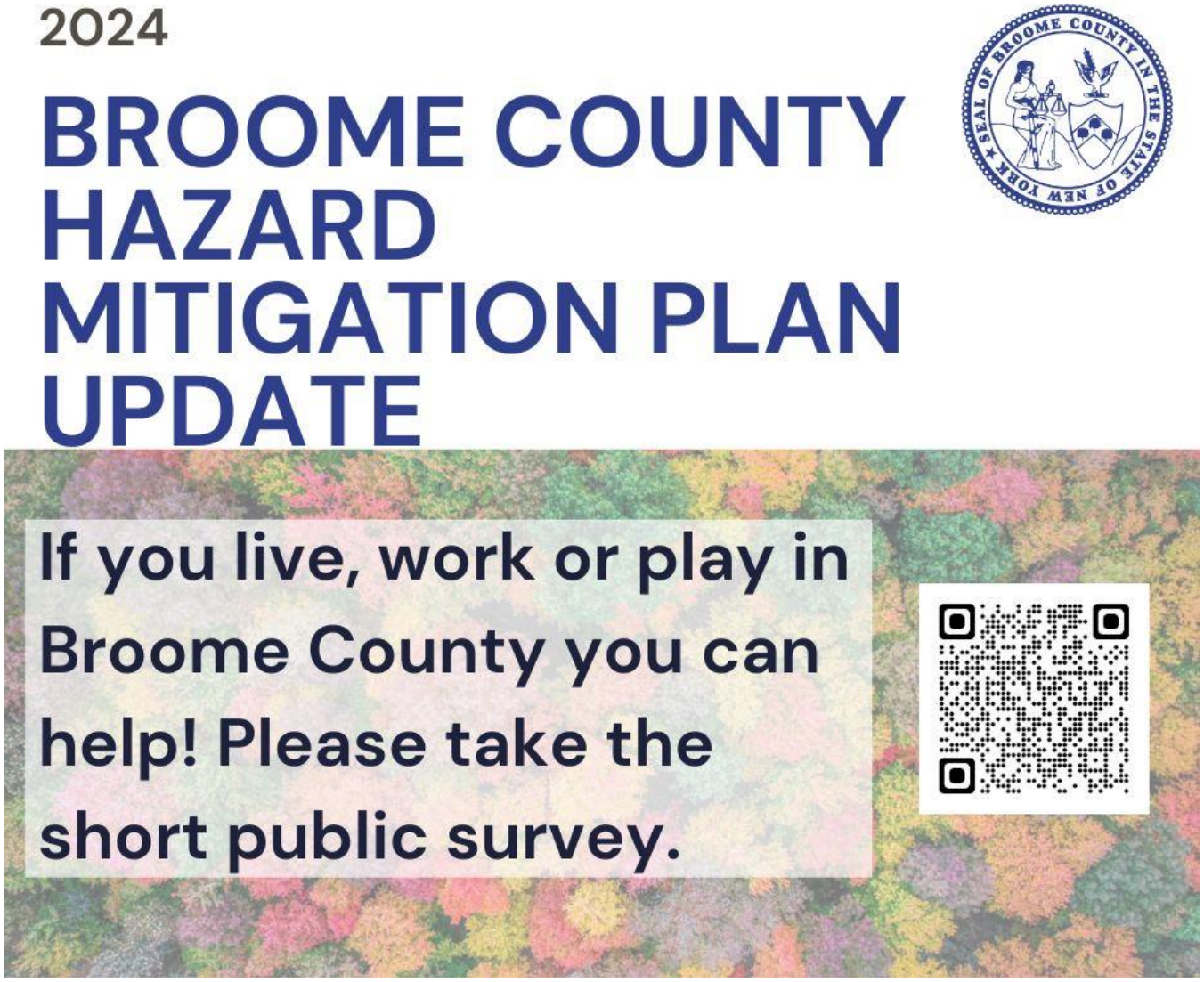


Figure 4. Broome County HMP Update Announcement Social Media Post



Figure 5. Broome County HMP Public Survey Social Media Post #2

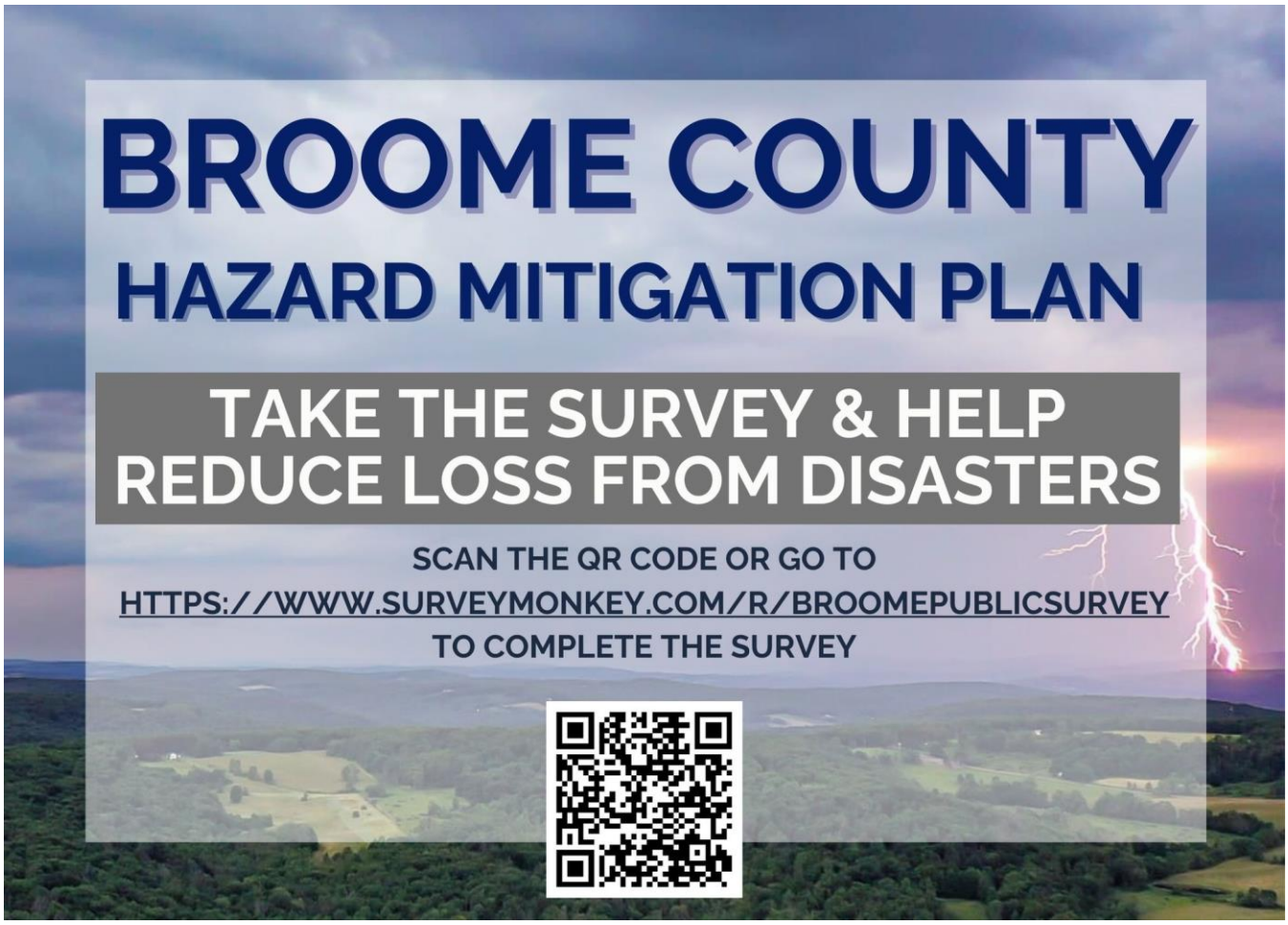


Figure 6. Broome County HMP Public Survey Social Media Post #3



Figure 7. Broome County HMP Public Survey Social Media Post #4



Figure 8. Broome County HMP Brochure

WHAT IS HAZARD MITIGATION?

Hazard Mitigation is an action to help reduce long-term risks caused by hazards or disasters, such as flooding, hurricanes, or wildfires. The purpose of hazard mitigation is to protect people and structures and minimize the costs of disaster response and recovery. Hazard Mitigation can take on many forms: capital projects, policies, education, and environmental protection. It is considered the first phase of the four phases of Emergency Management: **Mitigation & Prevention**, Preparedness, Response, and Recovery.

Mitigation planning breaks the cycle of disaster damage, reconstruction and repeated damage. Hazard mitigation includes long-term solutions that reduce the impact of disasters in the future.

Broome County has the responsibility to protect the health, safety, and welfare of our residents. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. When a community is more resilient, it has the ability to adapt to changing conditions and prepare, withstand, and rapidly recovery from a disaster.



HAZARDS OF CONCERN

The hazards identified in the 2019 HMP are concerns for the health, safety, quality of life, environment and economy for Broome County. The following hazards are concerns for the county:

- Drought
- Earthquakes
- Extreme Temperature
- Floods
- Invasive Species
- Severe Storms/Severe Winter Storms
- Wildfires

BROOME COUNTY
60 HAWLEY STREET,
BINGHAMTON, NY 13902
607.778.8000
BROOMECOUNTYNY.GOV
FAX: 607.778.8869

BROOME COUNTY NEW YORK

HAZARD MITIGATION PLAN



HAZARD MITIGATION PLAN

A **Hazard Mitigation Plan (HMP)** is "the representation of the jurisdiction's commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards" (44 CFR 201.6).

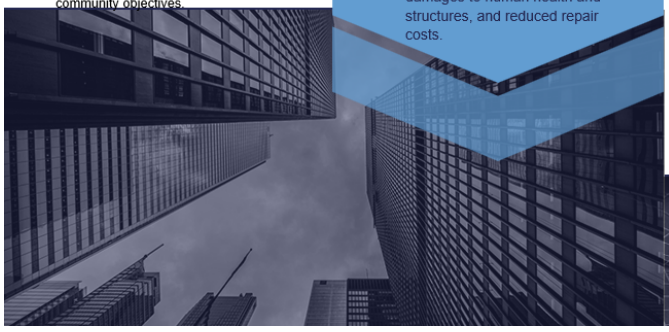
Hazard Mitigation Plans promote:

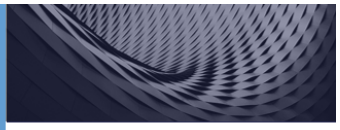
- Identifying actions for risk reduction.
- Focusing on the greatest risks and vulnerabilities within a community.
- Building partnerships by involving residents, organizations, and businesses.
- Increasing public education and awareness of threats and hazards.
- Communicating priorities to state and federal officials.
- Aligning risk reduction with other community objectives.

BENEFITS TO THE COMMUNITY

An HMP will assist Broome County and its jurisdictions with the following:

- An increased understanding of the natural hazards the County faces.
- Development of more sustainable and resilient communities.
- Eligibility for federal funds for pre-disaster mitigation planning before disaster strikes.
- Potential financial savings to residents, including flood insurance premium reductions.
- Reduced long-term impacts and damages to human health and structures, and reduced repair costs.





BROOME COUNTY HMP UPDATE

The **Broome County Hazard Mitigation Plan (HMP)** is required by state and federal agencies in order for communities in Broome County to be eligible for certain types of non-emergency disaster assistance, including funding for mitigation projects.

The 2019 HMP for Broome County is the most recent publicaiton and is publically available: www.gobroomecounty.com/planning/2019HMP

The county is currently working on updating the HMP. The 2023 HMP for Broome County will be available on the county HMP website.

The goal of the Broome County HMP is to identify and reduce the vulnerability to hazards in order to protect the health, safety, quality of life, environment and economy of the communities within Broome County.



Figure 9. Broome County HMP Flyer

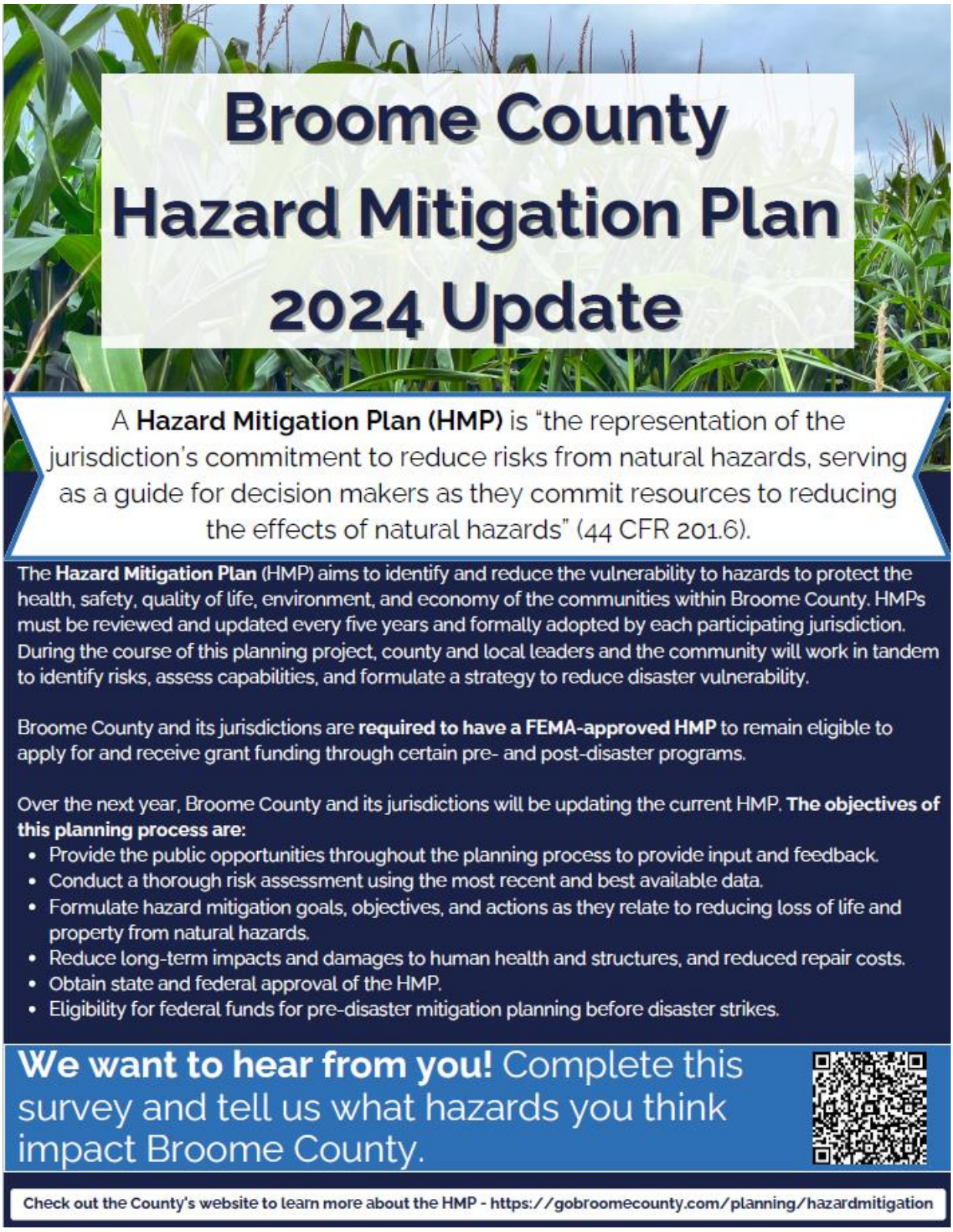


Figure 10. Broome County HMP Website #1



Figure 11. Broome County HMP Website #2

GOVERNMENT - PEOPLE - COMMUNITY - SERVICES - DEPARTMENT DIRECTORY FOIL CONTACT - SEARCH

BROOME COUNTY NEW YORK

Hazard Mitigation

In 2022, Broome County received a grant from the Federal Emergency Management Agency and the New York State Division of Homeland Security and Emergency Services to update the existing County-Wide Hazard Mitigation Plan (HMP) in cooperation with our partner municipalities. This process will build upon previous efforts to make Broome County and its jurisdictions more resistant and resilient to damages from natural disasters. The plan update is essential in ensuring eligibility for future FEMA pre- and post-disaster grants and will be updated with the support of our contract consultant throughout the year.

This project is made possible with funding from the Federal Emergency Management Agency (FEMA) and New York State Division of Homeland Security and Emergency Services (DHSES).



Check out the 2024 Broome County Multi-Jurisdictional Hazard Mitigation Plan Update Here!

View the 2019 Broome County Hazard Mitigation Plan Here

View the 2013 Broome County Hazard Mitigation Plan Here

Flood Resources

Broome County Project Contact:
Stephanie Brewer, Senior Planner
Broome County Planning & Economic Development Department

Search

Select Language

BETH LUCAS
DIRECTOR

Edwin L. Crawford County Office Building
Fifth Floor
60 Hawley Street
PO Box 1766
Binghamton, NY 13902

PHONE: 607.778.2114
FAX: 607.778.2175
EMAIL: beth.lucas@broomecountyny.gov

Planning

- Home
- Planning Services
- GIS/Mapping Services
- Agriculture
- County Plans
  - Comprehensive Plan
  - Housing
  - Sustainable Operations Plan
- Local Land Use
  - Land Use (239) Reviews
  - Municipalities
  - Trainings
- Energy & Environment
  - Hazard Mitigation
  - Brownfields
  - Natural Resources & Open Space
  - Sustainability
- Community Grants
- Publications
- Partnerships

Figure 12. Broome County HMP StoryMap



The **Broome County Hazard Mitigation Plan (HMP)** is required by state and federal agencies in order for communities in Broome County to be eligible for certain types of non-emergency disaster assistance, including funding for mitigation projects.

As we update the Broome County HMP, we will work with our municipalities and stakeholders to raise awareness of the hazards, impacts, and vulnerabilities that impact our county. Utilizing best available data, the plan will be developed so all residents in the County, including underserved and socially vulnerable populations, will benefit. The County will update the plan in accordance with FEMA's requirements from the updated *Local Mitigation Planning Policy Guide (April 2023)*.

Coming Soon! Draft of the 2024 Broome County Hazard Mitigation Plan.

The Steering Committee has developed a Mitigation Survey to assist in providing the public an outlet to contribute to the Broome County HMP update. Click the survey below to provide feedback on hazard mitigation concerns in your community.

Click Here for the Public Survey!



About

Broome County, in collaboration with county, local, and community partners, is currently in the process of updating the **2019 Hazard Mitigation Plan**. This plan presents a valuable opportunity to outline a range of potential hazards that may impact our residents, enabling the County and its jurisdictions to qualify for future mitigation funding from the Federal Emergency Management Agency (FEMA). To initiate this update process, the County has identified a number of committees that will contribute to ensuring the smooth execution and timely completion of the update.

Core Planning Team – This team is made up of Broome County Planning and the County's contract consultant, Tetra Tech. They meet frequently to ensure the project is on schedule and that all FEMA and NYSDHSES requirements are met.

Steering Committee – The purpose of the Steering Committee is to guide the planning process and provide input as needed for the content of the plan. Members of the Steering Committee include representatives from Broome County departments (Health, Public Works, Emergency Services, and Planning), Broome County Soil and Water Conservation District, Upper Susquehanna Coalition, and the communities of Binghamton, Fenton, Union, Vestal, and Johnson City.

Planning Partnership – The Planning Partnership is combined group consisting of the Steering Committee and at least one representative from each municipality. Municipal representatives provide direct input to jurisdictional-specific sections (annexes) of the plan regarding capabilities, hazard event history, and project development. The partnership will actively participate throughout the process by contributing, reviewing, and providing feedback during the process and focusing on updating their annexes.

Stakeholders – The planning process must provide an opportunity for stakeholders to be involved. Stakeholders are individuals or groups that a mitigation action or policy affects. For the purpose of this HMP update, stakeholders include academia, emergency services, government agencies (federal, state, and local), hospitals and medical services, neighboring communities and counties, non-profit organizations, public libraries, public works departments, transportation services, and utility providers. Stakeholders will be invited to attend meetings, review sections of the draft plan, and provide input through online surveys and stakeholder workshops.

NYSDHSES and FEMA – NYSDHSES will guide Broome County throughout the update process. Both NYSDHSES and FEMA will review the updated plan to ensure it meets all state and federal requirements. Once the plan is determined to have met all requirements, FEMA will approve the plan. After approval, Broome County and its jurisdictions will be responsible for adopting the plan.



Broome County HMP 2024 Committees

Vulnerable Populations

Social vulnerability is defined as "*the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood*" (FEMA - National Risk Index).

Vulnerable populations are those who have a high social vulnerability score and include persons over the age of 65, children under the age of 5, disabled persons, non-English speaking persons, and others. It is increasingly important to mitigate hazards of concern in these communities as it is more difficult for vulnerable populations to bounce back from hazard impacts.

◆ ◆ ◆

Mitigation Actions

Mitigation actions are projects, plans, or activities identified to help in reducing or eliminating current and future vulnerabilities from hazards. They form the core of the plan and are a key outcome of the planning process. Mitigation actions typically fall into four categories – **Local Planning and Regulations**, **Structure and Infrastructure Projects**, **Natural Systems Protection**, and **Education and Awareness Programs**. The following table describes these types of actions.

Mitigation Type	Description	Examples
Local Plans and Regulations	These actions include government authorities, policies or codes that influence the way land and buildings are developed and built.	- Comprehensive plans - Land use ordinances - Subdivision regulations - Development review - Building codes and enforcement - NFIP CRS - Capital improvement programs - Open space preservation - Stormwater management regulations and master plans
Structure and Infrastructure Projects	These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure.	- Acquisitions and elevations of structures in flood-prone areas - Utility undergrounding - Structural retrofits - Floodwalls and retaining walls - Detention and retention structures - Culverts - Safe rooms

Natural Systems Protection and Nature-based Solutions	This type of action can include green infrastructure and low impact development, nature-based solutions, Engineering with Nature and bioengineering to incorporate natural features or processes into the built environment.	- Sediment and erosion control - Stream corridor restoration - Forest management - Conservation easements - Wetland restoration and preservation - Land conservation - Greenways - Rain gardens - Living shorelines
Education and Awareness Programs	These types of actions keep residents informed about potential natural disasters. Many of these types of actions are eligible for funding through the FEMA HMA program.	- Radio or television spots - Social media outreach - Websites with maps and information - Real estate disclosure - Presentations to school groups or neighborhood organizations - Mailings to residents in hazard-prone areas - Targeted outreach to underserved communities and socially vulnerable populations - Outreach materials in languages other than English

FEMA Mitigation Actions for Hazard Mitigation Planning

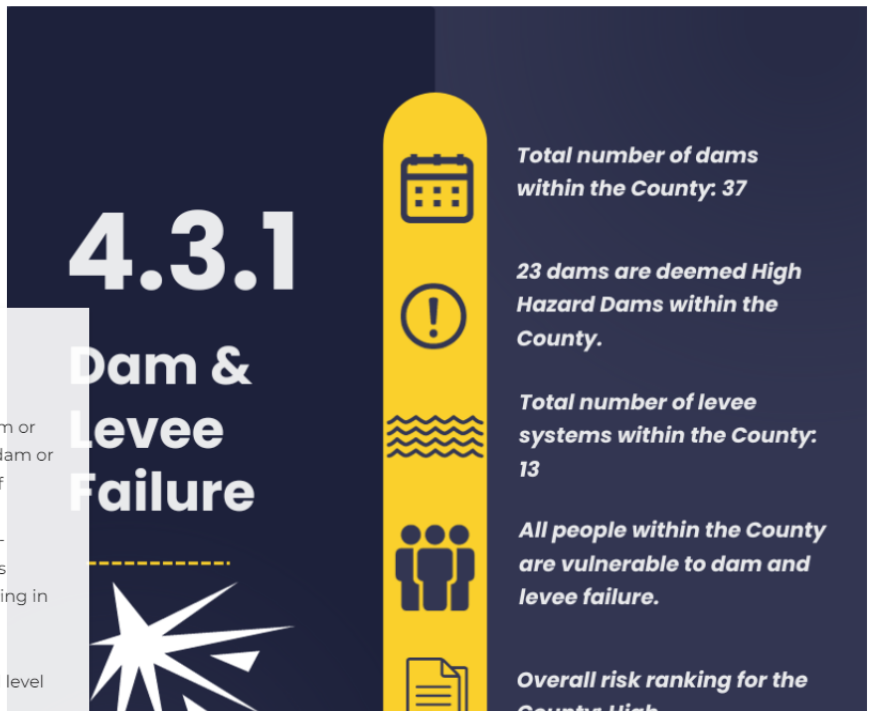
Hazards of Concern

Scroll below to view the hazards identified in the 2024 HMP Update.

Dam & Levee Failure

Dams typically fail when spillway capacity is inadequate and excess flow overtops the dam or when internal erosion (piping) through the dam or foundation occurs. Complete failure occurs if internal erosion or overtopping results in a complete structural breach, releasing a high-velocity wall of debris-filled water that rushes downstream, damaging or destroying anything in its path (FEMA 2018).

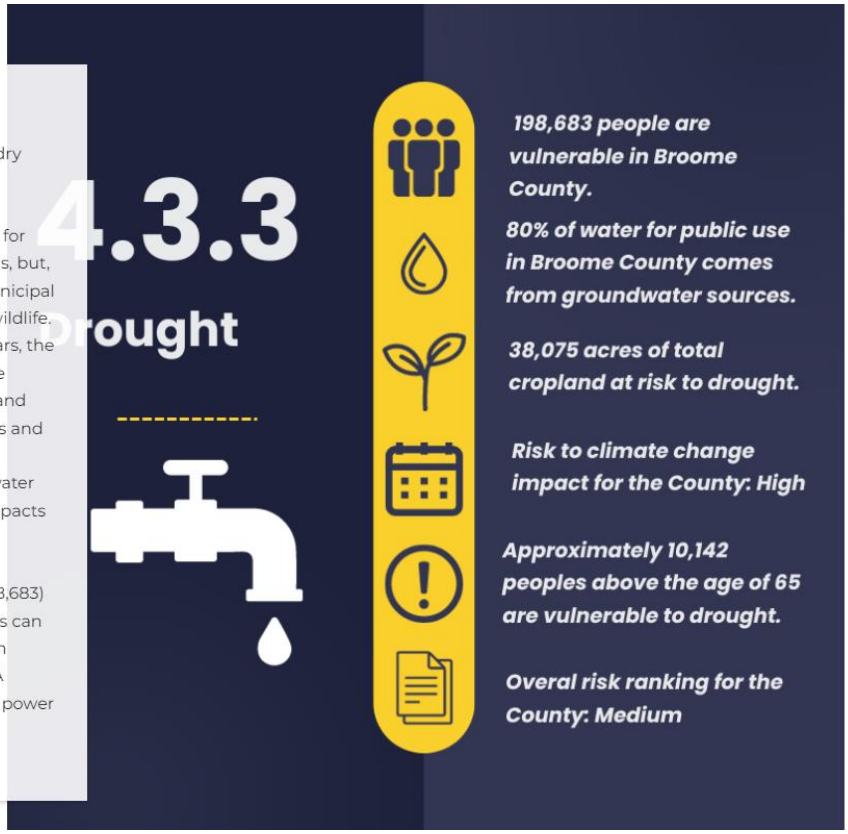
NYSDEC classifies dams according to hazard level (6 CRR-NY 673.5NY-CRR)



Drought

A drought is a period of unusually constant dry weather that persists long enough to cause deficiencies in water supply (surface or underground) that can last a short period or for many years. Droughts are slow-onset hazards, but, over time, they can severely affect crops, municipal water supplies, recreational resources, and wildlife. If drought conditions extend over several years, the direct and indirect economic impacts can be significant. High temperatures, high winds, and low humidity can worsen drought conditions and make areas more susceptible to wildfire. In addition, human actions and demands for water resources can accelerate drought-related impacts (MitigateNY 2018).

The entire population of Broome County (198,683) is exposed to this hazard. Drought conditions can cause a shortage of potable water for human consumption, both in quantity and quality. A decrease in available water may also impact power generation and availability to residents.



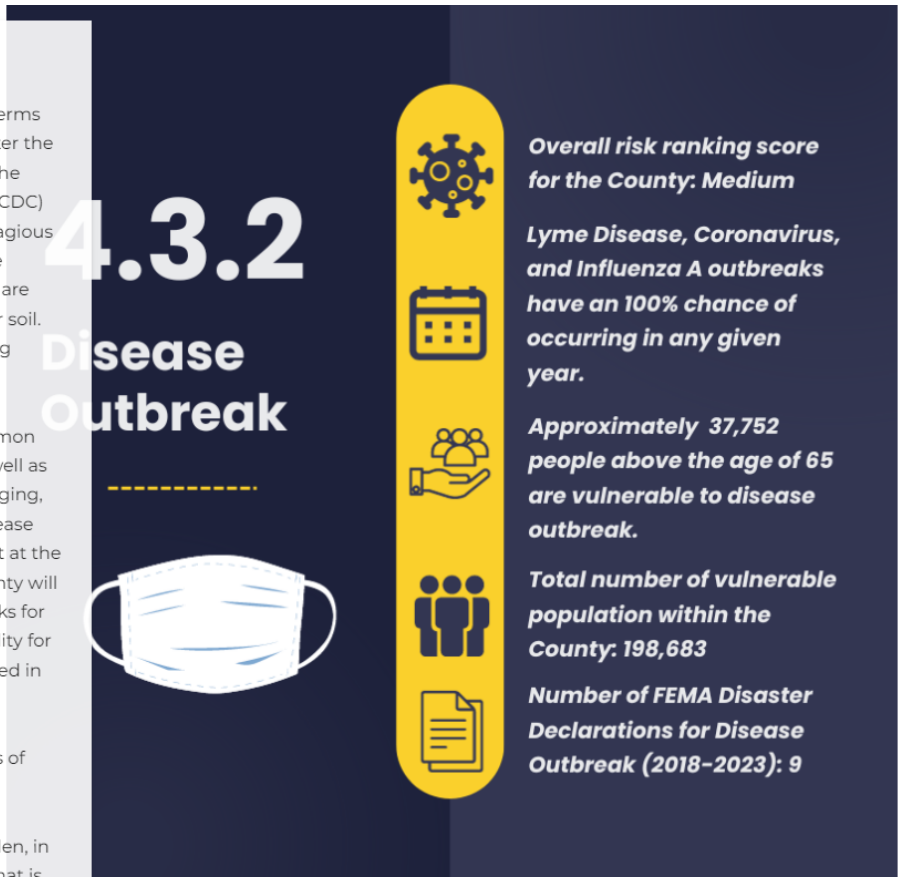
Disease Outbreak

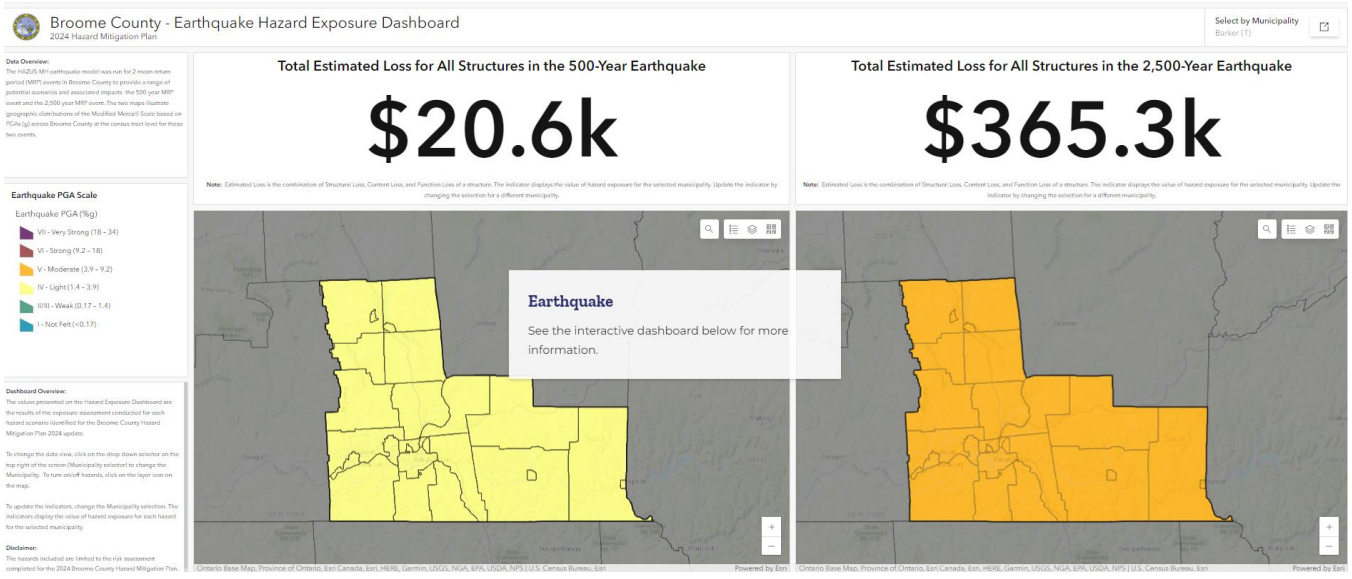
Infectious diseases are illnesses caused by germs (such as bacteria, viruses, and fungi) that enter the body, multiply, and can cause an infection. The Centers for Disease Control and Prevention (CDC) state that some infectious diseases are contagious (or communicable), and are spread from one person to another. Other infectious diseases are spread by germs carried in air, water, food, or soil. They can also be spread by vectors (like biting insects) or by animals (CDC 2022).

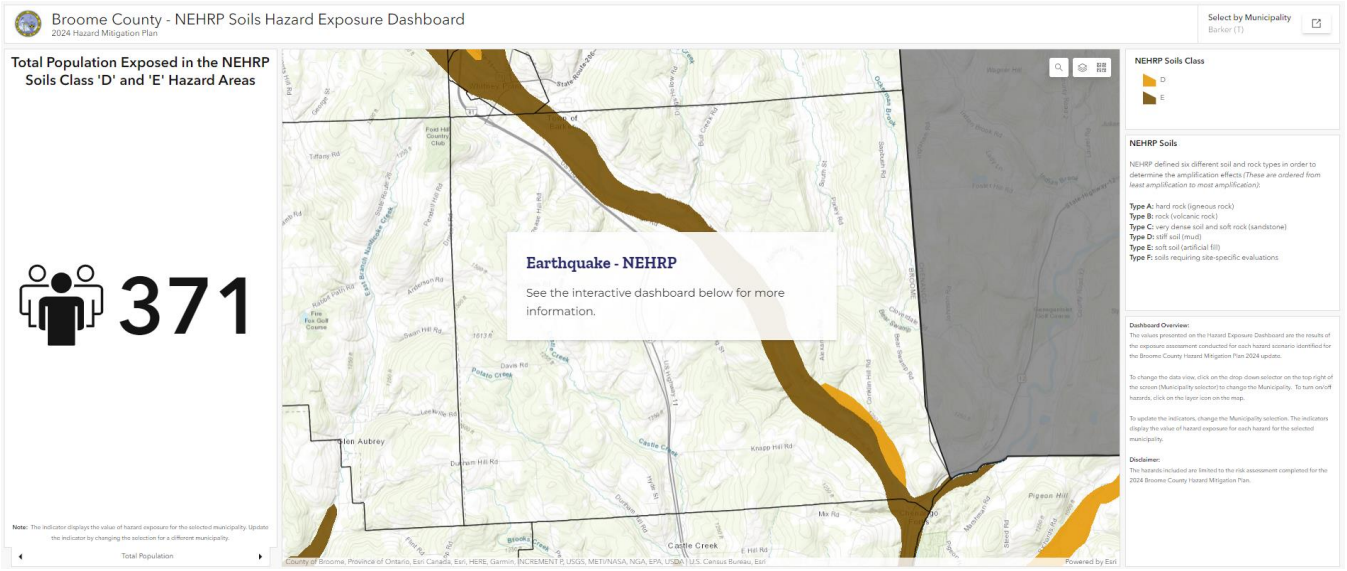
Broome County is susceptible to many common infectious diseases, such as seasonal flu, as well as diseases that are newly emerged or re-emerging, such as Covid-19. Though occurrences of disease outbreaks overall are often difficult to predict at the local level, it is anticipated that Broome County will continue to be impacted by disease outbreaks for the foreseeable future. Additionally, seasonality for cold and flu is well established and anticipated in New York State on an annual basis.

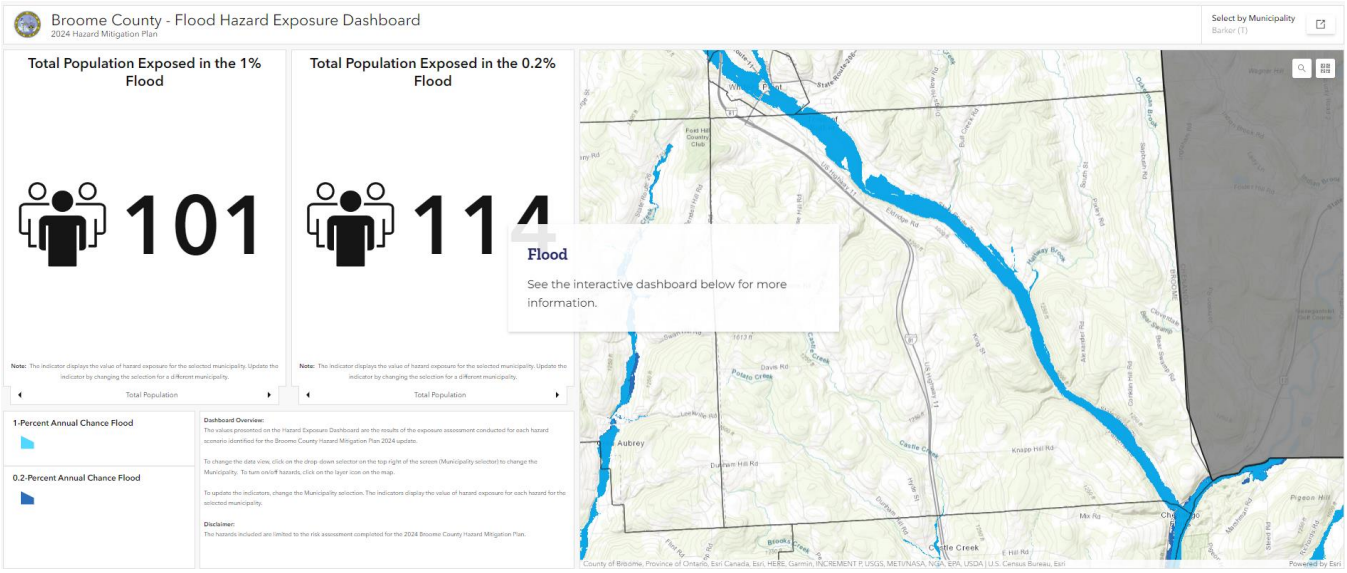
According to the CDC there are several levels of disease:

- **Epidemic** refers to an increase, often sudden, in the number of cases of a disease above what is






Broome County - NEHRP Soils Hazard Exposure Dashboard
2024 Hazard Mitigation Plan
Select by Municipality
Barker (T)
Total Population Exposed in the NEHRP Soils Class 'D' and 'E' Hazard Areas
371
Note: The indicator displays the value of hazard exposure for the selected municipality. Update the indicator by changing the selection for a different municipality.
Total Population
Earthquake - NEHRP
See the interactive dashboard below for more information.
NEHRP Soils Class
D
E
NEHRP Soils
NEHRP defined six different soil and rock types in order to determine the amplification effects (These are ordered from least amplification to most amplification).
Type A: hard rock (igneous rock)
Type B: rock (volcanic rock)
Type C: very dense soil and soft rock (sandstone)
Type D: stiff soil (mud)
Type E: soft soil (artificial fill)
Type F: soils requiring site-specific evaluations
Dashboard Overview:
The values presented on the Hazard Exposure Dashboard are the results of the exposure assessment conducted for each hazard scenario identified for the Broome County Hazard Mitigation Plan 2024 update.
To change the data view, click on the drop-down selector on the top right of the screen (Municipality selector) to change the Municipality. To turn on/off hazards, click on the layer icon on the map.
To update the indicators, change the Municipality selection. The indicators display the value of hazard exposure for each hazard for the selected municipality.
Disclaimer:
The hazards included are limited to the risk assessment completed for the 2024 Broome County Hazard Mitigation Plan.
Glen Aubrey
Castle Creek
Pigeon Hill
Powered by Esri

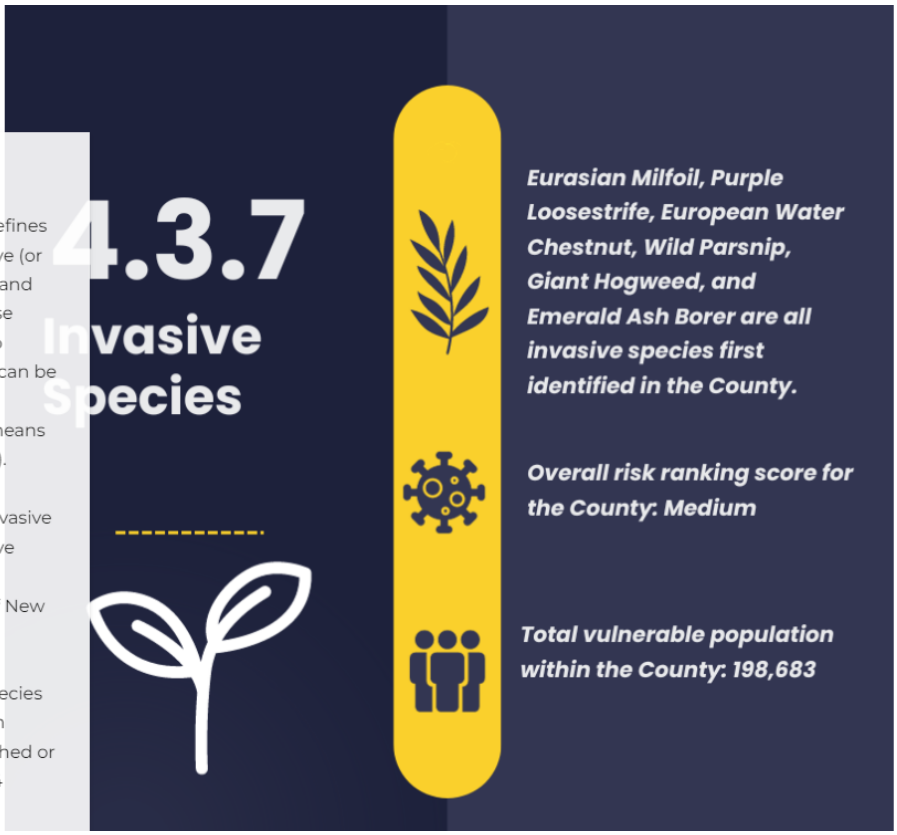


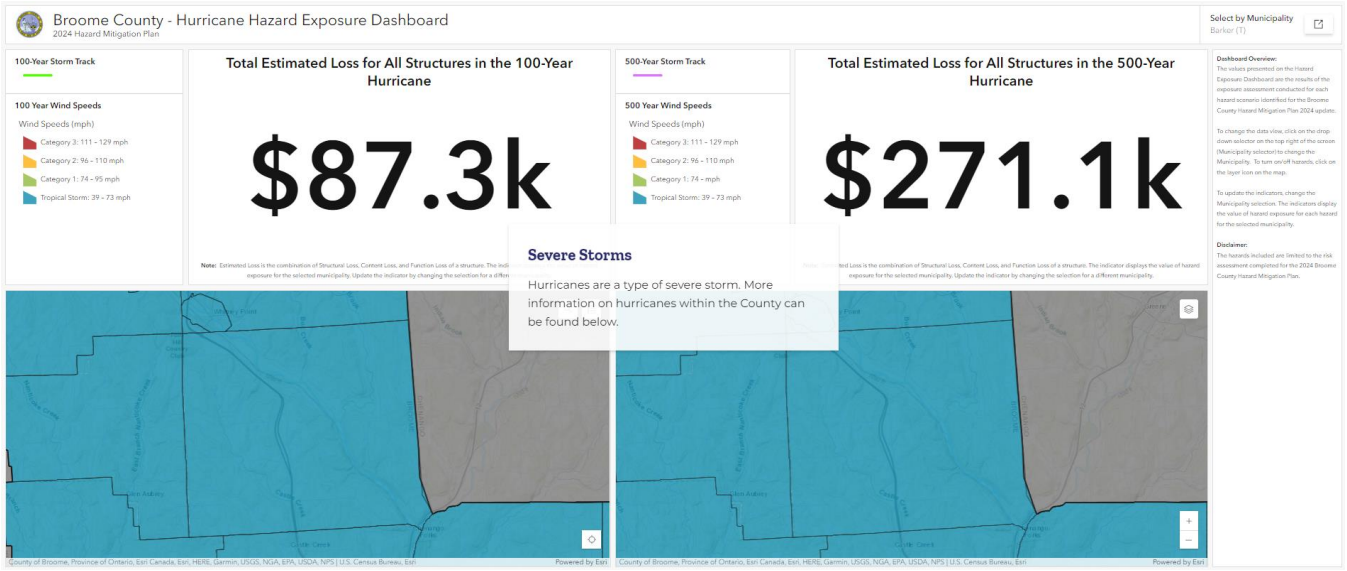
Infestation & Invasive Species

The US Department of Agriculture (USDA) defines invasive species as a species that is non-native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (USDA 2016). Invasive species can be plants, animals, and other organisms (e.g., microbes). Human actions are the primary means of invasive species introductions (USDA 2016).

The Finger Lakes Partnership for Regional Invasive Species Management (PRISM) is a cooperative partnership of diverse stakeholders from throughout the central region of the State of New York, including Broome County.

According to the Finger Lakes PRISM, the species with very high or high impact, as well as high difficulty of eradication due to being established or widespread in the area are classified as Tier 4 species.



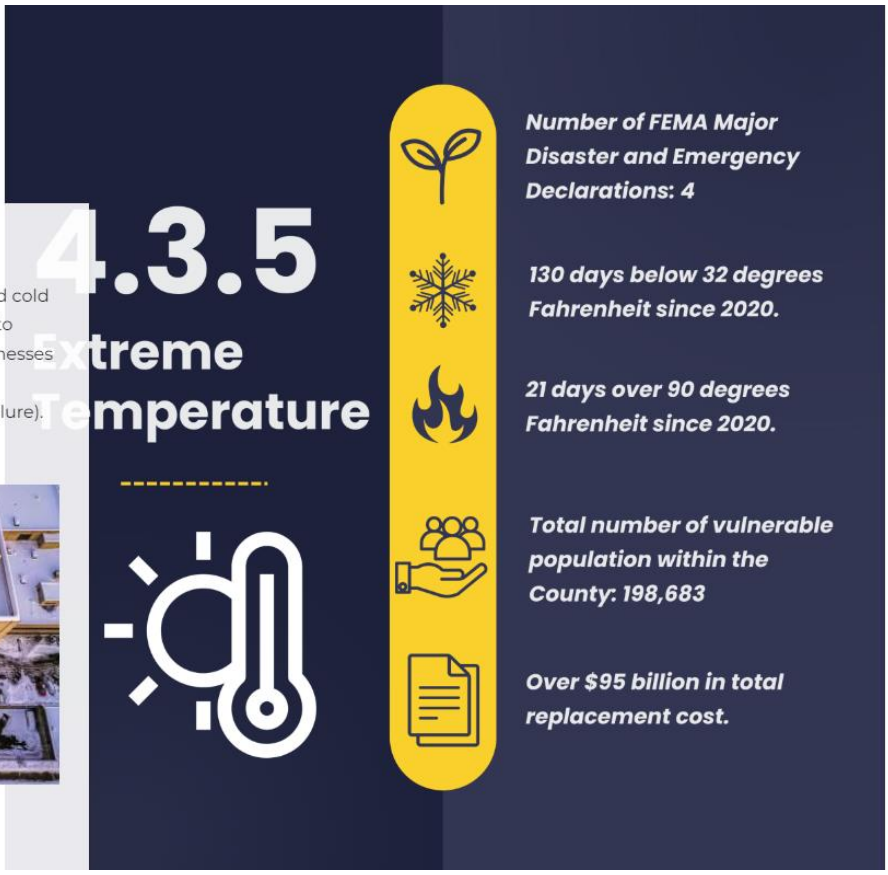


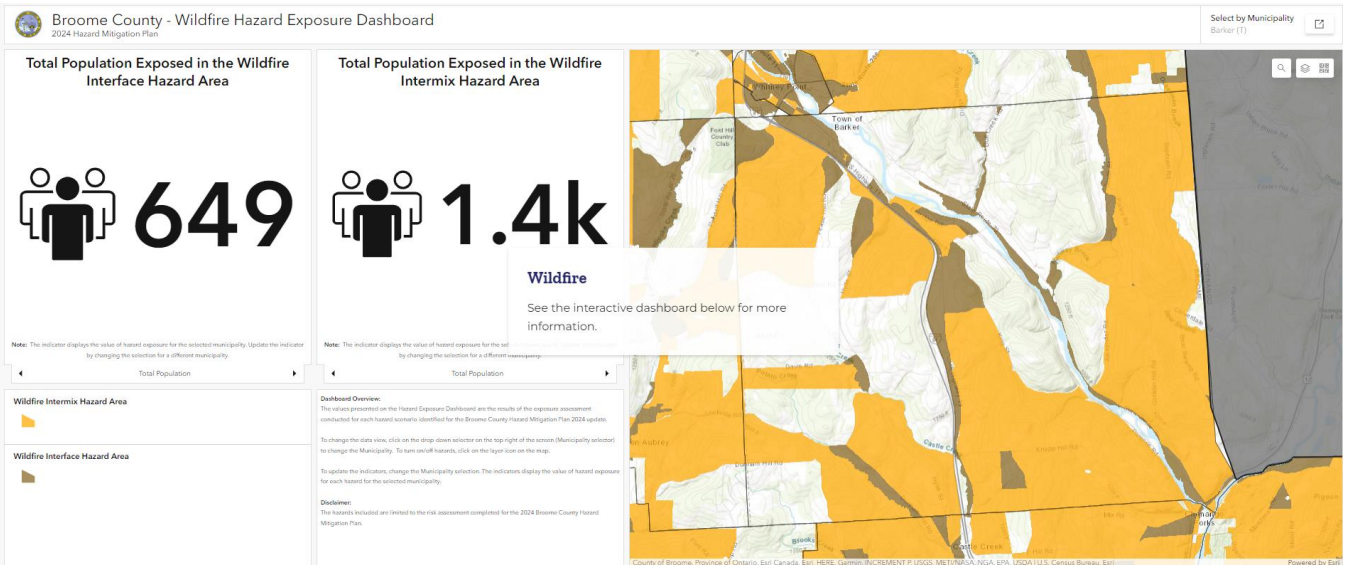
Extreme Temperature

Extreme temperature includes both heat and cold events, which can have a significant impact to human health, commercial/agricultural businesses and primary and secondary effects on infrastructure (e.g., burst pipes and power failure).



Source: Drones Over Broome and Beyond





Severe Winter Storms

A winter storm is a weather event in which the main types of precipitation are snow, sleet, or freezing rain. They can be a combination of heavy snow, blowing snow, and dangerous wind chills.



Source: Drones Over Broome and Beyond

The entire population of Broome County (198,683) is exposed to severe winter storm events (US Census 2020). According to the NOAA National Severe Storms Laboratory (NSSL); every year, winter weather indirectly and deceptively kills hundreds of people in the U.S., primarily from automobile





Source: Drones Over Broome and Beyond

Public Participation

The **Broome County Hazard Mitigation Plan** webpage has more information on the planning process and ways to get involved in upcoming planning meetings for the 2024 HMP Update.

Coming Soon! **full Draft 2024 Broome County HMP**



Source: Broome County Office of Emergency Services

Meeting	Date/Time	Presentation Materials	Location
Steering Committee Meeting Kick-Off Meeting	Wednesday July 19th, 2023, 11:00AM- 12:00PM	Steering Committee Presentation	*This is NOT a public meeting. The meeting will be held in-person at the Town of Chenango Community Room (1529 State Route 12, Binghamton, NY).* During this meeting, we meet the project team, review roles and responsibilities of the Committee, timeline and key items in the process, discuss hazards of concern, benefits of mitigation planning for funding and project implementation.
Planning Partnership Kick-Off Meeting	Wednesday July 19th, 2023, 1:00PM- 3:00PM	Planning Partnership Presentation	*This meeting will be open to the public. The meeting will be held in-person at the Town of Chenango Community Room (1529 State Route 12, Binghamton, NY).* During this meeting, we discuss the process, benefits, expectations, and timeline of the plan update process. All jurisdictions who wish to participate in the plan update MUST attend this kick-off meeting, whether or not they have submitted the Letter of Intent to Participate (LOIP). If you haven't already, please remember to complete and send your municipality's Letter of Intent to Participate indicating your Points of Contact on the project.
Steering Committee Meeting #2	Thursday, September 14, 2023, 10:00 AM – 11:00 AM	Steering Committee Presentation	During this meeting we finalize the hazards of concern to include in the 2024 Broome County HMP Update and begin reviewing/updating the goals and objectives for the plan.
Steering Committee Meeting #3	Wednesday, December 6, 2023 10:00 AM – 11:00 AM	Steering Committee Presentation	During this session, we present the findings of the assessment and the initial rankings of each hazard. We will guide you through the process of reviewing these rankings and providing your input.
Planning Partnership Meeting #2	Thursday, December 7, 2023 10:00 AM – 11:00 AM	Planning Partnership Meeting #2	During this session, we present the findings of the assessment and the initial rankings of each hazard. We will guide you through the process of reviewing these rankings for your community and providing your input.
Stakeholder Engagement Meetings	Friday, January 16, 2024, 11:00 AM - 12:00 PM & 3:00 PM - 4:00 PM	Stakeholder Engagement Presentation Stakeholder Survey	There were two virtual sessions available, but participation in just one session was sufficient. During this meeting, we provided an update on the planning process, gather insights on how hazards affect your organization, explore ways to utilize existing capabilities, and develop potential actions for risk reduction.

Past and Upcoming Meetings. *Last Updated January 30, 2024.*

Public participation and feedback are vital parts of the hazard mitigation planning process. The Steering Committee has developed a Mitigation Survey to assist in providing the public an outlet to contribute to the Broome County HMP update. Click the survey below to provide feedback on hazard mitigation concerns in your community.

Click Here for the Public Survey

Broome County Department of Planning
60 Hawley Street, 5th Floor Binghamton, NY 13902
607-778-2114

1.4 NON-DIGITAL OUTREACH

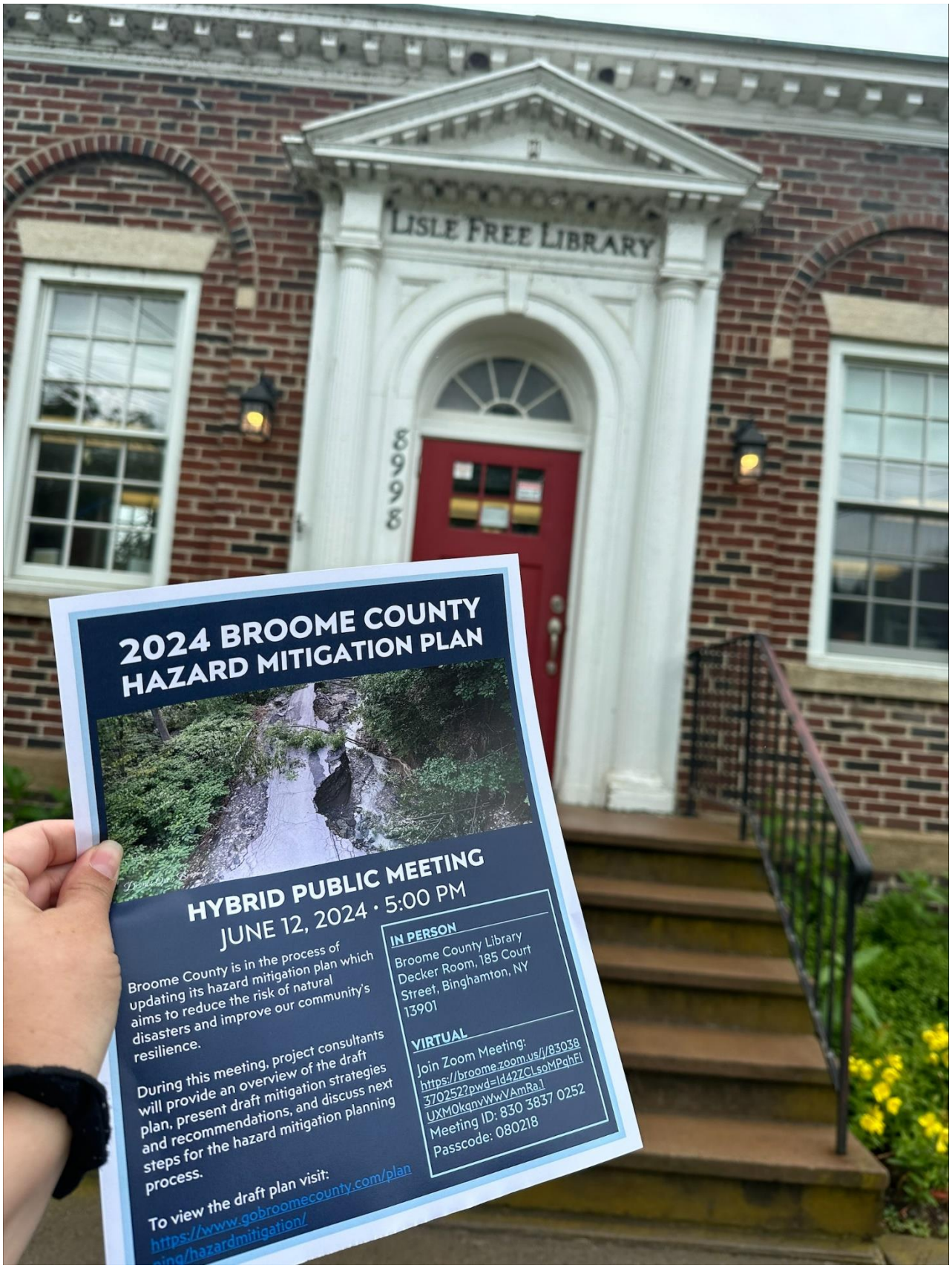
Broome County developed several hard copy outreach materials in the form of flyers, pamphlets and posters. These materials were made available by several participating jurisdictions as well as the County. These materials were included in public locations such as Town Halls and government buildings, on bulletin boards and front desk areas which are highly frequented by the public. This form of outreach is important to reach socially vulnerable populations, such as the elderly or disabled, as it engages community members without the use of electronic devices. Socially vulnerable populations may include community members who are unable to view social media or other virtual outreach to participate in the planning process. Hard copy flyers, pamphlets and posters result in public participation from all members of the community, including those without access to computers or other devices.

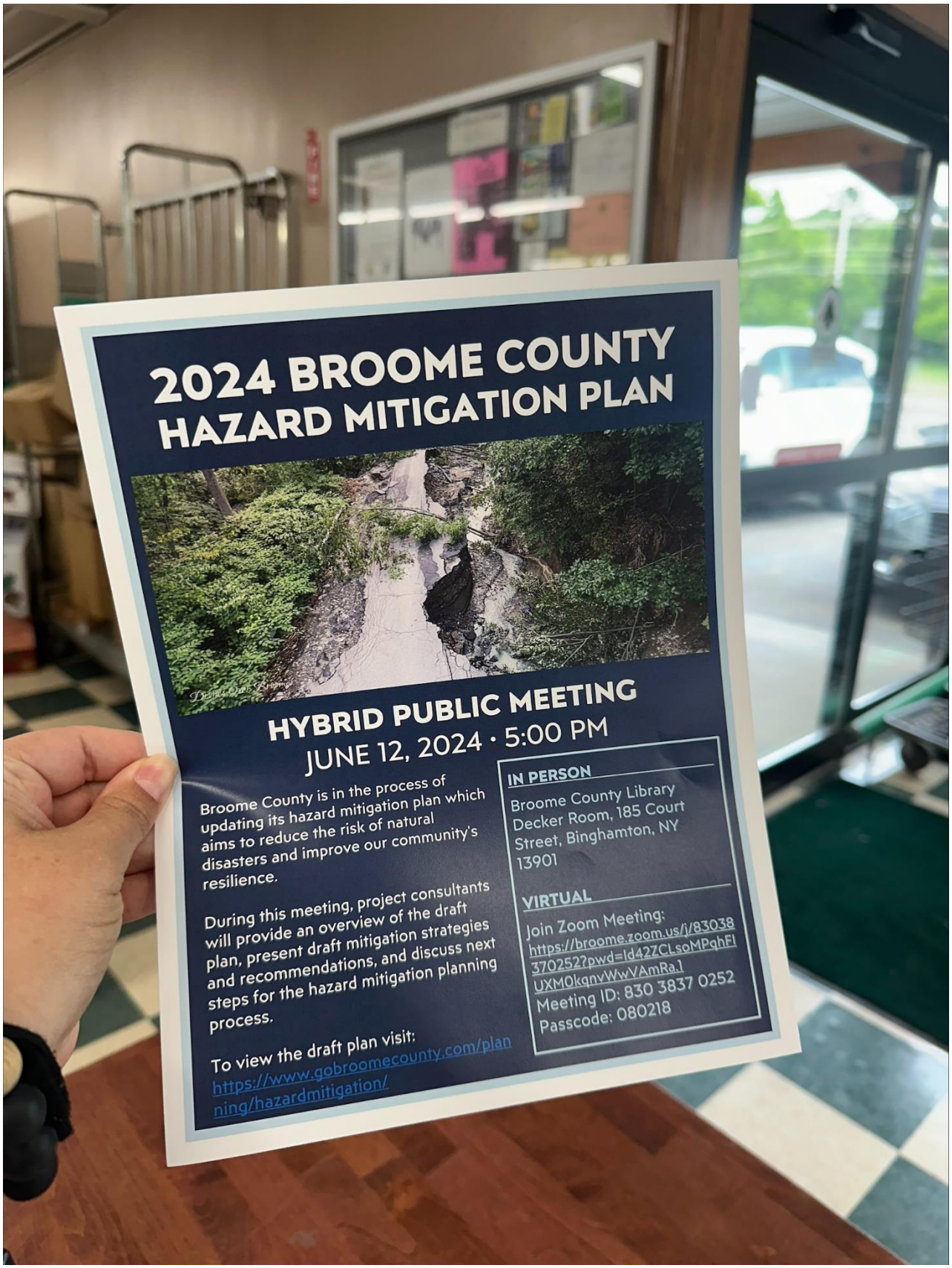


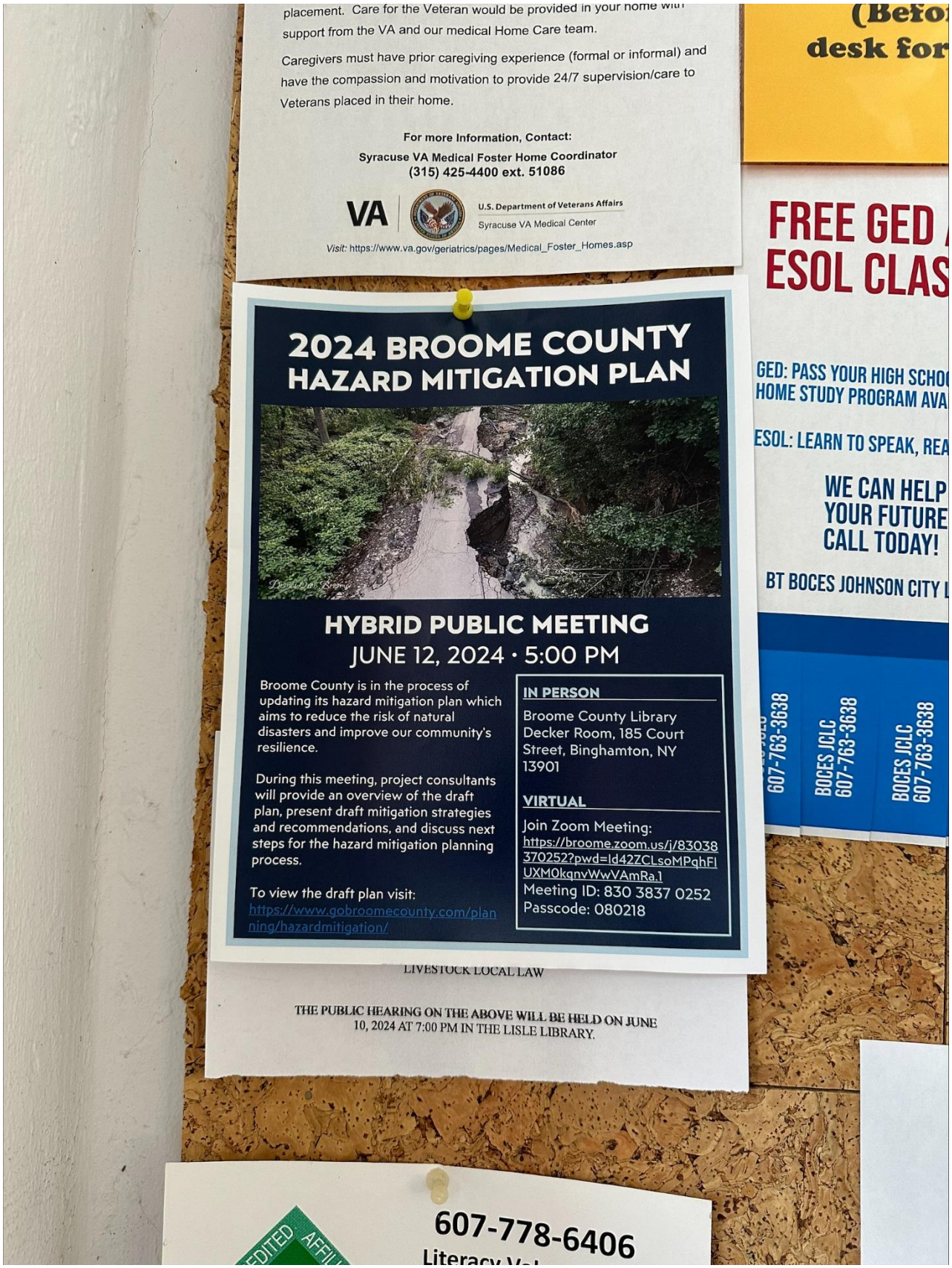

BROOME COUNTY
HAZARD MITIGATION PLAN

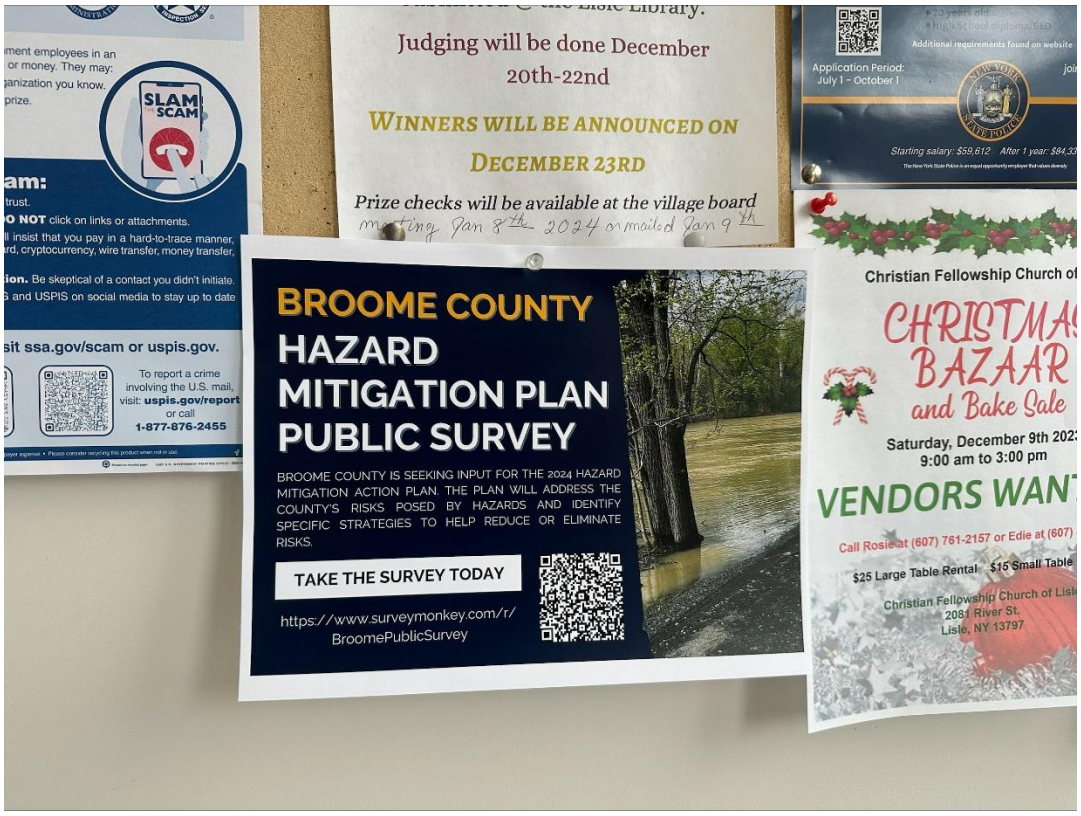

HAZARD
MITIGATION PLAN
2024
Broome County is updating its Hazard Mitigation Plan. Learn more about the plan and how you can help by visiting our website or scan the QR code:
https://www.gobroomecounty.com/planning/hazardmitigation
FOR MORE INFO:
STEPHANIE BREWER, SR. PLANNER
stephanie.brewer@broomecountyny.gov


NEED HELP WITH WINTER UTILITY BILLS?
Learn about programs that can protect your services and assist you in managing your bills.
2024
BROOME COUNTY HAZARD MITIGATION PLAN UPDATE
If you live, work or play in Broome County you can help! Please take the short public survey.
Purell


LISLE FREE LIBRARY
8998
2024 BROOME COUNTY
HAZARD MITIGATION PLAN
HYBRID PUBLIC MEETING
JUNE 12, 2024 · 5:00 PM
Broome County is in the process of updating its hazard mitigation plan which aims to reduce the risk of natural disasters and improve our community's resilience.
During this meeting, project consultants will provide an overview of the draft plan, present draft mitigation strategies and recommendations, and discuss next steps for the hazard mitigation planning process.
To view the draft plan visit:
https://www.gobroomecounty.com/planning/hazardmitigation/
IN PERSON
Broome County Library
Decker Room, 185 Court Street, Binghamton, NY 13901
VIRTUAL
Join Zoom Meeting:
https://broome.zoom.us/j/83038370252?pwd=Id42ZCLsoMPqhFIUXMOkqnvWwVAmRa.1
Meeting ID: 830 3837 0252
Passcode: 080218


2024 BROOME COUNTY
HAZARD MITIGATION PLAN
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VIRTUAL
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https://broome.zoom.us/j/83038370252?pwd=Id42ZCLsoMPqhFIUXM0kqnvWwVAmRa.1
Meeting ID: 830 3837 0252
Passcode: 080218


placement. Care for the Veteran would be provided in your home with
support from the VA and our medical Home Care team.
Caregivers must have prior caregiving experience (formal or informal) and have the compassion and motivation to provide 24/7 supervision/care to Veterans placed in their home.
For more Information, Contact:
Syracuse VA Medical Foster Home Coordinator
(315) 425-4400 ext. 51086
VA
U.S. Department of Veterans Affairs
Syracuse VA Medical Center
Visit: https://www.va.gov/geriatrics/pages/Medical_Foster_Homes.asp
2024 BROOME COUNTY HAZARD MITIGATION PLAN
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Meeting ID: 830 3837 0252
Passcode: 080218
LIVESTOCK LOCAL LAW
THE PUBLIC HEARING ON THE ABOVE WILL BE HELD ON JUNE 10, 2024 AT 7:00 PM IN THE LISLE LIBRARY.
607-778-6406
FREE GED
ESOL CLAS
GED: PASS YOUR HIGH SCHO
HOME STUDY PROGRAM AVA
ESOL: LEARN TO SPEAK, REA
WE CAN HELP
YOUR FUTURE
CALL TODAY!
BT BOCES JOHNSON CITY
607-763-3638
BOCES JCLC
607-763-3638
BOCES JCLC
607-763-3638


Judging will be done December 20th-22nd
WINNERS WILL BE ANNOUNCED ON DECEMBER 23RD
Prize checks will be available at the village board
BROOME COUNTY
HAZARD MITIGATION PLAN PUBLIC SURVEY
BROOME COUNTY IS SEEKING INPUT FOR THE 2024 HAZARD MITIGATION ACTION PLAN. THE PLAN WILL ADDRESS THE COUNTY'S RISKS POSED BY HAZARDS AND IDENTIFY SPECIFIC STRATEGIES TO HELP REDUCE OR ELIMINATE RISKS.
TAKE THE SURVEY TODAY
https://www.surveymonkey.com/r/BroomePublicSurvey
Christian Fellowship Church of
CHRISTMAS BAZAAR and Bake Sale
Saturday, December 9th
9:00 am to 3:00 pm
VENDORS WANT
$25 Large Table Rental
$15 Small Table
2081 River St.
Lisle, NY 13797
SLAM the SCAM
DO NOT click on links or attachments.
visit ssa.gov/scam or uspis.gov.
To report a crime involving the U.S. mail, visit: uspis.gov/report or call 1-877-876-2455
Application Period: July 1 - October 1
Additional requirements found on website


BROOME COUNTY
HOUSING NEEDS SURVEY
OPEN NOW THROUGH JUNE 22ND
BROOME COUNTY
HAZARD
MITIGATION PLAN
PUBLIC SURVEY
BROOME COUNTY IS SEEKING INPUT FOR THE 2024 HAZARD MITIGATION ACTION PLAN. THE PLAN WILL ADDRESS THE COUNTY'S RISKS POSED BY HAZARDS AND IDENTIFY SPECIFIC STRATEGIES TO HELP REDUCE OR ELIMINATE RISKS.
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APPENDIX E: COUNTY PROFILE AND RISK ASSESSMENT SUPPLEMENTARY DATA

1.1 OVERVIEW

This section contains information and details to support information provided in Section 4 – County Profile which provides general information for Broome County (physical setting, population and demographics, general building stock, and land use and population trends), a summary table of new development within the County and its municipalities, and critical facilities located within the County.

1.2 HAZARD EVENTS PRIOR TO 2019

To supplement the information provided in this plan, events prior to the update of this plan are included in the following section, organized by Hazard of Concern. This information supplements the previous occurrence records in each Hazard Profile.

Many sources provided historical information regarding previous occurrences and losses associated with hazard events throughout New York State and Broome County. With many sources reviewed for this HMP, loss, and impact information for many events could vary depending on the source. Therefore, the accuracy of the monetary figures discussed is based only on the available information identified during research for this HMP.

1.2.1 Dam and Levee Failure

There have been no previous dam or levee failure events recorded in Broome County prior to 2019 (FEMA 2024, NOAA-NCEI 2024, USDA 2024).

1.2.2 Disease Outbreak

Neither the 2019 HMP nor NYS HMP identified disease outbreaks as a hazard of concern and did not record events prior to 2019.

1.2.3 Drought

Between 1954 and 2019, FEMA declared that New York State experienced one drought-related disaster (DR), or emergency (EM) classified as one or a combination of the following disaster types: water shortage. These disasters cover a wide region of the State; therefore, they may have impacted many counties. However, not all counties were included in the disaster declarations. Of those events, the NYS HMP and

other sources indicate that Broome County has not been declared a disaster area as a result of any drought-related event ***(FEMA 2024, USDA 2024)***.

According to the NOAA NCEI storm events database, Broome County experienced six drought events between 1950 and 2019 ***(NOAA-NCEI 2024)***. There were no damages associated with any events.

Based on all sources researched, known drought and extreme events, between 1950 and 2019, that have affected Broome County, and its municipalities are identified in Table 1. Not all sources have been identified or researched, and some events may not have been captured, so some drought events may be missing from this record.

Table 1. Drought Events in Broome County Between 1895 and 2019

Dates of Event	FEMA Declaration	USDA Declaration	County Designated?	Losses / Impacts
September – November 1895	N/A	N/A	N/A	Three-month duration with the lowest PDSI of -3.54 in October.
November – December 1899	N/A	N/A	N/A	Two-month duration with the lowest PDSI of -3.35 in November.
August 1900 – February 1901	N/A	N/A	N/A	Seven-month duration with the lowest PDSI of -3.79 in October.
August 1909 – January 1910	N/A	N/A	N/A	Six-month duration with the lowest PDSI of -4.84 in December.
July 1910 – September 1911	N/A	N/A	N/A	Fifteen-month duration with the lowest PDSI of -4.31 in July 1911.
October – December 1914	N/A	N/A	N/A	Three-month duration with the lowest PDSI of -3.72 in November.
April – June 1915	N/A	N/A	N/A	Three-month duration with the lowest PDSI of -3.21 in May.
November – December 1916	N/A	N/A	N/A	Two-month duration with the lowest PDSI of -3.15 in December.
September 1921 – February 1922	N/A	N/A	N/A	Six-month duration with the lowest PDSI of -3.99 in October.
November – December 1922	N/A	N/A	N/A	Two-month duration with the lowest PDSI of -3.65 in December.
May 1923 – January 1924	N/A	N/A	N/A	Nine-month duration with the lowest PDSI of -4.23 in September.
August 1930 – June 1931	N/A	N/A	N/A	Eleven-month duration with the lowest PDSI of -5.68 in December.
November – December 1931	N/A	N/A	N/A	Two-month duration with the lowest PDSI of -3.66 in December.
August 1939 – February 1940	N/A	N/A	N/A	Seven-month duration with the lowest PDSI of -4.31 in January.
May – June 1941	N/A	N/A	N/A	Two-month duration with the lowest PDSI of -3.30 in June.

Dates of Event	FEMA Declaration	USDA Declaration	County Designated?	Losses / Impacts
September 1941 – April 1942	N/A	N/A	N/A	Eight-month duration with the lowest PDSI of -3.93 in April 1942.
August 1964 – February 1966	N/A	N/A	N/A	Nineteen-month duration with the lowest PDSI of -5.99 in November 1964.
July – August 1966	N/A	N/A	N/A	Two-month duration with the lowest PDSI of -3.52 in August.
October – November 1966	N/A	N/A	N/A	Two-month duration with the lowest PDSI of -3.06 in October.
January – February 1967	N/A	N/A	N/A	Two-month duration with the lowest PDSI of -3.17 in February.
June 1988	N/A	N/A	N/A	Approximately $16K in property damage and approximately $1.67 M in crop damage.
July 1988	N/A	N/A	N/A	Approximately $16K in property damage and approximately $166 K in crop damage.
June – September 1995	N/A	N/A	N/A	A lack of rainfall across much of eastern New York State caused officials to enforce water restrictions in some areas. Many crops were excessively damaged, including vegetable, grain, and vine crops. Some private wells ran dry. The Susquehanna River level was one-third of normal. Crop yields were down 30 to 60%. The lowest PDSI of -3.63 occurred in August.
October 1997	N/A	N/A	N/A	The USDA designed Chenango, Schoharie, Broome, Madison, Herkimer, Otsego, and Delaware Counties as agricultural disaster areas due to continued drought conditions.
September 1999	N/A	N/A	N/A	A very dry spring and summer caused major crop failures and some wells to run dry. Many streams and rivers were also brought to their lowest recorded levels. The crops most affected were corn and hay. Broome County was among the counties affected and had approximately $2.9M in crop damages. Overall, the state had $50 M in damages.
July 2001	N/A	N/A	N/A	Due to drought conditions, Broome County had a corn crop loss of over $4K.
November 2001 – January 2002	N/A	N/A	N/A	Three-month duration with the lowest PDSI of -3.28 in December. In December, the Delaware River Basin Commission declared a drought emergency for the Delaware River Basin. New York State declared a drought warning for six counties in the Delaware River Watershed (Delaware, Greene, Orange, Schoharie, Sullivan, and Ulster Counties). Broome and Chenango Counties, parts of which drain to the Delaware River, were under a drought watch. Voluntary water conservation measures were being requested across the Basin.
April 2005	N/A	N/A	N/A	The SBA noted a drought/heat declaration for Broome County, declaration #10309.
May - September 2005	N/A	N/A	N/A	A resident of Broome County stated that the lawns were the brownest they had seen since 1993 and had not had any significant rainfall. The County had a corn crop loss of over $4K.
July 2011	N/A	N/A	N/A	Due to drought conditions, Broome County had a corn crop loss of over $30K.

Dates of Event	FEMA Declaration	USDA Declaration	County Designated?	Losses / Impacts
2012	N/A	N/A	N/A	As a result of a mild winter with little snowfall, areas across NYS have received only 25% of the normal spring and early summer rainfall. This increased the wildfire danger across the State. Dry weather conditions lead to a heightened wildfire danger across upstate and western NYS. NYS instituted a statewide residential burn ban through October 12, 2012.
April 3–May 15, 2012	N/A	N/A	N/A	Conditions were classified at D0 or *abnormally dry* status.
July 17–September 4, 2012	N/A	N/A	N/A	Conditions were classified at D0 or *abnormally dry* status.
May 21–May 28, 2013	N/A	N/A	N/A	Conditions were classified at D0 or *abnormally dry* status.
June 18–July 6, 2014	N/A	N/A	N/A	Conditions were classified at D0 or *abnormally dry* status
November 5, 2013–January 6, 2014	N/A	N/A	N/A	Conditions were classified at D0 or *abnormally dry* status.
October 14–October 21, 2014.	N/A	N/A	N/A	Conditions were classified at D0 or *abnormally dry* status.
March 31–April 20, 2015.	N/A	N/A	N/A	Conditions were classified at D0 or *abnormally dry* status.
September 22–November 16, 2015.	N/A	N/A	N/A	Conditions were classified at D0, or *abnormally dry* status across Broome County Leaves dropped early and lawns browned.
April 26, 2016–February 20, 2017	N/A	N/A	N/A	Conditions were classified at D0, or *abnormally dry* status across Broome County from April 26–July 4, 2016; D1, or *moderate drought* status from July 5–July 25, D2 or *severe drought* from July 26–August 15, 2016; D1 or *moderate drought* status from August 16–December 19, 2016; and D0 or *abnormally dry* status from December 20, 2016–February 20, 2017. Surveying of New York farmers showed significant crop losses and pastures were dry. Apples were reported as being smaller and sweeter and grapes were slightly small and less acidic throughout the state. New York dairy farmers and Christmas tree farms struggled. Discolored water was reported in Endicott, NY from July 27–August 19, 2016. Shallow wells in the Northeast went dry. A drought watch and warning was issued for New York in July. Drought resulted in shallow marshes, negatively impacting duck and goose hunting in the state.
October 17–October 30, 2017.	N/A	N/A	N/A	Conditions were classified at D0 or *abnormally dry* status across Broome County. Dried vegetation resulted in leaves forgoing color changes in the county.
December 19, 2017–February 26, 2018.	N/A	N/A	N/A	Conditions were classified at D0, or *abnormally dry* status across Broome County from December 19, 2017–January 1, 2018; D1, or *moderate drought* from January 2–February 12, 2018; and D0, or *abnormally dry* from February 13–February 26, 2018.

Source: NRCC 2012; NOAA-NCDC 2019; SHELDUS 2012; Broome County HMP 2019; NDMC 2018; USDA 2018

FEMA Federal Emergency Management Agency
HMP Hazard Mitigation Plan
K Thousand ($)
M Million ($)

N/A	*Not Applicable*
NCDC	*National Climatic Data Center*
NOAA	*National Oceanic and Atmospheric Administration*
NRCC	*Northeast Regional Climate Center*
NYS	*New York State*
PDSI	*Palmer Drought Severity Index*
SBA	*Small Business Administration*
U.S.	*United States*
USDA	*U.S. Agricultural Department*

1.2.4 Earthquakes

According to the U.S. Geological Survey, NOAA-NCEI, and Lamont-Doherty Earth Observatory, approximately 46 earthquake events have affected New York State between 1971 and 2019. Additional sources have noted other earthquake events within New York State as well. Table 2 depicts these earthquake events. Several of these events were located within the vicinity of Broome County.

Table 2. Earthquake Events in Broome County Between 1971 and 2019

Dates of Event	FEMA Declaration	USDA Declaration	County Designated?	Losses / Impacts
May 23, 1971	N/A	N/A	N/A	No reference and/or no damage reported.
June 7, 1974	N/A	N/A	N/A	Earthquake caused windows to break and a bookcase to topple. More than 100 aftershocks were reported through June 13th.
June 9, 1975	N/A	N/A	N/A	In Beekmantown on Lake Champlain, a chimney and fireplace were cracked. East of Beekmantown, in Fairfax, Vermont, slight damage was reported.
November 3, 1975	N/A	N/A	N/A	No reference and/or no damage reported.
March 10, 1979	N/A	N/A	N/A	Felt by some in Manhattan
February 2, 1983	N/A	N/A	N/A	Chimneys cracked
October 7, 1983	N/A	N/A	N/A	An old chimney collapsed, about 20 tombstones slid or rotated, and some minor cracks formed in plaster walls in Blue Mountain Lake. Several landslides were reported. Light damage was reported in surrounding towns. It was felt over a wide range, including two provinces in Canada and 12 states.
October 19, 1985	N/A	N/A	N/A	Windows were broken in Newburgh, New York, and Glenville, Connecticut. Plaster and drywall were cracked and glassware broke in Newburgh. Light damage was sustained in some towns in Connecticut, New Jersey, and New York. It was felt over a large area of Connecticut, Massachusetts, New Jersey, New York, and Pennsylvania. A

Dates of Event	FEMA Declaration	USDA Declaration	County Designated?	Losses / Impacts
				moderate aftershock was felt on October 21st in Connecticut, New York, and New Jersey.
June 17, 1991	N/A	N/A	N/A	No reference and/or no damage reported.
March 10, 1992	N/A	N/A	N/A	Very minor damage to the area. The earthquake was centered in the Atlantic Ocean, about 15 miles south of Montauk. It was felt from the tip of eastern Long Island to New London, Connecticut.
March 22, 1994	N/A	N/A	N/A	No reference and/or no damage reported
April 20, 2000	N/A	N/A	N/A	No reference and/or no damage reported
November 6, 2000	N/A	N/A	N/A	No reference and/or no damage reported
January 17, 2001	N/A	N/A	N/A	Felt in the Upper East Side of Manhattan, Long Island City and Queens.
October 17, 2001	N/A	N/A	N/A	Felt in the Upper West Side of Manhattan, Astoria, and Queens
April 20, 2002	DR-1415	N/A	N/A	The largest earthquake to hit New York State in 20 years. People felt the earthquake from Washington, D.C. to Bangor, Maine. A state of emergency was declared in Essex and Clinton Counties. In Delaware County, the Towns of Delhi, Deposit, Hamden, Middletown, and Walton and the Village of Fleischmanns, all reported having felt the earthquake.
May 24, 2002	N/A	N/A	N/A	An aftershock of the April 20th event; no damage was reported.
March 26, 2007	N/A	N/A	N/A	No reference and/or no damage reported.
April 11, 2007	N/A	N/A	N/A	No reference and/or no damage reported.
July 19, 2007	N/A	N/A	N/A	No reference and/or no damage reported.
July 24, 2007	N/A	N/A	N/A	No reference and/or no damage reported.
February 27, 2008	N/A	N/A	N/A	No reference and/or no damage reported.
May 28, 2008	N/A	N/A	N/A	No reference and/or no damage reported.

Dates of Event	FEMA Declaration	USDA Declaration	County Designated?	Losses / Impacts
February 18, 2009	N/A	N/A	N/A	No reference and/or no damage reported.
February 20, 2009	N/A	N/A	N/A	No reference and/or no damage reported.
February 23, 2009	N/A	N/A	N/A	No reference and/or no damage reported.
March 22, 2009	N/A	N/A	N/A	No reference and/or no damage reported.
May 18, 2009	N/A	N/A	N/A	No reference and/or no damage reported.
October 21, 2009	N/A	N/A	N/A	No reference and/or no damage reported.
December 13, 2009	N/A	N/A	N/A	No reference and/or no damage reported.
February 15, 2010	N/A	N/A	N/A	No reference and/or no damage reported.
February 18, 2010	N/A	N/A	N/A	No reference and/or no damage reported.
March 24, 2010	N/A	N/A	N/A	No reference and/or no damage reported.
June 23, 2010	N/A	N/A	N/A	A minor earthquake in Canada was felt throughout the New York City and upstate New York area. The earthquake lasted about 30 seconds. Tremors were felt in the City of Binghamton.
August 23, 2011	N/A	N/A	N/A	An earthquake centered in Virginia was felt up and down the east coast. In Broome County, many residents said they felt the earthquake.
August 25, 2011	N/A	N/A	N/A	No reference and/or no damage reported.
August 26, 2011	N/A	N/A	N/A	No reference and/or no damage reported.
August 27, 2011	N/A	N/A	N/A	No reference and/or no damage reported.
November 21, 2011	N/A	N/A	N/A	No reference and/or no damage reported.

Dates of Event	FEMA Declaration	USDA Declaration	County Designated?	Losses / Impacts
January 7, 2012	N/A	N/A	N/A	No reference and/or no damage reported.
January 23, 2012	N/A	N/A	N/A	No reference and/or no damage reported.
March 23, 2012	N/A	N/A	N/A	No reference and/or no damage reported.
September 8, 2012	N/A	N/A	N/A	No reference and/or no damage reported.
June 23, 2010	N/A	N/A	N/A	A magnitude 5.4 earthquake at the Ontario-Quebec border region in Canada was felt throughout the northeast, including Broome County.
August 23, 2011	N/A	N/A	N/A	A magnitude 5.8 earthquake centered northwest of Richmond, Virginia was felt throughout the East Coast. Shaking was felt in Broome County.
September 27, 2015	N/A	N/A	N/A	A magnitude 2.8 earthquake struck near Stamford, NY. Slight shaking was felt in the eastern portion of Broome County.

Source(s): *NYS DHSES 2019; USGS 2018; FEMA 2018*

DR	*Major Disaster Declaration (FEMA)*
FEMA	*Federal Emergency Management Agency*
N/A	*Not Applicable*
NY	*New York*
USGS	*U.S. Geological Survey*

**Many sources were consulted to provide an update on previous occurrences and losses; event details and loss/impact information may vary and have been summarized in the above table.*

1.2.5 Extreme Temperatures

Between 1954 and 2019, New York State was not included in any major disaster declarations or emergency declarations due to extreme temperatures. Information regarding specific details of temperature extremes in Broome County is scarce; therefore, previous occurrences and losses associated with extreme temperature events are limited. Table 3 summarizes the extreme temperature events in the County.

Table 3. Extreme Temperature Events in Broome County Between 1895 and 2019

Dates of Event	FEMA Declaration	USDA Declaration	County Designated?	Losses / Impacts
June 13-18, 1988	N/A	N/A	N/A	None reported.
July 4-11, 1988	N/A	N/A	N/A	Approximately $2K in property damage.
August 1, 1988	N/A	N/A	N/A	None reported.
October 11, 1993	N/A	N/A	N/A	A high pressure stretched from central New England to northeast Pennsylvania, resulting in record lows across

				parts of the Susquehanna Region. The City of Binghamton dropped to 25°F, setting a new record low.
October 13-14, 1993	N/A	N/A	N/A	A ridge of high pressure moved into central NYS that resulted in record lows across parts of the Susquehanna Region. The City of Binghamton set a new record low of 28°F on the 13th and 24°F on the 14th.
January 15, 2004	N/A	N/A	N/A	A deep, low-pressure system in southeast Canada combined with a large area of high pressure in Ontario created northwest winds of 15 to 25 mph across the area. The northwest winds brought more Arctic air to the region with temperatures dropping to below zero. The wind and cold dropped wind chill values to 20 to 40 below zero. Many schools were closed due to the cold weather. Pipes froze at homes and businesses. Broome County had approximately $220K in property damage.
December 14, 2005	N/A	N/A	N/A	Many counties in NYS reported record-cold temperatures, including Broome County. Temperatures in the County ranged from -6°F at the Binghamton Airport to -13°F at Whitney Point.
January 2-3, 2008	N/A	N/A	N/A	In Broome County, temperatures ranged from 0°F to -3°F.
February 29, 2008	N/A	N/A	N/A	Clear skies and calm winds allowed temperatures to fall below zero across central NYS and northeast Pennsylvania. In Broome County, temperatures ranged from 0°F to -11°F.
January 14-15, 2009	N/A	N/A	N/A	In Broome County, temperatures ranged from 4°F to -3°F.
January 15-16, 2009	N/A	N/A	N/A	In Broome County, temperatures ranged from -2°F to -18°F.
July 21, 2011	N/A	N/A	N/A	The heat index ranged from 96°F in the Town of Vestal to 111°F in the Village of Port Dickinson. The maximum air temperatures ranged from 95°F in Johnson City to 101°F in the Village of Port Dickinson.
March 17, 2012	N/A	N/A	N/A	A period of record warm temperatures was experienced across central New York from March 17th to the 23rd as the jet stream was pushed farther north than is typical for this time of year and persistent southerly flow developed over an unusually large area of the United States. Both climate record stations at Binghamton and Syracuse broke records for the warmest March on record. Both locations were over 12 degrees above normal for the monthly mean temperature. Binghamton saw seven days in a row of record high temperatures, the second longest string on record. Temperatures across central New York reached well into the 70s, with typically warmer valley locations near or just above 80 degrees. Temperatures across central New York were anomalously warm, with record highs reached for 7 days in a row at the Binghamton Regional Airport, the second longest streak on record (8 days from August 28–September 4, 1953). Temperatures reached well into the 70s, with readings as high as the lower 80s in typically warmer valley locations.

Source: Broome County 2019; FEMA 2024; NOAA-NCEI 2024.

1.2.6 Flood

Based on all sources researched, known flooding events that have affected Broome County and its municipalities are identified in Table 4. With flood documentation for New York State being so extensive,

not all sources have been identified or researched. Therefore, Table 4 may not include all events that have occurred throughout the County and region.

Table 4. Flood Events in Broome County Between 1903 and 2019

Dates of Event	FEMA Declaration	USDA Declaration	County Designated?	Losses / Impacts
1903	N/A	N/A	N/A	The West Branch of the Delaware River overflowed its banks, sending floodwaters through the center of the Village of Deposit. This was one of the largest floods on record.
April 8, 1935	N/A	N/A	N/A	On this date, a 24-hour flood event caused the Dudley Creek and the Tioughnioga, Otselic, and Chenango Rivers to flood. This caused damage to the City of Binghamton, the Towns of Lisle and Chenango, and the Village of Whitney Point. Four people drowned during this event and six were reported missing or presumed drowned.
July 8, 1935	N/A	N/A	N/A	Flash flooding of the Chenango River caused $1.6 M in damages to the City of Binghamton. The flood event of the Chenango River caused the water level in Chenango Township Chenango Fork Station to rise to 20.3 feet, resulting in serious flooding at Port Crane, Chenango Bridge, and Broad Acres.
March 18, 1936	N/A	N/A	N/A	Flash flooding of the Susquehanna River closed bridges in the City of Binghamton, which divided the City into four, disconnected sections. Flooding of the Chenango River at the Washington Street Station caused water to rise to a record high (22 feet), resulting in some evacuation; stop logs being erected at Chamberlain Creek, Conrail Railroad, and Exchange Street Bridge; and many road closures. Vestal Station had record highs during this flood event (up to 30.5 feet).
July 3, 1970	DR-290	N/A	Yes	The County had approximately $250 K in property damage and $25 K in crop damage. In the Village of Deposit, the flooding damaged over 50 homes and commercial buildings.
June 20-25, 1972	N/A	N/A	N/A	The County had over $1.6 M in property and crop damages from this event.
March 17-19, 1973	N/A	N/A	N/A	The County had approximately $200 K in property damages from this event.
July 11, 1976	N/A	N/A	N/A	This flash flood event resulted from intense rainfall over the Nanticoke Creek watershed and caused $900 K in damage. Approximately 30 homes in the Town of Nanticoke were severely damaged. Both the East Branch and West Branch of the Nanticoke Creeks crested within one hour of the start of the rainfall. Several roads, including State Route 26 at several locations and Pendall Hill Road were overtopped and impassable. The Leekville Road and Dunham Hill Road bridges over the East Branch were washed out. Erosion undermined trailers at the Green Valley Trailer Park in Glen Aubrey.
December 12, 1983	N/A	N/A	N/A	A flood event on the Susquehanna River included 5.10 inches of rain in 28 hours; over 100 homes and 64 trailers/mobile homes were inundated. The County had over $227 K in property damage from this event.

March 14, 1986	N/A	N/A	N/A	The County had approximately $1 M in property damage.
July 31, 1986	N/A	N/A	N/A	The County had approximately $50 K in property damage.
August 6, 1986	N/A	N/A	N/A	The County had approximately $50 K in property damage.
April 4, 1987	N/A	N/A	N/A	The County had over $2 M in property damage and over $200 K in crop damage.
March 29 – April 5, 1993	N/A	N/A	N/A	The County had approximately $1 M in property damage. In the Town of Union, on April 2, the Susquehanna River crested at a flood stage of 25.6 feet. Argone Avenue and adjacent streets were flooded. Residents were evacuated.
April 10-14, 1993	N/A	N/A	N/A	The County had approximately $500 K in property damage. In the Town of Union, on April 11, the Susquehanna River crested at a flood stage of 26.3 feet.
March 10-11, 1994	N/A	N/A	N/A	Flash flooding of Occanum Creek along Main and Grove Streets occurred in Windsor.
March 24-26, 1994	N/A	N/A	N/A	An ice jam along the Susquehanna River at the Town of Conklin resulted in flooding along River Road.
January 19-20, 1996	DR-1095 (IA and PA)	N/A	Yes	The City of Binghamton experienced $35 M in damages. In the Town of Chenango, the flood event caused widespread flooding and extensive damage to dozens of town roads. In the Town of Sanford, the event resulted in $296,405.91 in roadway losses within the Town. Many roads were washed out as a result of the flooding. In the Town of Union, the Susquehanna River crested at a flood stage of 27.25 feet (January 19) and 24.6 feet (January 20). A 30-inch snowpack melted within a 48-hour period with two to three inches of rain causing creeks and small streams to overflow. River Road and Argonne Avenue in the Town of Union (hamlet of Endwell) were evacuated. Nanticoke Drive at Bradley Creek Road in Union Center was flooded. Overall, the County had approximately $7.9 M in property damage.
June 30, 1998	N/A	N/A	N/A	A flash flood event near Chenango Bride on Hiner Park Creek caused the creek to flood its banks and several basement homes were flooded. The County had approximately $10 K in property damage.
July 8, 1998	N/A	N/A	N/A	The County had approximately $75 K in property damage.
May 10, 2000	N/A	N/A	N/A	Flooding occurred throughout the Town of Chenango and resulted in minor roadside erosion damages.
April 4, 2000	N/A	N/A	N/A	A flood event washed out numerous town roads, including Water Street and Dorman, Hand, Dimmock Hill, and Mix Roads. The recovery time for this event was at least four days and the damage included hill road washouts, clogged ditches, and erosion.
July 29, 2000	N/A	N/A	N/A	Flooding impacted the eastern portion of the Town of Chenango. Washouts occurred on hill roads. Barricades and flashing lights were placed on Mix and East Hill Roads until all the washouts could be repaired. Large rocks and mud were present on the roadways.

				East Hill, Oak Hill, and Mix Roads had to be closed as a result of flooding.
May 28, 2002	N/A	N/A	N/A	The County had approximately $100 K in property damage.
June 14, 2003	N/A	N/A	N/A	The County had approximately $100 K in property damage.
June 16, 2004	N/A	N/A	N/A	Severe TSTMs and flooding affected the northern part of the Town of Chenango, affecting the hamlet of Castle Creek. Castle Creek flooding and damage occurred to several homes, the Civic Association, and area ball fields.
March 4, 2004	N/A	N/A	N/A	A huge raft of ice broke free on the Chenango River, upstream from Chenango Bridge. That bridge is located a few miles upstream of the merger of the Chenango and Susquehanna Rivers in the City of Binghamton. The ice first jammed against a railroad bridge and then, the Route 12A Bridge that crosses the river. The jam almost completely blocked the flow of the Chenango River, causing water to back up behind the Route 12A Bridge. This flooded an ice skating rink, a golf course, a parking lot, and an office building that houses a pub, a senator's office, and a financial institution. The NWS in Binghamton issued a Flash Flood Warning to alert residents along the river of the rapid rises that this and other potential ice jams could cause when the ice eventually breaks free and flows downstream. The County had approximately $50K in property damage.
August 13, 2004	DR-1564	N/A	Yes	Remnants of Tropical Storm Bonnie brought heavy rain to the area. This event resulted in roads and bridges being closed in the Town of Windsor, creeks flooding, State Highway 17 being closed between Exit 79 and 80, and a rescue of a woman from a submerged vehicle. In the Town of Sanford, the event resulted in $52,359.85 in roadway losses within the Town.
August 30-31, 2004	N/A	N/A	N/A	The County had approximately $1 M in property damage.
September 18-19, 2004	DR-1565	N/A	Yes	Remnants of Hurricane Ivan and a slow-moving cold front produced heavy rainfall throughout the Susquehanna River Basin. Rainfall totals ranged between 1.5 inches in the northwest region and over nine inches in the West Branch of the Susquehanna Subbasin. The southern tier of New York State, from Elmira to Binghamton, received four to five inches of rain, and areas north of that measured three to four inches. In Broome County, at least 100 homes suffered damage with 1,000 or more receiving moderate damage. Flooding and evacuations forced over 1,000 people from their homes. Damages were estimated at more than $2 M. In the Town of Sanford, $43,355 in property damage and $30 K in public infrastructure damage was reported. In the Town of Conklin, flooding along Carlin Creek washed out and destroyed a bridge on Karic Road and a culvert on Kethum Road. Eight streets were inundated with water and closed for several days. In the Town of Sanford, flooding resulted in $180,972.47 in roadway losses within the Town. Overall, the County had approximately $14.5 M in property damage.

November 28, 2004	N/A	N/A	N/A	Flash flooding occurred throughout the County. Emergency personnel were called in to uncover catch basins and unplug sluice pipes. The County had approximately $50 K in property damage.
April 1-3, 2005	DR-1589 (IA and PA)	N/A	Yes	A combination of heavy rainfall and snow melt produced the worst river flooding in almost 70 years across portions of the Upper Susquehanna, Delaware, and Chenango River Basins of Central NY, including Broome County and Northeast Pennsylvania. The flood crest summary indicates that the Chenango Forks River Gauge Station along Chenango River crested at a maximum of 14.34 feet; the Windsor River Gauge Station along Susquehanna River crested at a maximum of 19.07 feet; the Conklin River Gauge Station Along the Susquehanna River crested at a maximum of 18.08 feet; and the Vestal River Gauge Station along the Susquehanna River crested at a maximum of 28.87 feet during this flood event. Overall, Broome County experienced two flood-related fatalities, the evacuation of over 100 people, and $3 to $4 M in estimated damages. In the Town of Chenango, approximately two to three inches of rain fell and caused one of the worst floods in 70 years. The Town experienced approximately $45,249.94 in property damages. In the Town of Conklin, flooding of the Susquehanna River led to the closure of NYS Route 7 (Conklin Road) and twelve streets. The streets were re-opened after the water subsided and highway crews cleaned mud and debris from the roadways. In the Town of Sanford, $78,464 in property damage and $52,642 in public infrastructure damage occurred. $164,474.59 in roadway losses within the Town. Primary damage occurred along Reservoir, Terry, Smith, Huggins, and Perry Roads. In the Village of Port Dickinson, the flooding caused the Village to suffer heavy losses (approximately $22,000). Most of the damage was to the village park. Some basements flooded and minor street damage also occurred. Village park damage included fence and picnic bench damage, baseball dirt erosion, and material under playground equipment being swept away.
June 26-29, 2006	DR-1650 (IA and PA)	N/A	Yes	This event affected Broome, Chenango, Delaware, Herkimer, Montgomery, Oneida, Orange, Otsego, Schoharie, Sullivan, Tioga, and Ulster Counties. It resulted in federal funding to state and eligible local governments and certain non-profit organizations on a cost-sharing basis for debris removal and emergency protective measures, including direct federal assistance. $227 M was approved or obligated for assistance to families and individuals, as well as public entities who suffered damage from this event. Various repairs, improvements, and equipment replacements have been underway to improve the poor conditions throughout those counties affected by the floods, including Broome County. A $220,000 project to repair and improve Endicott School damages in Broome County (total damage is nearly $2 million) was approved in April 2007. A $98,000 project to repair and improve the

				Town of Kirkwood Sewer Station was also approved in April 2007. The NYSDOH assessed the impacts on the victims who were evacuated from nursing homes and hospitals, including issues such as medication and life support for the 165 displaced residents of a nursing home in Vestal and 80 patients at the Lady of Lourdes Hospital in Binghamton, NY. Additionally, several state parks and historic sites in the central region, including Broome County, were closed to the public. Flood damage included roads and beaches, water system closures, and/or damage and overflow of sewage treatment plants. In Broome County, record-setting river levels occurred along the Susquehanna and Chenango Rivers. The Susquehanna River at Vestal exceeded its 18-foot flood stage by more than 15 feet (approx. 31 feet.), breaking the previous records by 2.5 feet. A shortage in the supply of clean water occurred. Thousands of residents were without electricity and/or gas service (approximately 16,000 electric and 1,500 gas customers of NYS Electric and Gas Corp. (NYSEG) were impacted). Broome County's infrastructure was significantly impacted. Highways, roads, streets, and bridges were water-covered, washed out, or closed. Municipal water and sewage treatment facilities were also impacted and/or shut down. Boil-water advisories were issued in the Towns of Windsor and Vestal because pumps were shutting down, resulting in a loss of pressure and increasing the chance of contaminated water. Water and wastewater treatment plants were also shut down in the Village of Endicott and Johnson City. Hospitals were forced to evacuate patients or reduce services. Lourdes Hospital joined a mandatory evacuation of the City of Binghamton's low-lying areas, sending about 90 patients to Wilson Memorial and Binghamton General Hospitals. Multiple rescues of residents were made by ground, boat, and helicopter. Two men were swept downstream in Kirkwood and were rescued by emergency volunteers. Evacuation Shelters were opened, including the Binghamton University Events Center, which housed over 1,000 evacuees. Tri-Cities Airport was completely inundated with flood waters. Twenty families along the Chenango River were evacuated in the Town of Chenango. The Union-Endicott High School's Ty Cobb Stadium was water-covered in the Village of Endicott. Many sections of the high school also experienced flooding. Many campgrounds and mobile home parks were damaged (including, the Pine Crest Campgrounds in the Town of Windsor). Residential homes were removed from their foundations or experienced explosions as a result of the cascading impacts of the flood. A home along the Susquehanna River in the Town of Conklin was dragged off its foundation near Schnurbush Park. Also, a house along the Susquehanna River exploded in the Town of Conklin, which created additional damage to homes surrounding the explosion. The Boys and Girls Club in Endicott was completely surrounded by flood water.

November 16-17, 2006	DR-1670	M1670	Yes	A line of thunderstorms produced 45 to 74 mph winds across a large part of central New York State. Additionally, the squall line spawned an F1 tornado north of the Town of Elmira. Areas from Oswego and Binghamton, north and east through Ithaca, Cortland, and Norwich, to Oneida County in the western Mohawk Valley and the northern Catskills saw the brunt of the heavy rainfall from this slow-moving line of storms. Between 1.5 inches and four inches of rain fell in just three hours, causing significant flash flooding over many of these areas. Many hillsides and creeks turned into raging torrents, causing mudslides and debris flows that cascaded into more populated valley areas. The flash flooding evolved into a minor to moderate river flood event mainly on the Susquehanna River and its tributaries in New York. This disaster resulted in the federal approval of more than $19.1 M in New York State. In Broome County, flooding along the Vestal Parkway occurred in the Town of Vestal. The rain caused the Susquehanna River to exceed its 18-foot flood stage and crested at 21.76 feet. In the Town of Union, multiple houses flooded and a road collapsed. In the City of Binghamton, three feet of water accumulated on Vestal Avenue. Minor flooding was observed along the Susquehanna River at Washington Street. In the Village of Endicott", numerous roads flooded. In the Town of Port Crane, a mudslide occurred on Interstate 88 and resulted in a multi-injury car accident. In the Chenango Forks area of the Town of Chenango, the Chenango River crested at 10.89 feet, and minor flooding was observed. In the Town of Conklin, the Susquehanna River crested at 11.55 feet. Overall, the County experienced approximately $250 K in property damage.
March 15-16, 2007	N/A	N/A	N/A	A widespread rainfall melted snowpack, causing many rivers and creeks to exceed their flood stages. In the Susquehanna and Chemung River Basins and the Finger Lakes, rainfall ranged between 0.75 and 1.5 inches. The Susquehanna River in the Town of Conklin reported significant flood damage. It crested at 10 feet. Twenty homes, one business, and five roads were flooded. An ice jam was associated with this flooding. In Broome County, minor flooding occurred along the Susquehanna River in the Town of Vestal and it crested at 19.1 feet. In the Town of Conklin, the Susquehanna River crested at 13.2 feet. Overall, the County had approximately $255 K in property damage.
January 25, 2010	N/A	N/A	N/A	Mild temperatures combined with rain caused flash flooding in isolated areas. In Tracy Creek, heavy rains caused flooding along Tracy Creek Road as well as parts of the Vestal Parkway. Several homes were flooded in the Vestal Center area. In the Twin Orchard area of the Town of Vestal, several roads were flooded. The Interstate 81 South to Route 17 West ramp was partially closed due to a landslide off Prospect Mountain. In the Town of Maine, Route 26 was flooded. Overall, the County had approximately $130 K in property damage.
September 30, 2010	N/A	N/A	N/A	Remnants of Tropical Storm Nicole brought between three and six inches of rain across central New York

				State. In Broome County, several areas in the western part of the County experienced problems due to flash flooding. The Village of Endicott, the Endwell area of the Town of Union, and the Town of Maine reported several roads flooded, washouts, and basement flooding. Several vehicles were stranded due to high water at road intersections and in parking lots. The County had approximately $50 K in property damage.
April 26 – May 8, 2011	DR-1993	M1993, Amendment 1	Yes	A significant severe weather outbreak developed across central New York State as a storm system moved east from the Great Lakes. First, showers and TSTMs developed early in the evening on the 27th, as an upper-level disturbance approached the region. Two of the more significant storms included one supercell that produced a tornado in Steuben County causing tree and structural damage across Steuben, Chemung, and Schuyler counties. Elsewhere across central New York, storms caused scattered wind damage and heavy rain. Broome County experienced significant flash flooding, especially along the Route 26 corridor. Route 26 was closed between the hamlet of Glen Aubrey and the Village of Whitney Point, with 18 houses cut off by flood waters. Nanticoke Creek in the Town of Maine flooded many homes, with water up to the first floor of some homes. About 150 people were evacuated and two shelters were set up. The County experienced approximately $4 M in property damages.
August 27-28, 2011	EM-3328/DR-4020	S3203	No	Hurricane Irene brought heavy rains and high winds from northeast Pennsylvania to the Catskill Mountains of New York. Rainfall totaled from two to five inches over most of northeast Pennsylvania and in the Susquehanna Region of central New York. Between four and eight inches of rain fell in the western Catskills with portions of Wyoming and northern Susquehanna Counties in northeast Pennsylvania and southern Broome County in New York receiving six to eight inches of rain. In addition to the heavy rains, high winds from the storm knocked down numerous trees and power lines across Broome, Delaware, Sullivan, and Otsego Counties in New York. During the height of the storm, over 40,000 residents were without power. In some cases, power was not restored for one week. In Broome County, heavy rains in the Town of Conklin (hamlet of Conklin Forks) caused flooding along Pierce Creek Road. In the Town of Conklin, the Susquehanna River at Conklin crested at 16.34 feet. Many roads were flooded in the Town of Kirkwood area and several roads and one bridge were closed due to flash flooding. In the Town of Vestal, major flash flooding occurred along Choconut Creek and many roads were flooded. In Vestal Center, West Hill, and Juneberry Roads were closed due to water over bridges. In Stella, numerous roads were closed due to water over bridges. Overall, the County experienced approximately $375 K in property damage.
September 7-8, 2011	EM-3341/DR-4031	S3207 M4031	Yes	Remnants of Tropical Storm Lee brought between six and 12 inches of rain over most of the upper Susquehanna River Basin. The heavy rain caused massive, record-breaking flooding on small streams,

				creeks, and the Susquehanna River and its larger tributaries. In Broome County, the main branch of the Susquehanna River from the City of Binghamton to the Towns of Vestal, Owego, and Waverly crested from one to four feet higher than the previous record set in June 2006. In the Town of Conklin, the Susquehanna River crested at 23.94 feet. Catastrophic flooding occurred in Binghamton, the Town of Vestal, the Village of Endicott, the Endwell section of the Town of Union, and the Chenango Valley areas. Numerous roads, bridges, and homes were severely damaged. Deep ponding of water occurred below underpasses. In the Town of Endicott, flooding occurred along the Nanticoke Creek in the hamlet of West Corners. Numerous roads, homes, and bridges were severely damaged. In the Town of Chenango, the river crested at 14.93 feet at Chenango Forks. Overall, the County had approximately $502.8 M in property damage.
August 14, 2012	N/A	N/A	N/A	Showers and thunderstorms increased across central New York during the afternoon of the 14th, as partly sunny skies brought increased instability to the area ahead of a low-pressure system tracking from the Ohio Valley into western New York. Only isolated storms produced localized wind damage, with heavy downpours also causing some minor flooding. Heavy rain caused flooding along Route 26 in West Endicott. No property damages were reported.
June 28, 2013	DR-4129	N/A	Yes	A low-pressure system acted on a moist and unstable airmass to bring severe thunderstorms to central New York. Ballyhack Creek was out of its banks with flooding on Albany and Canal Streets in Port Crane. Portions of State Route 7B have been washed out. Port Crane reported $20,000 in property damages. In Langdon, Schnurbusch Park flooded, as well as residential yards across the street resulting in $5,000 in property damages.
July 1, 2013	N/A	N/A	N/A	A stationary frontal boundary extending from the Gulf states to the Northeast provided the focus for several rounds of thunderstorms across Central New York. A near-tropical environment provided the source for torrential rain in several parts of the region. Route 79 was closed due to water flowing over the roadway. Itaska reported $5,000 in property damages.
July 7, 2013	N/A	N/A	N/A	Thunderstorms containing torrential rainfall developed within a warm, humid, and considerably unstable environment across upstate NY during the mid to late evening hours. Storms moving over the same locations produced areas of significant flash flooding throughout the central Leatherstocking region and the western Mohawk River valley. Several roads were flooded in the Town of Port Crane resulting in $50,000 in property damages. Water was flowing over roads near the Interstate 88 Port Crane exit and along the intersection of State Route 36 and Pine Street. Flood waters helped to collapse a wall into a creek near a construction site. Chenango Bridge reported $50,000 in property damages.

August 28, 2013	N/A	N/A	N/A	A weak upper-level disturbance triggered isolated, slow-moving thunderstorms across the region. Oquaga Lake Road washed out due to rapidly flowing water over the road. Oquaga Lake reported $25,000 in property damage.
January 11, 2014	N/A	N/A	N/A	A brief warm-up, accompanied by periods of rain, occurred on January 11th with temperatures rising into the 50s across the region. These conditions melted off the existing snow cover, causing area rivers and streams to swell and release their ice cover into the stream channels. An ice jam on Stratmill Creek caused up to one foot of water, and large ice chunks to spill onto Court Street on the east side of the City of Binghamton, New York. An ice jam caused flood waters to spill into Schneiders Market near the Five Mile Point area. Langdon reported $30,000 in property damages.
May 16, 2014	DR-4180	N/A	No	A slow-moving, steady area of heavy rainfall brought 1 to 3 inches of rain to the region, causing areas of flash flooding. Areas in the Finger Lakes region were hardest hit again. Flooding occurred in areas along Route 41 between Sanford and North Sanford, including North Sanford Road, Blowers Road, and Wheeler School Road in Sanford resulting in $50,000 in property damages.
July 13, 2014	N/A	N/A	N/A	A weak frontal boundary and a strong upper-level disturbance helped develop numerous severe and torrential rain-producing thunderstorms. Thunderstorms which repeatedly moved over the same locations along the Southern Tier of New York produced rainfall estimates of 3 to 4 inches in a short amount of time. This resulted in widespread areas of minor urban flooding and isolated flash flooding. Flooding was reported along Old Route 17 and Route 41 near Deposit and Windsor. Several creeks were out of their banks in the area. Sanford reported $25,000 in property damages.
January 8, 2015	N/A	N/A	N/A	A freeze-up in the Chenango River resulted in an ice jam at Chenango Bridge.
May 18, 2015	N/A	N/A	N/A	Clusters of thunderstorms moving through Central New York set up along a west-to-east corridor across the middle portion of Broome County. These storms produced incredible rainfall rates in excess of 4 inches per hour. Localized rainfall amounts were in the 2 to 3-inch range, and much of this rainfall fell within 1 to 1.5 hours on the evening of May 18th. Several areas of washed-over roads and extensive ponding of water were reported throughout the Triple Cities. Water was flowing rapidly down several streets in the Village of Chenango Bridge. Damage occurred on Clarendon Drive, and also at the Chenango Bridge Golf Course where several greens and sand traps were washed out. Water was several inches deep at the Northgate Plaza and other locations on Upper Front Street. Chenango Bridge reported $5,000 in property damages. In Johnson City, water, along with mud and rocks washed over Deyo Hill road near the Town of Dickinson line resulting in $2,000 in property damages. Serious ponding of water in parking lots and water washing over roadways was reported in Port Crane. A small debris flow coming off of a sheer cliff was

				observed in the Town of Fenton. Port Crane reported $1,000 in property damages. There was extensive street, parking lot, and underpass flooding in the City of Binghamton. Binghamton reported $5,000 in property damages.
June 14, 2015	N/A	N/A	N/A	A warm front stalled across New York and northern Pennsylvania, providing the focus for repeating clusters of thunderstorms in the Finger Lakes and Southern Tier NY regions. A tropical-like airmass was in place allowing for a stripe of 2-4 inches of very heavy rain to fall in a narrow band extending from near Watkins Glen to areas north of Binghamton. Severe flash flooding was encountered with numerous roads and culverts destroyed by raging water. In some areas, homes, schools, and other businesses were flooded. Cumulative damage estimates across the affected areas were about $10 million dollars. Flooding had washed out Daugherty Road and damaged the Newark Valley-Maine Road. West Corners reported $100,000 in property damages. Numerous roads were flooded in the Colesville area resulting in $100,000 in property damages.
June 28, 2016	N/A	N/A	N/A	A cold front moved into the area during the afternoon. Heavy rain-producing thunderstorms brought 4 to 6 inches of rain in less than 3 hours over portions of the Western Catskills in New York. This led to isolated flash flooding and debris flows over several roadways. One to two inches of thunderstorm rainfall caused typical urban flooding in several locations around the Triple Cities, including the railroad underpasses in the City of Binghamton, the Vestal Parkway, and downtown Endicott. Binghamton reported $50,000 in property damages.
April 6, 2017	N/A	N/A	N/A	Rain and melting snow swelled rivers and streams around Central New York during the first week in April. The Susquehanna River flooded in many areas with levels reaching moderate flood stage at Conklin and Vestal. The lake level on Cayuga Lake at Ithaca also reached the moderate flood stage causing high water problems with docks along the lake shore. Moderate flooding occurred along the Susquehanna River near Conklin, NY. The river crested at 15.11 feet on April 7th at 4:00 AM. Langdon reported $25,000 in property damages. Moderate flooding occurred along the Susquehanna River near Vestal, NY. The river crested at 21.99 feet on April 7th at 11:30 AM. Ross Corners reported $40,000 in property damages.
July 14, 2017	N/A	N/A	N/A	A warm front began advancing across Central New York by early in the afternoon. This feature triggered numerous rounds of heavy rain producing thunderstorms from the southern Finger Lakes through the Southern Tier of NY. Localized rainfall amounts were estimated to exceed 3 inches across southern Cortland County. Several storms moved over the same locations, contributing to areas of urban and small-stream flash flooding. Flash flooding led to deep flooding on numerous roads and streets within the City and Town of Binghamton. Water was waist-deep on Vestal Ave, stranding several

				people in their vehicles. Stella reported $25,000 in property damages. Numerous roads were flooded by deep water, stranding several people in their vehicles throughout the Town of Vestal and the Village of Johnson City. Ross Corners reported $10,000 in property damages.
July 17, 2017	N/A	N/A	N/A	Warm and humid air was in place across the region as a slow-moving frontal system drifted into central New York. An upper-level disturbance passed over the frontal boundary during the afternoon, triggering numerous torrential rain-producing thunderstorms. Flash flooding developed in several areas, including the larger populated area of Greater Binghamton. Underpasses in the Village of Endicott were flooding out with rapidly moving water. West Endicott reported $8,000 in property damages. Thunderstorms with excessive rainfall rates caused many roads and underpasses to be flooded. Port Crane reported $5,000 in property damages.
July 23, 2017	N/A	N/A	N/A	A stationary front poised in the vicinity of central New York and northeast Pennsylvania was the focus for very warm and moist atmospheric conditions across the region. Heavy rain-producing thunderstorms developed during the late afternoon and evening hours as an upper-level jet stream punched into the area. Widespread thunderstorms produced swaths of 3 to 4 inches of rain in just a few hours' time during the late evening and overnight hours. Rapid rises of area streams and creeks resulted in severe flash flooding for the Nichols, NY, and Vestal, NY areas. Heavy rainfall closed several roads in the Binghamton area due to high water collecting within several underpasses and other poor drainage areas. Interstate 81 was down to a single lane due to flooding. Binghamton reported $165,000 in property damages. Flash flooding caused the closure of Route 11 due to high water. Langdon reported $30,000 in property damages. Flash flooding extended across Corbettsville Road. Evacuations of several homes were underway. Corbettsville reported $45,000 in property damages.
July 24, 2017	N/A	N/A	N/A	A stationary front poised in the vicinity of central New York and northeast Pennsylvania was the focus for very warm and moist atmospheric conditions across the region. Heavy rain-producing thunderstorms developed during the late afternoon and evening hours as an upper-level jet stream punched into the area. Widespread thunderstorms produced swaths of 3 to 4 inches of rain in just a few hours' time during the late evening and overnight hours. Rapid rises of area streams and creeks resulted in severe flash flooding for the Nichols, NY, and Vestal, NY areas. The crest of the flood wave along Choconut Creek had reached the Town of Vestal with flooding of structures occurring along Main Street. Vestal reported $130,000 in property damages. Flood waters from Choconut Creek encroached on 11 homes along Richards Ave. Residents were evacuated. Flood waters from Choconut Creek spread into areas around West Hill Road in Vestal Center. Flooding along

				Choconut Creek continued to spread across roads and into more homes. Two residences were evacuated around this time. Vestal Center reported $410,000 in property damages.
August 13-15, 2018	DR-4397	N/A	Yes	Heavy rainfall from severe storms resulted in severe flash flooding. Roadways were shut down and evacuation of homes took place. Local shelters were opened.

Source: FEMA 2018; NOAA-NCEI 2018; NYS HMP 2019; SPC 2018; International Levee Performance Database 2019

FEMA Federal Emergency Management Agency
HMP Hazard Mitigation Plan
Mph Miles Per Hour
NCDC National Climatic Data Center
NOAA National Oceanic and Atmospheric Administration
NYS New York State
N/A Not Applicable
SPC Storm Prediction Center

Note: Many sources were consulted to provide an update on previous occurrences and losses; event details and loss/impact information may vary and have been summarized in the above table.

1.2.7 Invasive Species

The 2019 HMP did not identify invasive species as a hazard of concern and did not record events prior to 2019.

1.2.8 Severe Storms

Based on all sources researched, known severe storm events that have affected Broome County and its municipalities are identified in Table 5. With severe storm documentation for New York State being so extensive, not all sources have been identified or researched. Therefore, Table 5 may not include all events that have occurred throughout the County and region.

Table 5. Severe Storm Events in Broome County Between 1939 and 2019

Dates of Event	Event Type	FEMA Declaration	County Designated?	Losses/impacts
1939	Tropical Depression	N/A	N/A	No reference and/or no damage reported.
1959	Hurricane Gracie	N/A	N/A	No reference and/or no damage reported.
July 22, 1970	Heavy Rains And Flooding	DR-290	Yes	No reference and/or no damage reported.
June 23, 1972	Tropical Storm Agnes	DR-338	Yes	No reference and/or no damage reported.
October 2, 1975	Severe Storms, Heavy Rain, Landslides, Flooding	DR-487	Yes	No reference and/or no damage reported.
July 21, 1976	Severe Storms And Flooding	DR-515	Yes	No reference and/or no damage reported.
1979	Hurricane David	N/A	N/A	No reference and/or no damage reported.
1991	Hurricane Bob	N/A	N/A	No reference and/or no damage reported.
September 3, 1992	Tornado	N/A	N/A	No reference and/or no damage reported.

July 7, 1994	Tstm, Wind	N/A	N/A	Severe tstms moved across eastern New York State during the afternoon. TSTM winds downed trees and power lines in many areas. Intense lightning started several fires and killed one person in Albany. In addition to the wind and lightning, torrential downpours resulted in some flash flooding as well as poor drainage flooding. The hardest hit areas included the Capital District Region where over 10,000 customers were without power. Other hard-hit areas included Saugerties (Ulster County), Norwich (Chenango County), Leonardsville (Madison County), and Kingsbury (Washington County). Broome County had approximately $30 K in property damage.
July 9, 1994	Tstm	N/A	N/A	Broome County had over $1 M in property damages.
July 15, 1994		N/A	N/A	Severe tstms struck across the southern tier of New York State and parts of the Susquehanna Region. TSTM winds downed trees and power lines in portions of Broome, Chenango, and Cortland Counties. In Broome County, the most extensive damage occurred in the Towns of Lisle and Kirkwood where trees fell on homes. Broome County had approximately $105 K in property damage.
January 19-30, 1996	Severe Storms And Flooding	DR-1095	Yes	No reference and/or no damage reported.
May 31, 1998	Severe Storm/Tstms	DR-1222	Yes	Large hail stones were observed along the cell's southern and western flanks. A tornado crossed the County line and entered the Town of Vestal. The damage path was approximately 70 yards wide. Trees were uprooted and/or twisted. As the cell moved further east into the Town of Binghamton, the tornado intensified to an F2 and increased to a path of about 100 yards wide. Damage became increasingly severe, with more structures affected. A 1,000-foot television tower was twisted and toppled to the ground. A large dumpster was lifted off the ground. Several small trailers were flattened in the Town of Binghamton, just east of Ingraham Hill. The tornado moved further east through the towns of Conklin, Kirkwood, Windsor, and Sanford/Deposit area, maintaining an intensity of F2. More than 12 homes were damaged; several trailers were nearly or completely destroyed. As the cell moved into the Town of Windsor, it weakened to an F0 and as it reached the Town of Sanford, it re-intensified to an F3. A home was destroyed, trees were flattened, and hail was observed up to three inches in diameter. The County had 12 injuries and approximately $1.5 M in damages from this event. $80K from DRI funding for Broome County; $250K in farm damage requested USDA disaster assistance The storms also caused six tornadoes in central NYS. The most devastating tornado cut a discontinuous 60-mile track from southeastern Tioga County across southern Broome County and into Delaware County where it finally lifted back into the cloud base. This

				tornado alone damaged or destroyed more than 30 homes and injured nearly 20 people.
June 7, 1999	Severe Storm	N/A	N/A	Damage-producing tstms hit central NYS, bringing storm winds and hail. In Broome county, golf ball-sized hail fell for 15 minutes, covering the ground in the town of Conklin. Two people were injured when a large tree uprooted and fell in the town of Endicott. The county had approximately $20k in property damage and $2k in crop damage.
July 6, 1999	Severe Storms	N/A	N/A	In the town of Maine, a large portion of a roof was torn off a barn. The winds from the storm downed many trees. In the town of Chenango, the storms downed trees and caused washouts. The county had approximately $30k in property damage.
1999	Hurricane Floyd	N/A	N/A	No reference and/or no damage reported.
June 16, 2001	Tstms	N/A	N/A	Tstms moved through the northern portion of the town of Chenango, affecting the hamlet of Castle Creek. Castle Creek overflowed its bank and damaged several homes, the civic association, and the ball fields.
2003	Hurricane Isabel	N/A	N/A	No reference and/or no damage reported.
July 4, 2003	Severe Storm	N/A	N/A	Tstm winds downed numerous trees and power lines on North Street in the town of Triangle. In the Chenango Valley State Park, many trees were downed and uprooted. Tree limbs fell on cars and campers in the state park. Several miles of hiking trails were closed due to downed trees. The county had approximately $15k in property damage.
July 10-11, 2003	Lightning	N/A	N/A	Lightning struck in Port Crane, Binghamton, and Johnson City. A barn was struck along Route 369 in Port Crane and caught fire. Lightning hit a house in the town of Binghamton and struck power lines in Johnson City, causing almost 6,000 people to be without power for a couple of hours. Bates Troy Laundry and cleaners in Binghamton were struck, resulting in a fire.
July 21, 2003	Tstm	N/A	N/A	A tstm moved through the town of Chenango, downing trees and causing power outages. Washouts occurred on two of the town's eastside hill roads.

May 24, 2004	Tornado (F1)	N/A	N/A	A tornado touched down near the town of Sanford, resulting in approximately $50k in property damage. The tornado uprooted and snapped trees along its path. The tornado destroyed a trailer, damaged the siding on a house, and destroyed a barn. Hail was also reported during this event and damaged the area around and northeast of Sanford.
June 9, 2004	Tstm	N/A	N/A	A tstm moved through the town of Chenango, in the Chenango bridge area, downing several trees.
August 13 – September 16, 2004	Severe Storms	DR-1564	Yes	8/20 - TSTM winds downed numerous trees and wires throughout Broome County, with some falling into roadways. The worst damage was along Kales Hill Road off of State Route 26 in the Town of Triangle. The County had approximately $30K in property damage. THESE SERIES OF EVENTS RESULTED IN FEMA ISSUING APPROXIMATELY $450K TO VARIOUS MUNICIPALITIES IN BROOME COUNTY.
2004	Frances	N/A	N/A	No reference and/or no damage reported.
2004	Jeanne	N/A	N/A	No reference and/or no damage reported.
September 16-18, 2004	Severe Storm (Tropical Storm Ivan)	DR-1565	Yes	$920k of federal relief assistance in the county
April 2-4, 2005	Severe Storms And Flooding	DR-1589	Yes	$11.2m of federal relief assistance in the county. The funds were given to municipalities for debris removal, emergency protective measures, road and bridge repair, and park repair.
June 6, 2005	Severe Storm	N/A	N/A	Winds from tstms downed numerous trees and power lines throughout Broome County. Six buildings had damage due to the winds and falling trees. The hardest hit areas were in the southwest part of the county and included the towns of Vestal, Endicott, and Binghamton. Part of a roof was blown off the wing of an elementary school in the town of Endicott while school was in session. The county had approximately $100k in property damage.
June 26 – July 10, 2006	Severe Storm And Flooding	DR-1650	Yes	7/10 - Trees down on some wires in the County

				$227 M IN FEDERAL REIMBURSEMENTS WAS APPROVED FOR 12 COUNTIES IN NYS.
November 16-17, 2006	Severe Storm And Flooding	DR-1670	Yes	A series of storms produced squall line tstms with heavy rainfall across parts of NYS. The line of tstms produced 45 to 74 mph winds across central NYS. Many hillsides and creeks were flooded, causing mudslides and debris flows. $19.1 m in federal reimbursements was approved for nine counties in NYS.
June 25, 2009	Tstm	N/A	N/A	Showers and scattered tstms developed. Some of the storms were severe and produced large hail and damaging winds. Trees and wires were down throughout Broome County. The county had approximately $26k in property damage.
April 27-28, 2011	Severe Storm, Flooding, Straight-Line Winds	DR-1993	Yes	A severe weather outbreak developed across central NYS. It brought showers, tstms, strong winds, and a tornado. The tornado occurred in Steuben County and caused damage in Steuben, Chemung, and Schuyler Counties. Other areas in central NYS experienced wind damage and heavy rain. IN BROOME COUNTY, TREES AND POWER LINES WERE DOWN ACROSS ROUTE 79 IN THE TOWN OF CHENANGO. TREES AND WIRES WERE DOWN IN THE TOWNS OF CONKLIN AND BINGHAMTON. TREES FELL ON A HOUSE IN THE TOWN OF CONKLIN. THE COUNTY HAD APPROXIMATELY $20K IN PROPERTY DAMAGE.
May 26, 2011	Severe Storms	N/A	N/A	A storm system brought rain and tstms to the area. There were many reports of large hail and damaging winds across central NYS. In Broome County, the storms downed trees and wires in different areas. The county had approximately $ 33k in property damage.
August 7, 2011	Tstm, Wind	N/A	N/A	Tstms developed, producing severe and strong winds. The winds caused downed trees and wires in Broome County. In the town of east Windsor, a roof was blown off a shed, and a camping trailer was blown off its supports at Forest Lake Campground. The county had approximately $ 20k in property damage.
August 28, 2011	Tropical Storm Irene	EM-3328	No	Tropical Storm Irene tracked north-northeast across eastern NYS and western New England. This storm produced widespread flooding and damaging winds across the region. The greatest impact from Irene was heavy to extreme rainfall which caused major flooding. Rainfall totals ranged from four to eight inches, with

				some areas receiving between eight and 12 inches of rain. IN BROOME COUNTY, MAJOR FLOODING OCCURRED. SEE THE FLOOD PROFILE OF THIS PLAN FOR FURTHER INFORMATION REGARDING TROPICAL STORM IRENE.
September 7 -10, 2011	Remnants Of Tropical Storm Lee	EM-3341 / DR-4031	Yes	No reference and/or no damage reported.
May 29, 2012	Hail	N/A	No	With a warm front draped across northern New York and a cold front to the west, New York State was entrenched in the warm and moist warm sector, as temperatures rose well into the 80s with dewpoints in the 60s during the afternoon. Showers and thunderstorms developed out ahead of the approaching cold front, with many storms becoming severe and producing large hail and damaging winds.
July 23, 2012	Hail, Thunderstorm Wind	N/A	No	During the afternoon of July 23rd, an upper-level disturbance moved east toward central New York from southern Ontario, Canada. Daytime heating and instability combined with favorable wind parameters in the atmosphere produce severe thunderstorms. Many reports were received of wind damage and very large hail. In Harpursville, around 100 trees were blown down. Utility poles fell on several roads. $10K in property damage was reported.
September 26, 2012	Hail	N/A	No	Showers and thunderstorms developed along and ahead of a cold front that pushed through central New York during the afternoon. Several storms reached severe levels, producing isolated damaging wind reports and many reports of large hail. Some of the hail was as large as golf balls.
April 19, 2013	Thunderstorm Wind	N/A	No	A strong cold front crossed central New York State during the late afternoon and early evening hours of Friday, April 19th. This front was accompanied by a squall line which produced locally damaging wind including a confirmed EF1 Tornado in Chenango and Delaware counties. Most areas saw brief heavy rain and wind gusts to 50 mph with a few locations seeing intense straight-line winds gusting 80–110 mph. In West Endicott, a line of thunderstorms blew down a tree onto a house on Airport Road resulting in $10K in property damage.
May 22, 2013	Hail	N/A	No	A warm front lifted north of New York State during the late morning into the evening hours of Wednesday, May 22nd. This front resulted in a cluster of storms that produced large hail and wind damage.
June 24, 2013	Hail	N/A	No	An upper-level disturbance combined with an unstable airmass contributed to the development of severe thunderstorms across central New York. Chenango Bridge reported $5K in property damage.
May 22, 2014	Hail	N/A	No	Central New York was well into warm, moist, and unstable air as a warm front was located across the Hudson Valley and a cold front was located over western New York. This led to the development of severe thunderstorms on Thursday, May 22nd.

July 7, 2014	Thunderstorm Wind	DR-4129	No	A weak warm front that moved from the Great Lakes region allowed for severe thunderstorms to develop across portions of central New York. Strong and organized low-level wind shear resulted in damaging winds from all severe storms during the afternoon hours. Many trees were blown down, including on top of cars, power lines, and a storage shed. Trees fell in the Town of Lisle. Killawog reported $15K in property damage.
July 13, 2014	Funnel Cloud, Thunderstorm Wind	N/A	No	A weak frontal boundary and strong upper-level disturbance helped develop numerous severe thunderstorms. Favorable and strong wind shear in the lower and middle layers of the atmosphere resulted in damaging winds and tornadoes across central New York. In Kattleville, trees fell near Route 12 resulting in $10K in property damage. In Stella, trees fell around Floral and Grand Avenues. Stella reported $30K in property damage. In Kirkwood, trees fell, closing part of Ostrum Road resulting in $10K in property damage. In Damascus, trees fell around Highway 79 and Piper Hill Road. A possible tornado was sighted near a golf course. Damascus reported $10K in property damage. In West Windsor, trees fell, resulting in $10K in property damage. A portion of the plexiglass facade was blown from above JCPenney's door, while water was coming into the store, at the Oakdale Mall.
August 21, 2014	Hail, Thunderstorm Wind	N/A	No	A low-pressure system located over southern Ontario along with surface boundaries near central New York resulted in thunderstorms during the afternoon hours. These storms developed in an unstable airmass with a severe thunderstorm occurring over Tompkins County producing large hail. In Glen Aubrey, thirty trees fell in one location, including two uprooted hemlock trees. Lawn furniture was blown over 200 feet. Glen Aubrey reported $10K in property damage.
September 2, 2014	Thunderstorm Wind	N/A	No	A cold front moved through central New York during the afternoon and evening hours of Tuesday, September 2nd. This front acted on a moist and unstable air mass, resulting in the development of numerous severe thunderstorms over New York State. Straight-line winds estimated near 60 mph snapped trees and branches, with trees snapped off at mid to high trunk level. One tree fell on a trailer. Chenango Bridge reported $20K in property damage.
September 11, 2014	Hail	N/A	No	A warm and humid airmass, combined with the passage of an upper-level wave, resulted in the development of severe thunderstorms across central New York.
May 18, 2015	Hail, Thunderstorm Wind	DR 4180	No	A warm front lifted northward across the area Monday morning the 18th, then stalled across central New York and northeast Pennsylvania. Showers and thunderstorms developed along this stationary front by midafternoon. A few of these storms became severe and produced strong winds and large hail. State officials reported thunderstorm winds caused trees to be uprooted and wires knocked down. Multiple power outages were reported from this

				storm. Castle Creek reported $30K in property damage.
June 12, 2015	Hail	N/A	No	A very unstable air mass was present Friday afternoon and evening, as a warm front lifted north that morning across Pennsylvania and New York. A shortwave aloft, which was embedded within the cyclonic flow, interacted with this front, and showers and thunderstorms developed over central New York. Late Friday afternoon, the front shifted slowly southward as a cold front. Showers and thunderstorms continued to develop along the front into the late evening hours as it moved southward into Pennsylvania. These storms produced damaging winds and large hail. A severe thunderstorm developed over the area and produced golf ball-sized hail resulting in $5K in property damages in West Endicott.
July 26, 2015	Hail	N/A	No	Weak northwest flow aloft was present over the northeast on Sunday, July 16th. A cold front was slowly moving southward over central New York Sunday morning and stalled over central New York and northeast Pennsylvania Sunday evening. Showers and thunderstorms developed along this boundary. A few of these storms became severe and produced damaging winds and large hail. Maine reported $5K in property damage.
June 28, 2016	Hail	N/A	No	A cold front was centered over central New York and northeast Pennsylvania Thursday morning. By late morning, thunderstorms developed ahead of and along this front in a very unstable air mass. The thunderstorms slowly moved east during the afternoon with some of the storms becoming severe. West Endicott reported $1K in property damage.
May 1, 2017	Thunderstorm Wind	N/A	No	A warm front lifted north across the region Monday morning, which created an unstable air mass across the state of New York and Pennsylvania. By late Monday afternoon, a cold front moved into western New York and Pennsylvania, which produced a line of thunderstorms. As the thunderstorms moved east, coverage became widespread and a major severe weather outbreak ensued for central New York and northeast Pennsylvania. Some of the thunderstorms produced winds gusting 70–100 mph. Numerous trees fell, and there were widespread power outages, some of which lasted for several days. West Endicott reported $12K in property damage.
May 14, 2017	Hail	N/A	No	Showers and thunderstorms developed ahead of and along an advancing cold front across the states of New York and Pennsylvania Sunday afternoon. As the storms moved to the east, an isolated storm produced nickel-sized hail in the Binghamton area.
June 19, 2017	Thunderstorm Wind	N/A	No	A cold front extended from north to south across western New York and Pennsylvania Monday morning and showers and thunderstorms were organized ahead and along the front. The front quickly moved east into a very unstable air mass, and additional showers and thunderstorms developed across central New York and northeast Pennsylvania. Some of these storms became severe and produced strong winds. In West Endicott, a thunderstorm produced severe winds

				and knocked over power line poles and wires resulting in $10K in property damage.
June 25, 2017	Thunderstorm Wind	N/A	No	A thunderstorm moved across the region and became severe. This thunderstorm produced severe winds and removed a portion of a roof from a house on Caldwell Hill Road resulting in $10K in property damage in Lisle.
July 1, 2017	Hail	N/A	No	Showers and thunderstorms moved across the region during the early morning leaving copious amounts of low-level moisture across the state of New York. During the afternoon, breaks in the cloud coverage allowed the atmosphere to become unstable ahead of an approaching cold front. A cold front moved across the region late Saturday afternoon, and showers and thunderstorms developed ahead and along the advancing cold front. As the front moved east, some of these storms became severe and produced damaging winds and large hail. Chenango Bridge reported $2K in property damage.
July 17, 2017	Lightning, Thunderstorm Wind	N/A	No	A cold front advanced east across western New York Monday morning and became stalled and aligned north to south over central New York and Pennsylvania shortly after noon. Showers and thunderstorms developed along this boundary in a very unstable environment and quickly moved east. Some of these storms became severe and produced damaging winds and large hail. In Glen Castle, a thunderstorm developed over the area and produced lightning which struck a tree in the town of Chenango on Susan Street causing $1K in property damage. In Windsor, a thunderstorm produced severe winds which uprooted or snapped more than 10 trees on Ouaquaga Road resulting in $10K in property damage.
August 4, 2017	Lightning	N/A	No	A strong cold front moved across the northeast, as a surface low-pressure system moved toward Quebec Friday morning. By Friday afternoon, a pre-frontal trough developed across New York and Pennsylvania, leading to thunderstorms in a very unstable atmosphere. As these storms propagated eastward, some became severe, producing damaging winds. In the Town of Vestal, lightning struck the side of a house near 341 2nd Ave causing $5K in property damage.
August 13-15, 2018	Severe Storms And Flooding	DR-4397	Yes	Heavy rains on August 15th caused flash flooding, road closures, and damages across Broome County. A state of emergency was issued for Broome County due to this event, and the emergency operations center was activated. In the City of Binghamton, homes and streets on the East Side and parts of the South Side were flooded, mostly in basements and about 18 homes had water pumped out. Side streets in the city experienced significant flash flooding and authorities were going door-to-door to survey damage and check on residents. The American Red Cross opened an emergency shelter in Vestal, which was moved to Conklin.

Source: FEMA 2019, NOAA NCEI 2019, NWS 2019, SHELDUS

DR Federal Disaster Declaration

EM *Federal Emergency Declaration*
FEMA *Federal Emergency Management Agency*
K *Thousand ($)*
M *Million ($)*
Mph *Miles Per Hour*
NCDC *National Climate Data Center*
NOAA *National Oceanic Atmospheric Administration*
NYS *New York State*
NWS *National Weather Service*
SHELDUS *Spatial Hazard Events and Losses Database for the U.S.*
TSTM *Thunderstorms*

Note: Monetary figures within this table were U.S. Dollar (USD) figures calculated during or within the approximate time of the event. If such an event occurred in the present day, monetary losses would be considerably higher in USD as a result of inflation.

1.2.9 Winter Storm

Based on all sources researched, known winter storm events that have affected Broome County and its municipalities are identified in Table 6. Not all sources have been identified or researched. Therefore, Table 6 may not include all events that have occurred throughout the County and region.

Table 6. Winter Storm Events in Broome County Between 1961 and 2019

Dates of Event	FEMA Declaration	USDA Declaration	County Designated?	Losses / Impacts
February 3-5, 1961	Winter Weather	N/A	N/A	Heavy snow, high wind, and severe cold struck Broome County, causing over $80 K in property damage.
January 10-11, 1982	Blizzard	N/A	N/A	A blizzard caused over $35 K in property damages to Broome County.
April 16, 1983	Winter Weather	N/A	N/A	Heavy rain and snow caused over $1.4 M in property and crop damages to Broome County.
December 6-7, 1983	Winter Weather	N/A	N/A	Wind, snow, and rain caused over $178 K in property damage to Broome County.
December 29, 1983	Winter Weather	N/A	N/A	A severe ice and sleet storm caused over $178 K in property damage to Broome County.
January 25, 1986	Snowstorm	N/A	N/A	A snowstorm caused approximately $2 M in property damages and one death in Broome County.
October 4, 1987	Winter Weather	N/A	N/A	A snowstorm caused over $16 M in property damage and $167 K in crop damages in Broome County.
February 21, 1993	Snow/Cold	N/A	N/A	February 1993 was one of the snowiest months of February on record across much of eastern New York State. At the Broome County Airport, 31.6 inches of snow fell in the month. February was also a cold month, with the average temperature around five degrees below normal. The average temperature at Broome County Airport was 18°F, which was 4.7 degrees below normal. Many

				occurrences of roofs collapsing from the weight of the snow were reported during the second half of the month. Broome County had approximately $500 K in property damages.
March 12-13, 1993 ("Blizzard of '93")	Blizzard	N/A	N/A	The blizzard impacted the Town of Conklin.
October 30 – November 1, 1993	Snow	N/A	N/A	On October 30th, snow fell in the Susquehanna Region of New York State, bringing between two and seven inches of snow, with 4.7 inches in the City of Binghamton. Between October 31st and November 1st, a lower pressure system moved up the Atlantic Coast, resulting in heavy snow across the Susquehanna Region of New York State. Snowfall totals ranged between five and 20 inches, with some areas receiving up to 19.5 inches. The heavy, wet snow downed tree limbs and power lines, leaving over 20,000 people without power. The City of Binghamton received 6.8 inches of snow. The County had approximately $1M in property damage.
February 8-9, 1994	Heavy Snow	N/A	N/A	A low-pressure system moved east from the Tennessee Valley, bringing heavy snow across parts of eastern New York State. Snowfall totals ranged from six to nine inches, with the largest totals being nine inches at the Binghamton Regional Airport. The County had approximately $500K in property damage.
January 7-8, 1996	Heavy Snow	N/A	N/A	A winter storm brought heavy snow to the Susquehanna Region and Western Catskills. Snowfall totals ranged

				between six and 12 inches, which was common in Broome and Delaware Counties. However, in Sullivan County, between one and two feet of snow fell. The affected counties had approximately $60K in property damages.
February 24, 1998	Winter Weather	N/A	N/A	In the Town of Chenango, there were reports of falling trees and power outages throughout the Town.
March 21, 1999	Winter Weather	N/A	N/A	In the Town of Chenango, there were reports of falling trees and power outages throughout the Town.
January 19, 2002	Winter Storm	N/A	N/A	A winter storm resulted in $5,442.55 in losses in the Town of Chenango.
December 25, 2002 – January 4, 2003	Snowstorm	EM-3173	Yes	Between December 25 and 26, a snowstorm moved into central New York State and brought freezing rain and snow. Snowfall totals in the area ranged between six inches and three feet. Due to snowfall amounts, the New York State Thruway was closed for parts of the evening. The snow caused power outages to 3,000 customers in the Catskills. Many counties declared a state of emergency. In Broome County, snowfall totals ranged from 8.9 inches in Kattelville (Binghamton) to 12.7 inches in the City of Binghamton. Between January 3 and 4, a slow-moving Nor'easter moved into central New York State, spreading snow. The snow was heavy at times, with totals ranging between eight and 25 inches. At least 20,000 customers were without power, some without power for a week. Emergency shelters were set up in some areas. Broome County experienced

				the highest snowfall amounts (between 11.2 inches and 20.5 inches). In Broome County, widespread power outages occurred and shelters were opened. The Town of Chenango experienced approximately $38,409.82 in damages. In the Town of Sanford, there was approximately $29,674.86 in roadway losses. Broome County received $683,719.92 as of April 29, 2003, for the snow events during this time period.
February 16-18, 2003 ("President's Day Storm")	Snowstorm	EM-3184	Yes	A coastal storm moved up the east coast of the U.S. Snowfall spread into the southern Catskills and into the southern tier. At times, snow fell at rates of several inches an hour. Snowfall totals in the area ranged between 10 and 30 inches. Property damage from the storm was approximately $2.7 M. In the Town of Chenango, numerous automobile accidents were reported. Total damages from the storm were approximately $19,834 for the Town. The Town of Sanford had approximately $9,638.71 in roadway losses. In Broome County, snowfall totals ranged from 11.5 inches in the Town of Colesville to 19 inches in Vestal Center in the Town of Vestal.
December 14, 2003	Winter Storm	N/A	N/A	A winter storm moved up the Delmarva Peninsula, bringing snow to the Town of Chenango. This event caused numerous automobile accidents and total damages for the Town was approximately $11,106.

January 27, 2004	Winter Storm	N/A	N/A	A winter storm event caused $11,755 in losses to the Town of Chenango.
March 16-17, 2004	Snowstorm	N/A	N/A	Snowfall totals in Broome County ranged from 7 inches in the Town of Conklin and the hamlet of Riverside (Town of Kirkwood) to 11 inches in the Village of Whitney Point. The County had over $20 K in property damages.
January 22-23, 2005	Snowfall	N/A	N/A	A snowstorm brought heavy snow to the area, with totals in Broome County ranging from 8.5 inches in Vestal Center in the Town of Vestal to 14 inches in the Town of Chenango.
February 28-March 2, 2005	Snowstorm	N/A	N/A	A snowstorm occurred throughout the area. Snowfall totals in Broome County ranged from 10.8 inches in Endwell Hamlet to 15.2 inches in the Town of Vestal.
March 1, 2005	Winter Storm	N/A	N/A	A winter storm event brought snowfall totals of eight to 14 inches to the Town of Chenango, with some parts experiencing close to two feet of snow. Total damages in the Town were estimated at

				approximately $11,001.
February 13-15, 2007 (Valentine's Day Storm)	Severe Winter Storm	N/A	N/A	The Valentine's Day Storm was the largest snowstorm to affect central New York State and northeast Pennsylvania during the 2006-2007 winter season. This storm was classified as "major" on the Northeast Snowfall Impact Scale. Snowfall totals in Broome County ranged from 12 inches in the Town of Vestal to 21.5 inches in the Town of Sanford/Village of Windsor. The County had approximately $30 K in property damage.
April 15-16, 2007	Winter Storm	N/A	N/A	A mix of light rain and snow fell over central New York State during the afternoon of the 15th. During the evening, precipitation changed back to snow north and west of the Catskills. On the morning of the 16th, the snow became heavy and continued across central New York State. Snow totals across the state ranged from two inches to two feet. In Broome County, snowfall totals ranged between 8 and 14 inches.

December 13-14, 2007	Snowfall	N/A	N/A	Snowfall totals in Broome County ranged from 6.2 inches at Whitney Point to 9.5 inches in the City of Binghamton.
December 30-31, 2007	Snowfall	N/A	N/A	An area of low pressure moved across the northeast U.S., producing snow amounts ranging from two to six inches across the central and western portions of NYS, with higher amounts across the east. Snowfall totals in Broome County ranged from five to eight inches.
December 11-31, 2008	Severe Winter Storm (snow and ice)	EM-3299 / DR-1827 (PA)	No	Between December 11th and 12th, wintry precipitation fell in central New York State. A band of heavy snow developed across central New York State, from the Finger Lakes to Onondaga and Madison Counties, bringing between five and 10 inches of snow. Further east, in Chenango, Delaware, and Otsego Counties, significant icing was experienced and more than a half inch of ice fell. Snowfall totals in Broome County ranged between one and 7 inches. Another storm occurred on December 18th. The storm brought snow across all of central New York State, with accumulations ranging from six to 11 inches. In Broome County, snowfall amounts ranged between five and eight inches.
December 9, 2009	Snowfall	N/A	N/A	Snowfall totals in Broome County ranged from 4 inches in Deposit to 6.4 inches in the City of Binghamton.

February 10, 2010	Winter Storm	N/A	N/A	Snowfall totals in Broome County ranged from 4 inches at Whitney Point Dam to 6.4 inches in Endicott
February 25-26, 2010	Winter Storm	N/A	N/A	During the afternoon of the 25th, snow became heavy and wind speeds ranged between 20 and 25 mph, with gusts of 35 mph. This caused near-blizzard conditions and a state of emergency was declared for several counties in central New York State. Snowfall totals ranged from 10 to 20 inches, with two to three feet in the Catskills. In Broome County, heavy snow fell across the county, with amounts ranging from 8 inches at West Whitney Point Dam to 17.3 inches in the City of Binghamton.
December 4-9, 2010	Snowfall	N/A	N/A	Snowfall totals in Broome County ranged from 7.9 inches in the Town of Vestal to 21.7 inches in the City of Binghamton.
February 21, 2011	Snowfall	N/A	N/A	Snowfall totals in Broome County ranged from 3 inches in the Village of Deposit to 5 inches in Chenango Falls and Maine.
February 25-26, 2011	Heavy Snowfall	N/A	N/A	A low-pressure system brought a significant snowfall of six to 12 inches to the area. Winds gusted up to 40 mph along the Lake Erie shore. A 30-mile stretch of the NYS Thruway, between Hamburg and Dunkirk, was closed due to multiple accidents. There were several reports of building collapses throughout the region from the weight of the snow. Snowfall totals in Broome County ranged from 7.5 inches in the Village of Windsor to 21.5 inches in the Town of Vestal.

				Total damages from this event were approximately $35K; however, this includes multiple counties, including Broome County.
March 6-7, 2011	Heavy Snowfall	N/A	N/A	Snowfall totals in Broome County ranged from 7.5 inches in the Village of Windsor to 21.5 inches in the Town of Vestal.
October 29-30, 2011	Snow	N/A	N/A	Snowfall totals in Broome County ranged from 0.7 inches in the City of Binghamton to 2.8 inches in the hamlet of Tracy Creek (Town of Vestal).
December 26, 2012	Winter Storm	N/A	N/A	A low-pressure system tracked from the Tennessee Valley on Wednesday to just off the New Jersey coast on Thursday to the Canadian Maritimes on Friday. Northwest flow pulled cold and moist air behind the system with widespread snow falling across central New York on Wednesday and Thursday. Snowfall amounts across the county ranged from 5–8 inches
December 29, 2012	Winter Storm	N/A	N/A	A low-pressure system tracked from the Midwest on Friday to the mid-Atlantic states on Saturday. Moisture and cold air associated with this system spread snow into portions of central New York on Saturday. Snowfall amounts across the county ranged from 5–8 inches.
February 8, 2013	Heavy Snow	N/A	N/A	A northern system passed over our region while merging with a coastal storm, yielding a period of heavy snowfall across the region from late February 8 into early February 9, 2013. Snow amounts generally ranged from 5–11 inches. A period of heavy snow resulted in 5–10 inches of accumulation. The highest amounts included 10.1 inches 5 miles southeast of Windsor and 9.0 inches in Tunnel.
December 14, 2013	Winter Storm	N/A	N/A	A low-pressure system developed over the southern Plains on December 13th and intensified as it headed toward the Northeast. A coastal low developed along the Atlantic seaboard on December 15th.

				Warm advection snow developed on the morning of Saturday. December 14th along a stationary boundary stretched across the Mason-Dixon line and dropped an initial 1–3 inches of snow. As the low-pressure system intensified, it produced moderate to heavy snowfall across the western Catskills and the upper Susquehanna Region of New York. Snowfall amounts ranged from 8–10 inches across the county. The highest amount of 10 inches fell in Vestal Center.
January 1, 2014	Winter Storm	N/A	N/A	A stalled frontal boundary across central New York resulted in light to moderate snowfall across central New York falling during the afternoon hours of Wednesday, January 1st. This snow intensified during the overnight and early morning hours of Thursday, January 2nd as a low-pressure system tracked through the Ohio Valley and re-developed off of the eastern seaboard. The highest snowfall totals occurred in the southern tier of New York into the upper Susquehanna Region with several reports of 13 inches. Snowfall amounts ranged from 8–12 inches across the county. The highest amount of 11.5 inches fell in Whitney Point. Windy conditions resulted in significant blowing snow and cold temperatures.
February 5, 2014	Winter Storm	N/A	N/A	A low-pressure system tracked through the Ohio Valley and re-developed off the eastern seaboard during the morning hours of Wednesday, February 5th. An intense snow band that developed produced as much as 1–3 inches of snow per hour during the early morning hours. Widespread snow amounts ranged from 6–15 inches, with the highest totals occurring across the southern tier of New York. Snowfall amounts ranged from 10–14 inches across the county. The highest amount of 14 inches fell in Castle Creek.
February 13, 2014	Winter Storm	N/A	N/A	A low-pressure system tracked out of the Gulf of Mexico and along the eastern seaboard on Thursday, February 13th bringing snowfall to the region. Widespread snow amounts ranged from 8–18 inches, with the highest totals occurring across Sullivan County, New York. Snowfall amounts ranged from 5–11 inches across the county. The highest amount of 11 inches fell in Windsor.
March 30, 2014	Winter Storm	N/A	N/A	A low-pressure system that moved up the eastern seaboard developed an intense narrow band of snow which was centered over the southern tier of New York State just east of Binghamton. This snow band produced tremendous snowfall rates of up to 3 inches per hour. Storm total snowfalls in a narrow 15-mile band ranged from 6–12

				inches, including in a narrow strip across the eastern sections of Broome County. The highest snowfall total of 12 inches fell in Port Crane at an elevation of 1,460 feet.
November 26, 2014	Winter Storm	N/A	N/A	A low-pressure system developed over the northern Gulf of Mexico and intensified as it headed toward the Northeast. A coastal low developed along the Atlantic seaboard on November 26th. This system spread snow, heavy at times, into the western Catskills, Susquehanna Region, and southern tier of New York during the afternoon hours of Wednesday, November 26th. The highest snowfall totals were reported from a Cooperstown to Coventry to Binghamton line with double-digit snowfalls common along this route. Snowfall amounts ranged from 8 to 10.5 inches across the county. The highest amount of 10.5 inches fell in Chenango Forks.
February 1, 2015	Heavy Snow	N/A	N/A	A winter storm tracked from the central Plains on Sunday, February 1st to the upper Ohio Valley and western Pennsylvania by Monday morning the 2nd. The storm then moved east off the New Jersey coast and out to sea by Monday evening. This storm spread snow to central New York during the evening hours of the 1st. The snow lasted through the overnight and tapered to snow showers by Monday afternoon. The winter storm brought a general 6 to 12 inches of snow to central New York with locally higher amounts. Snowfall of 6–10 inches occurred with this winter storm. The highest snowfall was recorded at the Greater Binghamton Airport with 10.5 inches.
March 18, 2015	Lake Effect Snow	N/A	N/A	A northwest flow of cold and moist air around an intense winter storm over the Maritimes combined with moisture from Lake Ontario distributed a band of locally heavy snow from the Finger Lakes Region southeast to the Binghamton area and western Catskills. The snow developed during the overnight hours on March 8th and ended by early afternoon. Snowfall accumulations generally ranged from 3–6 inches from the Finger Lakes to the Catskills with locally up to 8–10 inches from southern Cayuga County to northern Broome County in New York. Snowfall ranged up to around 8 inches in the northern part of Broome County. Lesser amounts fell to the south.
November 19, 2016	Lake Effect Snow	N/A	N/A	A strong cold front crossed central New York on Saturday afternoon of November 19th. Much colder air followed this front and was accompanied by several inches of snow, especially over the higher terrain. A slow-moving upper air low, which followed

				this front, slowly tracked across New York into northern New England from Sunday the 20th to Tuesday the 22nd. A northwest flow of cold moist air around this upper level low combined with moisture from the Great Lakes leading to a prolonged period of heavy lake effect snow. The lake effect snow affected an unusually large part of central New York including the southern tier counties, which typically do not see heavy lake effect snow. Record snowstorm at the Greater Binghamton Airport occurred over a 4-day period with a storm total snowfall of 27.6 inches. Much of Broome County saw between 1–2 feet of snow.
February 2, 2017	Heavy Snow	N/A	N/A	A winter storm tracked from the Ohio Valley across Pennsylvania to off the southern New England coast from the early morning hours of February 12th–13th. The storm brought heavy snow to portions of central and north-central New York on the 12th with lake-effect snow in its wake until the afternoon of the 13th. Snowfall accumulations ranged from 5–11 inches, with the highest amount at the Greater Binghamton Airport.
March 14, 2017	Heavy Snow	DR 4322	Yes	A major winter storm developed over eastern North Carolina during the early morning hours of March 14th. The winter storm tracked northeast during the day on the 14th, reaching the Gulf of Maine by the late evening of the 14th. This storm spread a heavy record-breaking snowstorm to a large part of central New York and northeast Pennsylvania with blizzard conditions from the Catskills in New York to the Poconos of northeast Pennsylvania and in the greater Scranton Wilkes-Barre area. Many municipalities and counties declared states of emergency travel bans or both. New York State also declared a state of emergency. A record snowfall of between 25–35 inches of snow fell. Snowfall rates reached up to 5 inches per hour, especially during the onset of the storm. The Greater Binghamton Airport broke an all-time daily snowfall record of 32.4 inches and a 2-day snowfall record of 34.9 inches.

Source: FEMA 2018; NOAA-NCEI 2018; SPC 2018

DR Major Disaster Declaration (FEMA)
FEMA Federal Emergency Management Agency
Mph Miles per Hour
NCEI National Centers for Environmental Information
NOAA National Oceanic and Atmospheric Administration
N/A Not Applicable

** Many sources were consulted to provide an update on previous occurrences and losses; event details and loss/impact information may vary and have been summarized in the above table.*

1.2.10 Wildfire

The 2019 HMP did not identify wildfire as a hazard of concern and did not record events prior to 2019.

1.3 RISK ASSESSMENT TABLES

The following tables and figures display the Vulnerability Assessment results and supplemental data for each Hazard of Concern. The following list features abbreviations that pertain to the tables below:

- (C) – City
- (T) – Town
- (V) – Village
- RCV – Replacement Cost Value
- DPW – Department of Public Works
- EMS – Emergency Medical Services
- EOC – Emergency Operations Center

1.3.1 Dam and Levee Failure

All tables produced for the dam and levee failure hazard are provided in Section 4 (Risk Assessment).

1.3.2 Disease Outbreak

The disease outbreak hazard risk and vulnerability assessments were conducted qualitatively, and no tables were produced.

1.3.3 Drought

The drought hazard risk and vulnerability assessments were conducted qualitatively, and no tables were produced.

1.3.4 Earthquakes

The tables display the results of the Hazus v6 analysis for the earthquake hazard that were not included in Section 4 (Risk Assessment).

Table 7. Estimated Displaced Households and Persons Seeking Short-term Shelter during 500- and 2,500-Year Mean Return Period Earthquake

Jurisdiction	500-Year Mean Return Period Earthquake		2,500-Year Mean Return Period Earthquake	
	Displaced Households	Persons Seeking Short-term Shelter	Displaced Households	Persons Seeking Short-term Shelter
Barker (T)	0	0	0	0
Binghamton (C)	0	0	0	0
Binghamton (T)	0	0	0	0

Chenango (T)	0	0	0	0
Colesville (T)	0	0	0	0
Conklin (T)	0	0	0	0
Deposit (V)	0	0	0	0
Dickinson (T)	0	0	0	0
Endicott (V)	0	0	0	0
Fenton (T)	0	0	0	0
Johnson City (V)	0	0	0	0
Kirkwood (T)	0	0	0	0
Lisle (T)	0	0	0	0
Lisle (V)	0	0	0	0
Maine (T)	0	0	0	0
Nanticoke (T)	0	0	0	0
Port Dickinson (V)	0	0	0	0
Sanford (T)	0	0	0	0
Triangle (T)	0	0	0	0
Union (T)	0	0	0	0
Vestal (T)	0	0	0	0
Whitney Point (V)	0	0	0	0
Windsor (T)	0	0	0	0
Windsor (V)	0	0	0	0
Broome County (Total)	**0**	**0**	**0**	**0**

Source: Hazus v6

Table 8. Total Business Interruption Loss (in Millions of Dollars) during 500- and 2,500-Year Mean Return Period Earthquake

Mean Return Period (MRP)	Inventory Loss	Relocation Loss	Building and Content Losses	Wages Losses	Rental Losses	Capital-Related Loss
500-year	$169,800	$790,400	$2,258,000	$345,900	$359,600	$147,800
2,500-year	$5,706,900	$10,694,300	$43,467,600	$4,627,900	$5,437,800	$2,523,700

Source: Hazus v6

1.3.5 Extreme Temperatures

The extreme temperature hazard risk and vulnerability assessments were conducted qualitatively, and no tables were produced.

1.3.6 Flood

The tables display the results of the Hazus v6 analysis for the flood hazard that were not included in Section 4 (Risk Assessment).

Table 9. Total Business Interruption Loss (in Millions of Dollars) During a 1-Percent Annual Chance Flood Event

Flood Hazard	Inventory Loss	Relocation Loss	Wage Loss	Rental Loss	Income Loss
1-Percent Annual Chance Flood Event	$341,200,000	$284,950,000	$744,300,000	$241,310,000	$323,690,000

Source: Hazus v6

1.3.7 Invasive Species

The invasive species hazard risk and vulnerability assessments were conducted qualitatively, and no tables were produced.

1.3.8 Severe Storms

Text

Table 10. Estimated Displaced Households and Persons Seeking Short-term Shelter during 100- and 500-Year Mean Return Period Hurricane

Jurisdiction	100-Year Mean Return Period Earthquake		500-Year Mean Return Period Earthquake	
	Displaced Households	Persons Seeking Short-term Shelter	Displaced Households	Persons Seeking Short-term Shelter
Barker (T)	0	0	0	0
Binghamton (C)	0	0	0	0
Binghamton (T)	0	0	0	0
Chenango (T)	0	0	0	0
Colesville (T)	0	0	0	0
Conklin (T)	0	0	0	0
Deposit (V)	0	0	0	0
Dickinson (T)	0	0	0	0
Endicott (V)	0	0	0	0
Fenton (T)	0	0	0	0
Johnson City (V)	0	0	0	0
Kirkwood (T)	0	0	0	0
Lisle (T)	0	0	0	0
Lisle (V)	0	0	0	0
Maine (T)	0	0	0	0
Nanticoke (T)	0	0	0	0
Port Dickinson (V)	0	0	0	0
Sanford (T)	0	0	0	0

Triangle (T)	0	0	0	0
Union (T)	0	0	0	0
Vestal (T)	0	0	0	0
Whitney Point (V)	0	0	0	0
Windsor (T)	0	0	0	0
Windsor (V)	0	0	0	0
Broome County (Total)	**0**	**0**	**0**	**0**

Source: Hazus v6

1.3.9 Winter Storm

The winter storm hazard risk and vulnerability assessments were conducted qualitatively, and no tables were produced.

1.3.10 Wildfire

All tables produced for the wildfire hazard are provided in Section 4 (Risk Assessment).

APPENDIX F: CRITICAL FACILITIES

This information is redacted for the public document. A full list of critical facilities identified for the vulnerability analysis is available at the Broome County Department of Planning offices. Contact the Hazard Mitigation Coordinator, Broome County Planning Department, to view the list.

APPENDIX G: PLAN REVIEW TOOLS

This appendix includes worksheets to facilitate plan maintenance and review by the Broome County Planning Committee.

Worksheet #1 Progress Report step 2

Progress Report Period: _____ (date) to _____ (date)

Project Title: _____ Project ID#: _____

Responsible Agency: _____

Address: _____

City/County: _____

Contact Person: _____ Title: _____

Phone #(s): _____ email address: _____

List Supporting Agencies and Contacts:

_____

_____

_____

Total Project Cost: _____

Anticipated Cost Overrun/Underrun: _____

Date of Project Approval: _____ Start date of the project: _____

Anticipated completion date: _____

Description of the Project (include a description of each phase, if applicable, and the time frame for completing each phase): _____

_____

_____

Milestones	Complete	Projected Date of Completion

Plan Goal(s)/Objective(s) Addressed:

Goal: _____

Objective: _____

Indicator of Success (e.g., losses avoided as a result of the acquisition program):

In most cases, you will list losses avoided as the indicator. In cases where it is difficult to quantify the benefits in dollar amounts, you will use other indicators, such as the number of people who now know about mitigation or who are taking mitigation actions to reduce their vulnerability to hazards.

_____

_____

Status (Please check pertinent information and provide explanations for items with an asterisk. For completed or canceled projects, see Worksheet #2 — to complete a project evaluation):

Project Status

☐ Project on schedule

☐ Project completed

☐ Project delayed*

*explain: _____

_____

☐ Project canceled

Project Cost Status

☐ Cost unchanged

☐ Cost overrun*

*explain: _____

_____

☐ Cost underrun*

*explain: _____

_____

Summary of progress on project for this report:

A. What was accomplished during this reporting period?

_____

_____

_____

_____

B. What obstacles, problems, or delays did you encounter, if any?

_____

_____

_____

C. How was each problem resolved?

_____

_____

_____

Next Steps: What is/are the next step(s) to be accomplished over the next reporting period?

Other comments:

Adapted from the North Carolina HMGP Progress Report Form at http://www.dem.dcc.state.nc.us/mitigation/document_index.htm.

Worksheet #2 Evaluate Your Planning Team step 3

When gearing up for the plan evaluation, the planning team should reassess its composition and ask the following questions:	YES	NO
Have there been local staffing changes that would warrant inviting different members to the planning team?		
Comments/Proposed Action:		
Are there organizations that have been invaluable to the planning process or to project implementation that should be represented on the planning team?		
Comments/Proposed Action:		
Are there any representatives of essential organizations who have not fully participated in the planning and implementation of actions? If so, can someone else from this organization commit to the planning team?		
Comments/Proposed Action:		
Are there procedures (e.g., signing of MOAs, commenting on submitted progress reports, distributing meeting minutes, etc.) that can be done more efficiently?		
Comments/Proposed Action:		
Are there ways to gain more diverse and widespread cooperation?		
Comments/Proposed Action:		
Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?		
Comments/Proposed Action:		

If the planning team determines the answer to any of these questions is "yes," some changes may be necessary.

Worksheet #3 Evaluate Your Project Results step 3

Project Name and Number: _____

Project Budget: _____

Project Description: _____

Associated Goal and Objective(s): _____

Indicator of Success (e.g., losses avoided): _____

Insert location map. Include before and after photos if appropriate.

Was the action implemented? ☐ YES ☐ NO

IF NO

Why not?	YES	NO
Was there political support for the action?	☐	☐
Were enough funds available?	☐	☐
Were workloads equitably or realistically distributed?	☐	☐
Was new information discovered about the risks or community that made implementation difficult or no longer sensible?	☐	☐
Was the estimated time of implementation reasonable?	☐	☐
Were sufficient resources (for example staff and technical assistance) available?	☐	☐

IF YES

What were the results of the implemented action? _____

	YES	NO
Were the outcomes as expected? If No, please explain:		
Did the results achieve the goal and objective(s)? Explain how:		
Was the action cost-effective? Explain how or how not:		
What were the losses avoided after having completed the project?		
If it was a structural project, how did it change the hazard profile?		
Additional comments or other outcomes:		

Date: _____

Prepared by: _____

Worksheet #4 Revisit Your Risk Assessment step 4

Risk Assessment Steps	Questions	YES	NO	COMMENTS
Identify hazards	Are there new hazards that can affect your community?			
Profile hazard events	Are new historical records available?			
	Are additional maps or new hazard studies available?			
	Have chances of future events (along with their magnitude, extent, etc.) changed?			
	Have recent and future development in the community been checked for their effect on hazard areas?			
Inventory assets	Have inventories of existing structures in hazard areas been updated?			
	Is future land development accounted for in the inventories?			
	Are there any new special high-risk populations?			
Estimate losses	Have loss estimates been updated to account for recent changes?			

If you answered "Yes" to any of the above questions, review your data and update your risk assessment information accordingly.

APPENDIX H: LEVEE INFORMATION

Tetra Tech reviewed levee data available to integrate components of the levee accreditation process and identify ways the hazard mitigation process can help to establish a path forward for the levee accreditation process. To that end, we gathered basic information on the nine NYS DEC levee and floodwall systems in Broome County.

1.1 LEVEE NEEDS ASSESSMENT

Tetra Tech gathered information from a combination of the National Levee Database (NLD), Federal Emergency Management Agency (FEMA) Flood Mapping Products website, New York State Department of Environmental Conservation (NYS DEC) Region 7 project details and maps website, and the United States Geological Survey (USGS) StreamStats website. The following tables present summaries of the levee system features, their risk, and current FEMA Accreditation status.

Table H0-1. Levee System Feature Information from the National Levee Database

System	Year Complete	Levee (miles)	Floodwall (miles)	Pump Stations (#)	Gravity Drains (#)	Closures (#)
Deposit	1984	0.82	0.30	0	0	0
Endicott	1961	2.10	0.42	3	30	1
Johnson City	1961	1.89	0.09	2	21	3
Lisle	1948	0.73	0.21	0	9	3
Northeast Binghamton	1942	1.70	1.90	6	34	7
Northwest Binghamton	1940	0.25	0.30	2	4	0
South Binghamton	1941	1.67	0.41	2	19	4
Vestal	1961	2.95	0.04	4	26	2
Whitney Point Village	1948	1.36	0.00	0	14	1

Table H0-2. Levee System Risk Information from the National Levee Database

System	LSAC*	Overtopping ACE**	People at Risk	Structures at Risk	Property Value
Deposit	N	N	562	266	$89.1M
Endicott	Low	0.005	7,470	2,355	$398M
Johnson City	N	N	1,884	454	$306M
Lisle	Low	0.002	2.2	88	$7.1M
Northeast Binghamton	Moderate	N	14,743	3,550	$2.2B
Northwest Binghamton	Moderate	0.005	2,034	815	$227M
South Binghamton	Moderate	0.005	4,195	1,599	$569M
Vestal	Low	0.005	2,191	879	$199M
Whitney Point Village	Low	0.002	351	204	$51.6M

**LSAC – Levee Safety Action Classification Rating by the U.S. Army Corps of Engineers*

***ACE – Annual Chance Exceedance*

N – No Data Entered or OSAC In Progress

Table H0-3. Levee System Risk Information from the National Levee Database

System	Effective FIS ID	Total Length (Miles)	Leveed Area (Sq. miles)	Levee System Summary in NLD	Levee System Accreditation Status*
Deposit	360043V000	0.85	0.230	NO	Non Accredited
Endicott	360045V000	2.52	1.590	YES	Non-Accredited
Johnson City	2305130002	1.98	0.490	NO	Non-Accredited
Lisle	2305190001	0.92	0.093	YES	Pending**
Northeast Binghamton	2305060001	3.53	2.200	YES	Non-Accredited
Northwest Binghamton	2305060003	0.55	03.70	YES	Non-Accredited
South Binghamton	2305060002	2.08	0.790	YES	Non-Accredited
Vestal	2305130003	2.99	1.080	YES	Non-Accredited
Port Dickinson***		0.72			Pending**
Whitney Point Village	2305310001	1.36	0.210	YES	Pending**

**Based on LAMP DFIRM status as reported in the Broome County Floodplain Mapping Fact Sheet (FEMA 2018)*

***Could possibly be accredited even though they are shown as SFHAs on the DFIRM*

****Information from Levee Analysis and Mapping Plan Village of Deposit Levees (FEMA TBD 2018)*

1.1.1 Meeting the Criteria for Accrediting Levee Systems on NFIP Flood Maps

Even though FEMA established the levee system accreditation status in Table 3, it is the community's responsibility to provide data and documentation to demonstrate that a levee system meets National Flood Insurance Program (NFIP) requirements as described in Title 44, Chapter 1, Section 65.10 of the Code of Federal Regulations (44 CFR Section 65.10).

To be recognized as providing a 1-percent-annual-chance level of flood protection on the modernized NFIP maps, called Digital Flood Insurance Rate Maps (DFIRMs), levee systems must meet and continue to meet the minimum design, operation, and maintenance standards (44 CFR Section 65.10).

The minimum design, operation, and maintenance standards (44 CFR Section 65.10) are detailed below. These elements were used to develop the checklist for data needs and inventory questionnaire for the flood protection systems in Broome County.

Design Criteria Section of the NFIP Regulations 65.10(b)

Description: For levee systems to be recognized (i.e., accredited) by FEMA, evidence that adequate design operation and maintenance systems are in place to provide reasonable assurance that protection from the base flood exists must be provided. The following requirements must be met:

Freeboard. Minimum freeboard required 3 feet above the Base Flood Elevation (BFE) all along the length, and an additional 1 foot within 100 feet of structures (such as bridges) or wherever the flow is restricted. Additional 0.5 feet at the upstream end of a levee. Coastal levees have special freeboard requirements (see Paragraphs 65.10(b)(1)(iii) and (iv)).

Closures. All openings must be provided with closure devices that are structural parts of the system during operation and designed according to sound engineering practice.

Embankment Protection. Engineering analyses must be submitted that demonstrate that no appreciable erosion of the levee embankment can be expected during the base flood, as a result of either currents or waves, and that anticipated erosion will not result in failure of the levee embankment or foundation directly or indirectly through reduction of the seepage path and subsequent instability.

Embankment and Foundation Stability Analyses. Engineering analyses that evaluate levee embankment stability must be submitted. The analyses provided must evaluate expected seepage during loading conditions associated with the base flood and must demonstrate that seepage into or through the levee foundation and embankment will not jeopardize embankment or foundation stability. An alternative analysis demonstrating that the levee is designed and constructed for stability against loading conditions for Case IV as defined in the U.S. Army Corps of Engineers (USACE) Engineer Manual 1110–2–1913, Design and Construction of Levees, (Chapter 6, Section II), may be used.

Settlement Analyses. Engineering analyses must be submitted that assess the potential and magnitude of future losses of freeboard as a result of levee settlement and demonstrate that freeboard will be maintained. This analysis must address embankment loads, compressibility of embankment soils, compressibility of foundation soils, age of the levee system, and construction compaction methods. In addition, detailed settlement analysis using procedures such as those described in USACE Engineer Manual 1110–1–1904, Soil Mechanics Design— Settlement Analysis, must be submitted.

Interior Drainage. An analysis must be submitted that identifies the source(s) of such flooding, the extent of the flooded area, and, if the average depth is greater than 1 foot, the water-surface elevation(s) of the base flood. This analysis must be based on the joint probability of interior and exterior flooding and the capacity of facilities (such as drainage lines and pumps) for evacuating interior floodwaters.

Operation Plan – Paragraph 65.10©(1) of the NFIP Regulations

For a levee system to be recognized (i.e., accredited), the operational criteria must be as described below. All closure devices or mechanical systems for internal drainage, whether manual or automatic, must be operated in accordance with an officially adopted operation manual, a copy of which must be provided to FEMA by the operator when levee or drainage system recognition is being sought or when the manual for a previously recognized system is revised in any manner. All operations must be under the jurisdiction of a Federal or State agency, an agency created by Federal or State law, or an agency of a community participating in the NFIP. The following is a checklist for the Operation Plan:

Flood Warning System. Documentation of the flood warning system, under the jurisdiction of Federal, State, or community officials that will be used to trigger emergency operation activities; and demonstration that sufficient flood warning time exists for the completed operation of all closure structures, including necessary sealing, before floodwaters reach the base of the closure.

Plan of Operation. A formal plan of operation including specific actions and assignments of responsibility by individual name or title.

Periodic Operation of Closures. Provisions for periodic operation, at not less than one-year intervals of the closure structure for testing and training purposes.

Interior Drainage Plan. See below.

Interior Drainage Plan – Paragraph 65.10(C)(2) of the NFIP Regulations

Interior drainage systems associated with levee systems usually include storage areas, gravity outlets, pumping stations, or a combination thereof. These drainage systems will be recognized by FEMA on NFIP maps for flood protection purposes only if the following minimum criteria are included in the operation plan. The following items are required for the Interior Drainage Plan:

Flood Warning System. Documentation of the flood warning system, under the jurisdiction of Federal, State, or community officials that will be used to trigger emergency operation activities; and demonstration that sufficient flood warning time exists to permit activation of mechanized portions of the drainage system.

Plan of Operation. A formal plan of operation including specific actions and assignments of responsibility by individual name or title.

Manual Backup. Provision for manual backup for the activation of automatic systems.

Periodic Inspection. Provisions for periodic inspection of interior drainage systems and periodic operation of any mechanized portions for testing and training purposes. No more than 1 year shall elapse between either the inspections or the operations.

Maintenance Plan – Paragraph 65.10(d) of the NFIP Regulations

For levee systems to be recognized as providing protection from the base flood (i.e., accredited by FEMA), the maintenance criteria must be as described as follows.

- Levee systems must be maintained in accordance with an officially adopted maintenance plan, and a copy of this plan must be provided to FEMA by the owner of the levee system when recognition is being sought or when the plan for a previously recognized system is revised in any manner.
- All maintenance activities must be under the jurisdiction of a Federal or State agency, an agency created by Federal or State law, or an agency of a community participating in the NFIP that must assume ultimate responsibility for maintenance.
- This plan must document the formal procedure that ensures that the stability, height, and overall integrity of the levee and its associated structures and systems are maintained. At a minimum, the plan shall specify the maintenance activities to be performed, the frequency of their performance, and the person by name or title responsible for their performance.

Certification – Paragraph 65.10(e) of the NFIP Regulations

Data submitted to support that a given levee system complies with the structural requirements set forth in "Design Criteria" (Paragraphs 65.10(b)(1) through (7) of the regulations) must be certified by a Registered Professional Engineer. Also, certified "as-built" plans of the levee must be submitted. Certifications are subject to the definition given in Section 65.2 of the NFIP regulations. In lieu of these structural requirements, a Federal agency with responsibility for levee design may certify that the levee has been adequately designed and constructed to provide protection from the base flood.

1.2 PHASED APPROACH TO CERTIFICATION AND INITIAL FUNDING

Tetra Tech uses a phased approach to levee certification that allows communities to understand data gaps and what improvements may be needed to meet FEMA Levee Certification criteria. Phase 1 is a data needs and engineering assessment phase that is the collection of data required to perform engineering analyses to determine if the levee meets design criteria. Typical Phase 1 tasks are described in detail. Preliminary estimates for Phase 1 studies of the levee systems in Broome County are presented in the tables following the detailed descriptions.

1.2.1 Task 1 – Data Collection and Information Management

This task includes correspondence and cataloging of available data sources. It includes organizing and reviewing data sources from sources such as; the U.S. Army Corps of Engineers (USACE), Baltimore District, New York State Department of Environmental Conservation (NYS DEC), New York State Department of Transportation (NYS DOT), Federal Emergency Management Agency (FEMA) Region II, the local communities as needed during the project duration.

- As-built drawings and/or Plans and Specifications for Original Construction. We assume that these are available from the community, NYS DEC, or USACE Baltimore District.
- Geotechnical Information – data developed by/for the USACE in support of the design of the flood protection system. This includes the soil boring information in the USACE Detailed Design Report (DDR) and on the final USACE construction plans.
- NYS DEC information – May include original USACE design and construction information as well as local sponsor information on the maintenance and operation of the system.
- 2008 USACE Baltimore District Continuing Eligibility and other system inspections by NYS DEC.
- Hydrologic and Hydraulic Models – Any computer models developed by FEMA and the USACE
- FEMA FIS and DFIRM maps and supporting documentation
- NYS DOT Plans, County Plans, and Community Plans – Design plans and geotechnical information for any roadway crossings of the levee or in the leveed reach of the river
- Other – Operation and Maintenance manuals, as-built plans for the flood control system, and any additional inspection reports

1.2.2 Task 2 – Levee Inspection and Memorandum

Tetra Tech would inspect the levee system using USACE inspection criteria and other criteria developed for FEMA Certification. The memorandum will reference levee system elements from existing Continuing Eligibility Inspection reports and note any observations that may impact FEMA Certification.

1.2.3 Task 3 – Permitting

A Section 408 Permit for the USACE Baltimore District would be prepared to allow field exploration and drilling on the levee system. We assume that a number of borings will be required to verify DDR contents and subsurface conditions.

1.2.4 Task 4 – Survey and Mapping

Survey and mapping would be prepared using the North American Datum of 1983 (NAD 83) State Plan Coordinate System for all horizontal coordinates. All elevations will be provided on the North American Vertical Datum of 1988 (NAVD 88). The following survey and mapping will be delivered:

- Levee Centerline – the survey will include a 3D line (Poly-line) produced from topographic locations made at the top center of the levee alignment. This will be used to verify data currently in the National Levee Database and freeboard computations.
- Cross Sections - Survey of levee cross sections used in the geotechnical analysis.
- Drainage Structures - Locations and elevations of rims and inverts on drainage structures with verification of dimensions of each.
- Soil Borings – Survey the Locations and elevations of Soil Borings.

1.2.5 Task 5 – Engineering Analysis and Assessment

Engineering analyses will be performed to address the design criteria and operations and maintenance criteria required to comply with 44 CFR 65.10 for FEMA Levee Accreditation. The following sub-tasks identify specific sections that are anticipated in the Engineering Analyses and Assessment and the associated FEMA regulation. Engineering analyses and assessments may include:

- Additional hydraulic modeling and freeboard analysis (risk and uncertainty analysis could reduce required freeboard in some locations)
- Interior Drainage Modeling and Evaluation
- Subsurface Exploration / Laboratory Testing / Logs and Test Reports
- Geotechnical Engineering Evaluations
- Review Operations and Maintenance Manual
- Review Warning System and Evacuation Plan

1.2.6 Task 6 – Prepare FEMA Levee Certification Data Needs Report

There are two types of reports:

1. If, after Phase 1, the levee appears to meet FEMA Certification criteria, Tetra Tech would prepare a scope and fee to prepare a FEMA Levee Certification Report package. This package would include the levee forms (the MT-2 FEMA Form 1 – "Overview & Concurrence", Form 2 – "Riverine Hydrology & Hydraulic", and Form 3 – "Riverine Structures") and other supporting information. The format would follow the requirements established by FEMA (digital format, a separate form for each levee, etc.).
2. If, after Phase 1, the levee is found deficient, Tetra Tech would prepare a report of preliminary findings and prepare alternatives to meet FEMA Certification criteria (levee raise, floodwall raise, toe drains, etc.). This report would prepare a scope that would address any additional engineering analyses, design, or construction required for the levee system to meet FEMA Certification Requirements.

1.2.7 Phase 1 Initial Planning Level Estimates

The following tables present a planning level estimate of the fee breakdown by Task number, as described in the Scope of Work above for each levee system. This is based on the FEMA LAMP findings and our general experience. The availability of data can greatly impact the level of effort, these are estimates that Tetra Tech has used for previous studies.

Table H1-4. Deposit Levee System Phase 1 Study Estimate

Task	Scope of Work	Cost
Task 1	Data Collection and Information Management	$15,000
Task 2	Levee Inspection and Memorandum	$17,000
Task 3	Permitting – 408 Process	$34,000
Task 4	Survey and Mapping	$50,000
Task 5	Engineering Analysis and Assessment	$212,000
Task 6	Prepare FEMA Levee Certification Data Needs Report	$22,000
	Total	**$350,000**

Table H1-5. Endicott Levee System Phase 1 Study Estimate

Task	Scope of Work	Cost
Task 1	Data Collection and Information Management	$15,000
Task 2	Levee Inspection and Memorandum	$25,000
Task 3	Permitting – 408 Process	$50,000
Task 4	Survey and Mapping	$140,000
Task 5	Engineering Analysis and Assessment	$350,000
Task 6	Prepare FEMA Levee Certification Data Needs Report	$40,000
	Total	**$620,000**

Table H1-6. Johnson City Levee System Phase 1 Study Estimate

Task	Scope of Work	Cost
Task 1	Data Collection and Information Management	$15,000
Task 2	Levee Inspection and Memorandum	$20,000
Task 3	Permitting – 408 Process	$45,000
Task 4	Survey and Mapping	$110,000
Task 5	Engineering Analysis and Assessment	$300,000
Task 6	Prepare FEMA Levee Certification Data Needs Report	$30,000
	Total	**$520,000**

Table H1-7. Lisle Levee System Phase 1 Study Estimate

Task	Scope of Work	Cost
Task 1	Data Collection and Information Management	$15,000
Task 2	Levee Inspection and Memorandum	$18,000
Task 3	Permitting – 408 Process	$36,000
Task 4	Survey and Mapping	$51,000
Task 5	Engineering Analysis and Assessment	$222,000
Task 6	Prepare FEMA Levee Certification Data Needs Report	$23,000
	Total	**$365,000**

Table H1-8. Binghamton (Northeast, Northwest, and South) Levee System Phase 1 Study Estimate

Task	Scope of Work	Cost
Task 1	Data Collection and Information Management	$25,000
Task 2	Levee Inspection and Memorandum	$35,000
Task 3	Permitting – 408 Process	$55,000
Task 4	Survey and Mapping	$330,000
Task 5	Engineering Analysis and Assessment	$400,000
Task 6	Prepare FEMA Levee Certification Data Needs Report	$20,000
	Total	**$765,000**

Table H1-9. Vestal Levee System Phase 1 Study Estimate

Task	Scope of Work	Cost
Task 1	Data Collection and Information Management	$15,000
Task 2	Levee Inspection and Memorandum	$25,000
Task 3	Permitting – 408 Process	$50,000
Task 4	Survey and Mapping	$155,000
Task 5	Engineering Analysis and Assessment	$375,000
Task 6	Prepare FEMA Levee Certification Data Needs Report	$40,000
	Total	**$660,000**

Table H1-10. Port Dickinson Levee System Phase 1 Study Estimate

Task	Scope of Work	Cost
Task 1	Data Collection and Information Management	$15,000
Task 2	Levee Inspection and Memorandum	$15,000
Task 3	Permitting – 408 Process	$30,000
Task 4	Survey and Mapping	$40,000
Task 5	Engineering Analysis and Assessment	$180,000
Task 6	Prepare FEMA Levee Certification Data Needs Report	$20,000
	Total	**$300,000**

Table H1-11. Whitney Point Levee System Phase 1 Study Estimate

Task	Scope of Work	Cost
Task 1	Data Collection and Information Management	$15,000
Task 2	Levee Inspection and Memorandum	$20,000
Task 3	Permitting – 408 Process	$39,000
Task 4	Survey and Mapping	$68,000
Task 5	Engineering Analysis and Assessment	$250,000
Task 6	Prepare FEMA Levee Certification Data Needs Report	$28,000
	Total	**$420,000**

APPENDIX I: MITIGATION CATALOG

This appendix includes the mitigation catalog that provided guidance to the county and its jurisdictions in developing mitigation actions.

Dam Failure and Levee Failure		
Personal Scale	**Corporate Scale**	**Government Scale**

• ***Manipulate the hazard:***
  ○ None
• ***Reduce exposure to the hazard:***
  ○ Relocate out of dam failure inundation areas
• ***Reduce vulnerability to the hazard:***
  ○ Elevate home to appropriate levels
• ***Increase Capability:***
  ○ Learn about risk reduction for the dam failure hazard
  ○ Learn the evacuation routes for a dam failure event
  ○ Educate yourself on early warning systems and the dissemination of warnings
	• ***Manipulate the hazard:***
	  ○ Remove dams
	  ○ Harden dams
	• ***Reduce exposure to the hazard:***
	  ○ Replace earthen dams with hardened structures
	• ***Reduce vulnerability to the hazard:***
	  ○ Floodproof facilities within dam failure inundation areas
	• ***Increase Capability****:*
	  ○ Educate employees on the probable impacts of a dam failure
	  ○ Develop a continuity of operations plan
		• ***Manipulate the hazard:***
		  ○ Remove dams
		  ○ Harden dams
		• ***Reduce exposure to the hazard:***
		  ○ Replace earthen dams with hardened structures
		  ○ Relocate critical facilities out of dam failure inundation areas
		  ○ Consider open space land use in designated dam failure inundation areas
		• ***Reduce vulnerability to the hazard:***
		  ○ Adopt higher floodplain standards in mapped dam failure inundation areas
		  ○ Retrofit critical facilities within dam failure inundation areas
		• ***Increase Capability****:*
		  ○ Map dam failure inundation areas
		  ○ Enhance emergency operations plans to include a dam failure component

		○ Institute monthly communications checks with dam operators ○ Inform the public on risk-reduction techniques ○ Adopt real-estate disclosure requirements for the re-sale of property located within dam failure inundation areas ○ Consider the probable impacts of climate change in assessing the risk associated with the dam failure hazard ○ Establish early warning capability downstream of listed high-hazard dams ○ Consider the residual risk associated with protection provided by dams in future land use decisions
Disease Outbreak		
Personal Scale	**Corporate Scale**	**Government Scale**
• ***Manipulate the Hazard*:** ○ None • ***Reduce exposure to the hazard*:** ○ Proper hygiene ○ PPE ○ Social distancing	• ***Manipulate the Hazard:*** ○ None • ***Reduce exposure to the hazard:*** ○ PPE ○ Social distancing	• ***Manipulate the Hazard:*** ○ None • ***Reduce exposure to the hazard:*** ○ PPE ○ Social distancing

• ***Reduce vulnerability to the hazard:***
  ○ Focus on personal health
• ***Increase Capability:***
  ○ Storage of PPE
  ○ Storage of supplies and food to reduce the need to enter public spaces
	• ***Reduce vulnerability to the hazard:***
	  ○ Distanced work environment
	  ○ Regular cleaning of the work environment
	• ***Increase Capability:***
	  ○ Storage of PPE
	  ○ Equipment for monitoring
	  ○ Training for staff
		• ***Reduce vulnerability to the hazard:***
		  ○ Distanced work environment
		  ○ Regular cleaning of the work environment
		• ***Increase Capability:***
		  ○ Storage of PPE
		  ○ Equipment for monitoring/treatment
		  ○ Training for staff
		  ○ Public outreach

Drought		
Personal Scale	**Corporate Scale**	**Government Scale**

• ***Manipulate the Hazard:***
  ○ None
• ***Reduce exposure to the hazard:***
  ○ Consider stored water/captured water techniques during dry seasons.
  ○ Establishing an irrigation time/scheduling program or process so that all agricultural land gets the required amount of water. Through incremental timing, each area is irrigated at different times so that all
	• ***Manipulate the Hazard:***
	  ○ None
	• ***Reduce exposure to the hazard:***
	  ○ Consider stored water/captured water techniques during dry seasons.
	• ***Reduce vulnerability to the hazard:***
	  ○ Drought resistant landscapes
	  ○ Reduce private water system losses
		• ***Manipulate the Hazard:***
		  ○ Ground Water Recharge through stormwater management
		  ○ Implement cloud seeding techniques during dry seasons.
		• ***Reduce exposure to the hazard:***
		  ○ Identify and create ground water back up sources.
		  ○ Create /identify new impounded water supply points.

water is not consumed at the same time. Spacing usage may also help with the recharge of groundwater.

- ***Reduce vulnerability to the hazard:***
  - Drought-resistant landscapes
  - Reduce water system losses
  - Regularly check for leaks to minimize water supply losses
  - Install low-flow water-saving showerheads and toilets
  - Turn the water flow off while brushing teeth or during other cleaning activities
  - Adjust sprinklers to water the lawn and not the sidewalk or street.
  - Run the dishwasher and washing machine only when they are full.
  - Check for leaks in plumping or dripping faucets.
  - Install rain-capturing devices for irrigation.
  - Install graywater systems in homes to encourage water reuse.
  - Identify alternate water supply sources.
  - Install low-flow water saving showerheads and toilets
  - Adjust sprinklers to water the lawn and not the sidewalk or street.
- ***Increase Capability:***
  - Practice active water conservation
  - Develop a COOP
  - Create a water conservation plan.
  - Developing new or upgrading existing water delivery systems to eliminate breaks and leaks.
- ***Reduce vulnerability to the hazard:***
  - Water use conflict regulations
  - Reduce water system losses
  - Distribute water-saving kits
  - Identify sites ideally suited for groundwater recharge.
  - Implement stormwater retention in regions ideally suited for groundwater recharges.
  - Utilize drought-resistant landscapes on community-owned facilities.
  - Encourage citizens to take water-saving measures
- ***Increase Capability:***
  - Public education on drought resistance
  - Identify alternative water supplies for times of drought. Mutual aid agreements with alternative suppliers.
  - Develop a drought contingency plan

○ Rotate crops by growing a series of different types of crops on the same fields every season to reduce soil erosion. ○ Planting "cover crops," such as oats, wheat, and buckwheat, to prevent soil erosion. • ***Increase Capability:*** ○ Practice active water conservation techniques. ○ Seek ways to operate wells in such a way to enhance their functional longevity and supply capability.		○ Develop criteria-"triggers" for drought-related actions ○ Improve the accuracy of water supply forecasts ○ Provide incentives to influence active water conservation techniques such as water user rate reductions. ○ Consider providing incentives to property owners that utilize drought-resistant landscapes in the design of their homes. ○ Use of water buffalo tankers ○ Promote well usage techniques that strive to enhance functional longevity and supply capability of private water supply wells. ○ Develop an ordinance to restrict the use of public water resources for non-essential usage, such as landscaping, washing cars, filling swimming pools, etc.
Earthquake		
Personal Scale	**Corporate Scale**	**Government Scale**
• ***Manipulate the Hazard*:** ○ None	• ***Manipulate the Hazard:*** ○ None	• ***Manipulate the Hazard:*** ○ None

- ***Reduce exposure to the hazard*:**
  - Locate outside of the hazard area (off soft soils)
- ***Reduce vulnerability to the hazard:***
  - Retrofit structure (anchor house structure to foundation)
  - Secure household items that can cause injury or damage such as water heaters, bookcases, and other appliances
  - Build to higher design standards
- *Increase Capability:*
  - Practice "drop, cover and hold"
  - Develop household mitigation plan, such as creating a retrofit savings account, communication capability with the outside, 72 hr. self-sufficiency during an event
  - Increase capability by having cash reserves for reconstruction

- ***Reduce exposure to the hazard:***
  - Locate/relocate mission critical functions outside hazard area where possible.
- ***Reduce vulnerability to the hazard:***
  - Build redundancy for critical functions/facilities
  - Retrofit critical buildings/areas housing mission-critical functions.
- ***Increase Capability:***
  - Adopt higher standards for new construction -- Consider "performance-based design' when building new structures
  - Increase capability by having cash reserves for reconstruction
  - Inform your employees of the possible impacts of earthquakes and how to deal with them at your work facility.
  - Develop a Continuity of Operations Plan (COOP)

- ***Reduce exposure to the hazard:***
  - Locate critical facilities or functions outside of hazard area where possible.
- ***Reduce vulnerability to the hazard:***
  - Harden infrastructure
  - Provide redundancy for critical functions
  - Adopt higher regulatory standards for structures
  - Conduct "rapid screening" programs for critical facilities to identify facilities that may be particularly prone to EQ damage, then develop investigation/action plans to address such structures
- ***Increase Capability:***
  - Provide better hazard maps
  - Provide technical information and guidance
  - Enact tools to help manage development in hazard areas: tax incentives, information
  - Include retrofitting/replacement of critical system elements in CIP

○ Become informed on the hazard and risk reduction alternatives available. ○ Develop a post-disaster action plan for your household.		○ Develop a strategy to take advantage of post-disaster opportunities ○ Warehouse critical infrastructure components such as pipes, power lines, and road repair material. ○ Develop and adopt a Continuity of Operations / Continuity of Government Plan (COOP/COG) ○ Initiate triggers guiding improvements such as: (< 50% substantial damage/improvements) ○ Further enhance seismic risk assessment to target high-hazard buildings for mitigation opportunities. ○ Develop a post-disaster action plan that includes grant funding and debris removal components. ○ Utilize warning systems ○ Educate builders and developers on seismic construction standards
Extreme Temperature		
Personal Scale	**Corporate Scale**	**Government Scale**

• ***Manipulate the Hazard*:**
  ○ Increase tree plantings
  ○ Installation of green roofs to provide shade and remove heat
  ○ Use cool roofing products that reflect sunlight and heat away from a building
• ***Reduce exposure to the hazard*:**
  ○ None
• ***Reduce vulnerability to the hazard:***
  ○ Retrofit pipes including locating water pipes on the inside of building insulation or keeping them out of vulnerable spaces to extreme cold
• ***Increase Capability:***
  ○ None
	• ***Manipulate the Hazard:***
	  ○ Increase tree plantings
	  ○ Installation of green roofs to provide shade and remove heat
	  ○ Use cool roofing products that reflect sunlight and heat away from a building
	• ***Reduce exposure to the hazard:***
	  ○ None
	• ***Reduce vulnerability to the hazard:***
	  ○ Retrofit pipes including locating water pipes on the inside of building insulation or keeping them out of vulnerable spaces to extreme cold
	• ***Increase Capability:***
	  ○ Set rules restricting outdoor work during extreme temperature events
		• ***Manipulate the Hazard:***
		  ○ Increase tree plantings
		  ○ Encourage the installation of green roofs to provide shade and remove heat
		  ○ Encourage the use of cool roofing products that reflect sunlight and heat away from a building
		• ***Reduce exposure to the hazard:***
		  ○ None
		• ***Reduce vulnerability to the hazard:***
		  ○ Require minimum temperatures in housing/landlord codes
		• ***Increase Capability:***
		  ○ Educate citizens regarding the dangers of extreme heat and cold and the steps they can take to protect themselves when extreme temperatures occur
		  ○ Establish warming and cooling centers
		  ○ Establish extreme temperature planning in emergency operation plans

		○ Create a database to track those individuals at high risk of death such as the elderly, homeless, etc.
Flood		
Personal Scale	**Corporate Scale**	**Government Scale**
• ***Manipulate the Hazard:*** ○ Clear stormwater drains and culverts • ***Reduce exposure to the hazard:*** ○ Locate or re-locate outside of the hazard area ○ Institute low-impact development techniques on property • ***Reduce vulnerability to the hazard:*** ○ Retrofit existing structures and utilities above Base Flood Elevation (BFE) ○ Floodproof existing structures (wet- or dry floodproofing). ○ Store hazardous materials above BFE or outside of flood-prone areas • ***Increase Capability:***	• ***Manipulate the Hazard:*** ○ Clear stormwater drains and culverts • ***Reduce exposure to the hazard:*** ○ Locate business critical facilities or functions outside the hazard area ○ Institute low-impact development techniques on property • ***Reduce vulnerability to the hazard:*** ○ Build redundancy for critical functions/ retrofit critical buildings. ○ Provide flood-proofing measures when new critical infrastructure must be located in floodplains. ○ Harden structures and infrastructure (wet and dry-floodproofing)	• ***Manipulate the Hazard:*** ○ Clear stormwater drains and culverts ○ Dredging, levee construction, providing retention areas… ○ Structural flood control: levees, dams, channelization, revetments. ○ Construct regional stormwater control facilities ○ Lead and develop a county-wide stream clearing strategy including the development of thresholds for response/action. • ***Reduce exposure to the hazard:*** ○ Locate/re-locate critical facilities outside of the hazard area ○ Acquire or relocate identified repetitive loss properties. ○ Promote open space uses in identified high-hazard areas via

○ Develop household mitigation plan, such as retrofit savings, communication capability with the outside, 72-hr. self-sufficiency during and after an event ○ Buy flood insurance	○ Store hazardous materials above BFE or outside of flood-prone areas • ***Increase Capability*** ○ Increase capability by having cash reserves for reconstruction ○ Develop and adopt a Continuity of Operations Plan (COOP) ○ Solicit 'cost-sharing" through partnerships with private sector stakeholders on projects with multiple benefits. ○ Dam owners/operators should continue to be aware of and understand dam inspection and reporting requirements. ○ Ensure that all dam EAPs are kept in compliance with State Regulations.	techniques such as PUDs, easements, setbacks, greenways, and sensitive area tracks. ○ Adopt land development criteria such as PUDs, Density transfers, clustering ○ Institute low-impact development techniques on property ○ Acquire vacant land or promote open space uses in developing watersheds to control increases in runoff ○ Pass an ordinance to incorporate additional zoning classifications into flood zones within each municipality. ○ Increase floodplain standards within municipal ordinances and include provisions for enforcing best practice standards ○ Consider increasing the minimum freeboard beyond the 1' freeboard state requirement ○ Continue development application reviews by the County Planning Board to

		reduce risky development practices. • ***Reduce vulnerability to the hazard:*** ○ Harden structures and infrastructure (wet and dry-floodproofing) ○ Provide redundancy for critical functions and infrastructure ○ Adopt appropriate regulatory standards such as cumulative substantial improvement/damage, freeboard, lower substantial damage threshold, and compensatory storage. ○ Stormwater management regulations and master planning. ○ Adopt "no-adverse impact" floodplain management policies that strive to not increase the flood risk on downstream communities. ○ Participate in the Community Rating System (CRS) ○ Implement as-built regulatory requirements

		○ Implement site review ordinances/requirements ○ Establish stream maintenance programs with stakeholders (e.g. Soil and Water Conservation District) - support county leads in such efforts ○ Incorporate retrofitting/replacement of critical facilities and infrastructure in Capital Improvement Plans (CIPs) ○ Promote the use of vegetation/plants as green erosion control measures to reduce localized flooding. ○ Work with environmental groups to address the removal of debris, log jams, etc. in flood-vulnerable stream sections • ***Increase Capability*** ○ Produce better hazard maps, and improve access to flood hazard mapping ○ Capture/survey "high-water" marks during flood events. ○ Provide technical information and guidance on appropriate

		mitigation options available to businesses and homeowners ○ Enact tools to help manage development in hazard areas (stronger controls, tax incentives, information) ○ Establish an additional layer of zoning within flood hazard areas ○ Develop a strategy to take advantage of post-disaster opportunities ○ Improve compliance with and enforcement of the NFIP ○ Develop mitigation partnerships with regional stakeholders ○ Join the Community Rating System (CRS) program, or improve the level of participation in CRS ○ Develop and implement a public information strategy for flood hazard awareness, flood insurance (NFIP) and mitigation ○ Maintain existing data as well as gather new data needed to define risks and vulnerabilities.

		○ Create a building and elevation inventory of structures in the floodplain ○ Identify flood-prone areas that may be in need of new flood studies ○ Establish a program to identify and educate owners of flood-prone properties on potential mitigation options (e.g. elevations, relocations) ○ Charge a hazard mitigation fee on all new permits to create a hazard mitigation funding source for initiatives or grant cost share requirements. ○ Integrate floodplain management policies into other planning mechanisms within the planning area. ○ Establish a Stormwater Utility to deal with urban drainage/flooding issues ○ Establish incentives to promote flood hazard mitigation of private property (e.g. permit fee waivers). ○ Adopt ordinances/standards for cumulative damages and/or improvements

		○ Upgrade NFIP Floodplain ordinance, as well as other ordinances to current or above current state and federal standards. ○ Develop and adopt a COOP ○ Join "Storm Ready" Program ○ Participate in county and regional training programs ○ Provide additional training/certification to NFIP floodplain administrators and code officials. ○ Implement annual training to account for the turnover of municipal officials. ○ Maintain and enhance flood forecasting ability, including the establishment and maintenance of critical stream gages ○ Explore grant funding opportunities and potential partnerships to help maintain existing gages and install additional gages to improve forecasting and flood warning ability. ○ Promote awareness and participation in alert systems

		○ Support and participate in regional flood management efforts ○ Support and implement hazard disclosure for the sale/re-sale of property in identified risk zones. ○ Provide continued and enhanced training for emergency responders ○ Establish a revolving "bank" or budget line item to fund grant application support ○ Continue to review updated Flood Insurance Rate Maps to ensure accuracy as well as maintain lines of communication with homeowners to make them aware of potential changes related to their property status. ○ Provide training for FPA's on the NFIP/Floodplain Best Practices and also pursue CFM accreditation for municipal FPA's. ○ Build and maintain relationships to develop regional watershed/floodplain mitigation solutions.

		○ Pursue grant funding opportunities to fund repairs of catchments and infrastructure on a proactive basis. ○ Explore grant funding opportunities related to climate change to fund mitigation projects.
Invasive Species		
Personal Scale	**Corporate Scale**	**Government Scale**
• **Manipulate the Hazard:** ○ Participate in quarantine, control, or eradication programs • **Reduce exposure to the hazard:** ○ Comply with rules and regulations set forth to minimize exposure to invasive species • **Reduce vulnerability to the hazard:** ○ Form citizen action groups to promote awareness and best practices on local levels • **Increase Capability:** ○ **Comply with Invasive Species rules and regulations to minimize the chance for invasive species to spread.**	• **Manipulate the Hazard:** ○ None • **Reduce exposure to the hazard:** ○ None • **Reduce vulnerability to the hazard:** ○ None • **Increase Capability:** ○ Build and maintain partnerships with government agencies, academia, and stakeholders to coordinate information sharing, and response for Invasive Species throughout the county/region	• **Manipulate the Hazard:** ○ Work with Federal/State agencies on quarantine, control, or eradication programs for invasive species • **Reduce exposure to the hazard:** ○ Create/disseminate planting guides that explain which types of plants and vegetation are safe to plant within the county • **Reduce vulnerability to the hazard:** ○ Pass municipal ordinances to enforce best practices for invasive species at the local level • **Increase Capability:** ○ Build and maintain partnerships with other stakeholders to coordinate

○ Broaden collaborations focused on ecosystem restoration and ecosystem-based management ○ Regularly check state information for any updated information		information sharing, and response for Invasive Species throughout the county/region ○ Disseminate information to the general public to educate them on Invasive Species ○ Work with stakeholders to identify and expand resources for prevention and early detection of invasive species ○ Broaden collaborations focused on ecosystem restoration and ecosystem-based management ○ Build ecological restoration planning into invasive species management projects
Severe Weather		
Personal Scale	**Corporate Scale**	**Government Scale**
• **Manipulate the Hazard:** ○ None • **Reduce exposure to the hazard:** ○ None • **Reduce vulnerability to the hazard:** ○ Retrofit structures (improved roofing, glazing, insulation, etc.)	• **Manipulate the Hazard:** ○ None • **Reduce exposure to the hazard:** ○ None • **Reduce vulnerability to the hazard:** ○ Relocate critical infrastructure, such as power lines, underground ○ Reinforce or relocate critical infrastructure such as	• **Manipulate the Hazard:** ○ None • **Reduce exposure to the hazard:** ○ None • **Reduce vulnerability to the hazard:** ○ Harden infrastructure such as locating utilities underground. ○ Trimming trees back from power lines

- Provide redundant heat and power
- Contact the municipality or utilities to trim or remove trees that could affect power lines
- Plant appropriate trees near home and power lines ("Right tree, right place" National Arbor Day Foundation Program.

- **Increase Capability:**
  - Improve awareness of impending severe weather (e.g. obtain a NOAA weather radio)
  - Promote 72-hour self-sufficiency
  - Provide redundant heat and power

powerlines so that it meets performance expectations.

- **Increase Capability:**
  - Contact the municipality or utilities to trim or remove trees that could affect power lines
  - Create redundancy (e.g. backup generators)
  - Improve awareness of impending severe weather (e.g. obtain a NOAA weather radio)
  - Develop a Continuity of Operations Plan (COOP)
  - Monitor impending storm events so that you can release employees in such a manner as to not negatively impact emergency response personnel/services.

- Designate and strengthen critical road sections and bridges.
- Adopt ordinances that regulate the type and quantity of trees planted near utility lines
- Relocate critical infrastructure, such as power lines, underground

- **Increase Capability:**
  - Support programs such as "Tree Watch" that proactively manage problem areas by use of selective removal of hazardous trees, tree replacement, etc.
  - Enforce building codes
  - Increase communication alternatives
  - Modify land use and environmental regulations to support vegetation management activities that improve reliability in utility corridors.
  - Modify landscape and other ordinances to encourage appropriate planting near overhead power, cable, and phone lines

		○ Promote awareness and participation in alert systems ○ Provide NOAA weather radios to the public ○ Create/Enhance "mutual aid" agreements for response to all emergencies ○ Create/identify evacuation routes to be utilized during severe storm events. ○ Develop debris management plans. ○ Join the "Storm-Ready" program ○ Provide early warning of impending severe storm events to identify critical or essential facilities. This would include facilities such as large employment centers, schools, hospitals ○ Promote emergency power supplies to private property. ○ Improve, expand, or harden communications facilities and services ○ Recruit additional emergency personnel or use mutual aid agreements

		○ Increase sheltering capabilities ○ Increase capability to respond to power outages and downed power lines. Establish partnerships with utility providers through proactive planning.
Severe Winter Weather		
Personal Scale	**Corporate Scale**	**Government Scale**
• ***Manipulate the Hazard*:** ○ None • ***Reduce exposure to the hazard*:** ○ Plant appropriate trees near home and power lines ("Right tree, right place" National Arbor Day Foundation) • ***Reduce vulnerability to the hazard:*** ○ Insulate the House to provide greater thermal efficiency and reduce heat loss. ○ Provide redundant heat and power ○ Insulate Structure	• ***Manipulate the Hazard:*** ○ None • ***Reduce exposure to the hazard:*** ○ None • ***Reduce vulnerability to the hazard*:** ○ Relocate critical infrastructure, such as power lines, underground ○ Reinforce or relocate critical infrastructure such as powerlines so that it meets performance expectations. ○ Install tree wire • ***Increase Capability:*** ○ Trim or remove trees that could affect power lines	• ***Manipulate the Hazard:*** ○ None • ***Reduce exposure to the hazard:*** ○ None • ***Reduce vulnerability to the hazard:*** ○ Harden infrastructure such as locating utilities underground where appropriate. ○ Trimming trees back from power lines ○ Designate snow routes and strengthen critical road sections and bridges. ○ Adopt codes and regulations that address the issues of parking vehicles along roadways during severe weather events.

○ Ensure natural gas input/release valves do not get covered in snow • ***Increase Capability:*** ○ Trim or remove trees that could affect power lines ○ Prepare emergency food and supplies to be self-sufficient for at least 72 hours in the event of a severe winter storm. ○ Be aware of inclement weather conditions and move your vehicles off of the street as severe weather systems approach. ○ Retrofit structures	○ Create redundancy in utilities and communications ○ Develop a Continuity of Operations Plan (COOP) to address operations before, during, and after coastal storm events. ○ Utilize weather radios at the workplace to keep your employees aware of severe weather conditions.	○ Develop or enhance the capacity/capability of stormwater conveyance systems. ○ Provide backup power sources at vital critical facilities. • ***Increase Capability:*** ○ Support programs that proactively manage problem areas by use of selective removal of hazardous trees, tree replacement, etc. ○ Establish and enforce building codes that require all roofs to withstand snow loads--Develop/Improve/Enforce building Codes in Hazard Areas ○ Increase communication alternatives ○ Modify land use and environmental regulations to support vegetation management activities that improve reliability in utility corridors. ○ Modify landscape and other ordinances to encourage appropriate planting near overhead power, cable, and phone lines

		○ Provide weather radios to vulnerable populations ○ Enhance public awareness campaigns to address those issues of alert and warning and actions to take during severe weather events. ○ Utilize the best available technology to enhance the warning systems for all severe weather events (i.e.: tornado warning systems). ○ Coordinate severe weather warning capabilities and the dissemination of warnings amongst those agencies within the planning with the highest degree of capability. ○ Encourage local ordinances for planting trees near lines and join Tree City USA. ○ Increase tree management programs. ○ Join the Community Rating System ○ Join "Storm-Ready" ○ Retrofit critical structures and promote hazard-resistant construction

		○ Keep open communications and education of hazards for mobile home communities ○ Retrofit above-ground utilities to underground facilities if appropriate ○ Create a salt reserve or research alternates to stretch the salt reserve. ○ Ensure accessibility to hospitals. ○ Provide better debris logistics and removal. ○ Provide better communication systems and backup communication systems to inform the public of hazards and to communicate during hazard events.
Wildfire		
Personal Scale	**Corporate Scale**	**Government Scale**
• ***Manipulate the Hazard*:** ○ Clear potential fuels on property; dry, overgrown underbrush; diseased trees • ***Reduce exposure to the hazard*:**	• ***Manipulate the Hazard:*** ○ None • ***Reduce exposure to the hazard:*** ○ None • ***Reduce vulnerability to the hazard:***	• ***Manipulate the Hazard:*** ○ None • ***Reduce exposure to the hazard:*** ○ Clear fuels (dry underbrush, diseased trees) on land that can trigger and maintain wildfires

○ Clean and maintain defensible space around structures ○ Locate outside hazard area ○ Mow regularly • ***Reduce vulnerability to the hazard:*** ○ Create and maintain defensible space around structures, and provide water on site. ○ Use fire-retardant building materials ○ Create defensible spaces around your home. • ***Increase Capability:*** ○ Employ Firewise techniques to safeguard your home ○ Identify alternative water supply points proximate to your home such as swimming pools, lakes, streams ○ Support your local fire department ○ Be aware of weather conditions that	○ Create and maintain defensible space around structure and infrastructure and provide water on-site ○ Use fire-retardant building materials ○ Provide stored water to be utilized for firefighting with appropriate fire department connections at facilities not equipped with fire hydrants or inadequate fire hydrant spacing • ***Increase Capability:*** ○ Support Firewise community initiatives	○ Implement Best Management Practices on public lands • ***Reduce vulnerability to the hazard:*** ○ Create and maintain defensible space around structure and infrastructure ○ Higher regulatory standards ○ Establish water main supply and hydrants in unhydranted areas ○ Decrease hydrant spacing ○ Purchase • ***Increase Capability:*** ○ More public outreach and education efforts including an active “Firewise” program ○ Identify fire response and alternative evacuation routes ○ Seek alternative water supplies in urban-wildland interface areas. ○ Become a "Firewise" community ○ Increase capability to fight wildfires utilizing equipment that can support wildfire fighting such as tankers,

support/enhance the probability of wildfires		engines with "pump-and-run" capabilities, and dump tanks for tanker shuttle operations. ○ Develop/implement wildfire management plans. ○ Establish Mutual Aid Agreements with the Tender Task Force ○ Develop a Water Supply Plan

APPENDIX J: NYS DHSES PLANNING STANDARDS

This appendix includes the 2022 NYS DHSES planning standards and guidelines for hazard mitigation planning.

2022 New York State Hazard Mitigation Planning Standards

(Supersedes the 2017 NYS Hazard Mitigation Planning Standards)

Congratulations on taking the first steps to update a multi-hazard mitigation plan for your community!

The goal of both the New York State Division of Homeland Security and Emergency Services (NYS DHSES) and FEMA is that all jurisdictions develop robust mitigation plans and tangible mitigation actions that will contribute to long-term risk reduction.

The 2022 NYS Hazard Mitigation Planning Standards reduce the 2017 Hazard Mitigation Planning Standards. Any plan currently in development, regardless of date funded, will be held *only* to these reduced standards.

PLEASE NOTE:

On April 19, 2023, FEMA's new Local Mitigation Planning Policy will take effect. Plans approved on or after this date **must meet requirements** as outlined in the linked Policy Guide.

https://www.fema.gov/sites/default/files/documents/fema_local-mitigation-planning-policy-guide_042022.pdf

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The additional state requirements detailed below are intended to improve the quality of hazard mitigation plans and encourage the development of the most appropriate and effective mitigation projects for your community. It is recognized that many jurisdictions have inherent constraints and certain information may be difficult to provide. NYS DHSES and FEMA will work with you throughout the entire planning process to ensure the successful development of your community's hazard mitigation plan.

There are a multitude of resources that exist to provide guidance and support throughout the planning process, developed by Federal and State agencies, as well as private and research-based groups. We urge you to contact us so that we may direct you to additional resources and provide you with the most comprehensive technical assistance possible.

For questions and comments, please call our offices at 518-292-2304.

Additional contact information will be provided to sub-recipients for more direct assistance.

Please note:

Jurisdiction is used to describe all government entities within the boundaries set forth in the Multi-Jurisdictional Plan (typically County-wide), including the County itself, as well as cities, towns, villages and potentially tribes that choose to join a multi-jurisdictional plan.

Special Flood Hazard Area (SFHA) is defined as the area that will be inundated by the flood event having a 1-percent change of being equaled or exceeded in a given year (previously known as the 100-year flood event).

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1. **Assess Critical Facilities**

   Critical facilities must remain accessible and functional before, during and after disasters to meet the jurisdictions Continuity of Government (COG) and Continuity of Operations (COOP) standards, and to support important emergency, government and sheltering functions.

   Jurisdictions must identify all critical facilities, assess their vulnerabilities, and evaluate and ensure they are protected to a 0.02% chance (500-year) flood event. Critical facilities that are located in an SFHA and/or have been previously flooded, must be protected against a repeat of that flood or to the 0.02% chance flood event, which ever provides the greater protection.

   - The plan must document the name of facility, type of facility, jurisdictional location, and exposure to a 1% (100-year) and 0.02% chance event.
   - The plan must document those critical facilities are protected to a 0.02% flood event, or previous worst case flood event. For those that do not meet this level of protection, the plan must include an action to meet or go beyond this criterion or explain why it is not feasible to do so. Going beyond this criterion is optional but may be wise to protect against a future worst case due to climate change.

2. **Include Jurisdictional Annexes**

   Jurisdictional annexes provide a unique, stand-alone guide to mitigation planning for each jurisdiction.

   The plan must be organized so that there is an annex for every jurisdiction within the county's borders, including the County.

   - The plan must include a table in the Introduction section clearly identifying all jurisdictions and which are seeking FEMA approval.
   - The annex for each jurisdiction seeking FEMA approval must include the following:
     - Contact Information;
     - Jurisdiction Profile;
     - Hazard Identification (specific to the jurisdiction);
     - Hazard Event History;
     - National Flood Insurance Program (NFIP) Summary (to meet Federal Standards);
     - Critical Facilities Information (to meet F1);
     - Jurisdiction/public identified vulnerabilities;
     - Additional public involvement;
     - Capabilities Assessment;
     - Mitigation Strategy:
       - All identified previous mitigation activities with current status;
       - All proposed mitigation activities (both new and carried forward, to meet F3)
     - The annex for each non-participating jurisdiction (those not seeking FEMA approval at this time), must include a cover sheet and should include as much information as is available.

3. Develop Mitigation Actions

Projects that are well developed and documented in one place are more quickly identifiable for selection when grants become available, making implementation that much more likely.

Within each jurisdictional annex, jurisdictions must develop a minimum of two (2) new or carryover (not started) proposed mitigation actions that include all information requested in the NYS DHSES LHMP Proposed Action spreadsheet. For jurisdictions containing an SFHA, one (1) of these actions must be for a project that addresses flooding.

4. Post Draft Plan Online

Allowing the public to comment on the draft plan increases awareness about how mitigation saves lives and reduces risk and allows a final opportunity for public input.

The public must have an opportunity to view and comment on the draft plan prior to submittal.

- The draft plan must be posted in full (except for discretionary sensitive information) on an existing county/jurisdiction website, or one created for the purpose of soliciting comments, for 30 days or the time prescribed by local law, whichever is greater, and the plan must describe efforts made to solicit public comments from potentially underserved areas where residents may not have access to a computer to view the website. The website must clearly identify how the public can comment on the plan, to include either specific contact information to send comments or a user-friendly form or survey.

After NYS DHSES and FEMA Approval

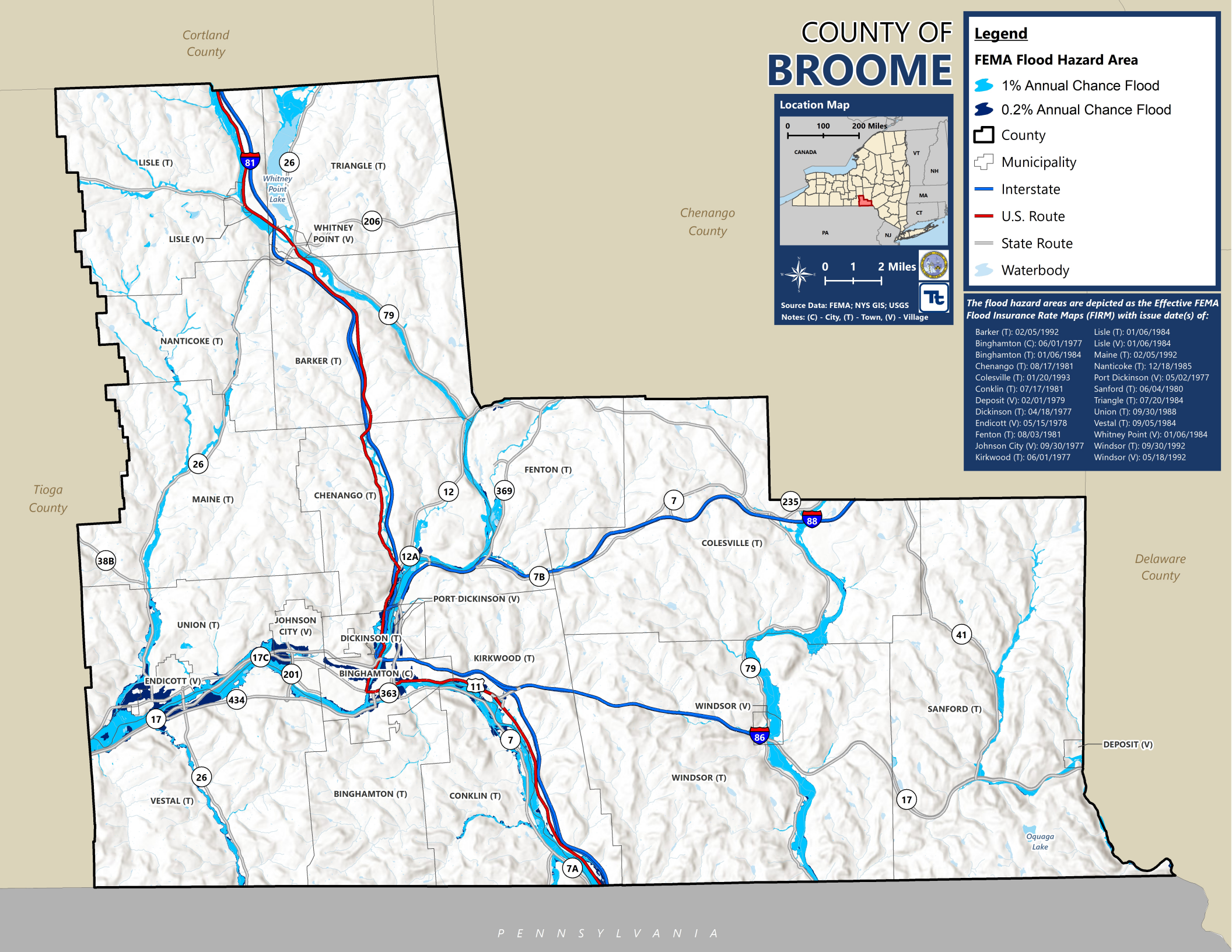
- Once designated Approvable Pending Adoption (APA) or Approved by FEMA, the final plan must be placed on the same website (cited above) in its entirety (except for discretionary sensitive information).
- Final payment will occur only after 50% of the participating jurisdictions have adopted the plan and provided adoption resolutions to NYS DHSES. For county-led hazard mitigation planning efforts, the county must be one of the adopting jurisdictions.

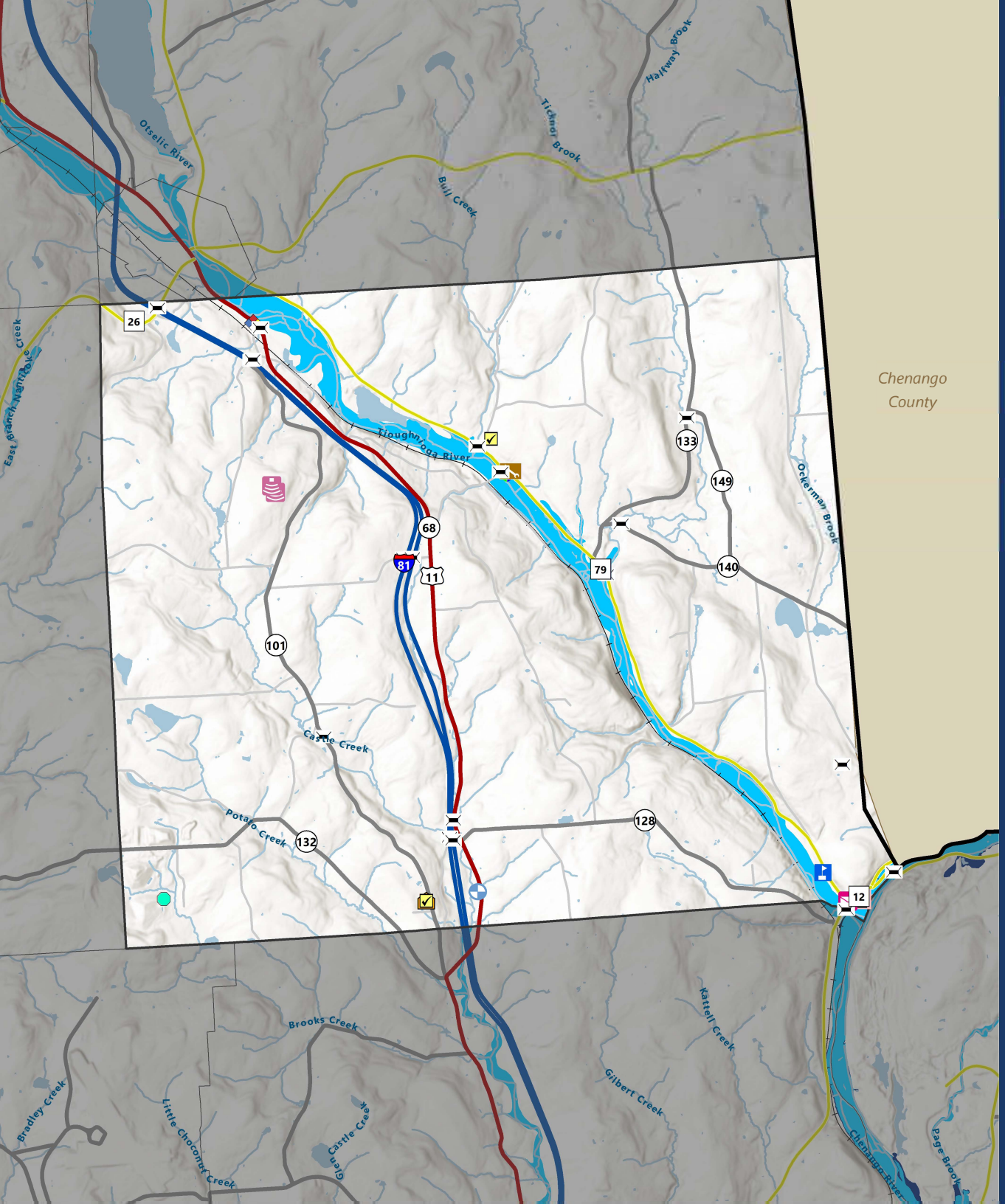
The chart below shows the requirements as they appear on the plan review tool used by NYS DHSES and FEMA Region II to determine whether a submitted plan meets federal and state requirements.

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan** (section and/or page number)	**Met**	**Not Met**
ELEMENT F. ADDITIONAL STATE REQUIREMENTS – NYS HAZARD MITIGATION PLANNING STANDARDS **These are required actions for plans developed with NYS DHSES-administered funds.**			
H1. Do jurisdictions identify critical facilities, assess vulnerabilities, and ensure protection to a 0.02% flood event or worst-case scenario?			
H2. Does the plan include an annex for every jurisdiction within the County's boundaries?			
H3. Within each jurisdictional annex, are projects developed in accordance with the NYS DHSES Proposed Projects Table?			
H4. Was the draft plan posted for public comment?			
Note: The applicant is required to address the 2022 NYS Hazard Mitigation Planning Standards as required actions for a hazard mitigation plan developed with funds administered by NYS DHSES. **ELEMENT H: REQUIRED REVISIONS** ***Please see opportunities for improvement***			

APPENDIX K: FLOOD INSURANCE RATE MAPS IN BROOME COUNTY

This appendix includes the regulatory Flood Insurance Rate Maps (FIRMs) for Broome County and its jurisdictions.


COUNTY OF
BROOME
Legend
FEMA Flood Hazard Area
1% Annual Chance Flood
0.2% Annual Chance Flood
County
Municipality
Interstate
U.S. Route
State Route
Waterbody
Location Map
0 100 200 Miles
CANADA
VT
NH
MA
CT
PA
NJ
0 1 2 Miles
Source Data: FEMA; NYS GIS; USGS
Notes: (C) - City, (T) - Town, (V) - Village
The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with issue date(s) of:
Barker (T): 02/05/1992
Binghamton (C): 06/01/1977
Binghamton (T): 01/06/1984
Chenango (T): 08/17/1981
Colesville (T): 01/20/1993
Conklin (T): 07/17/1981
Deposit (V): 02/01/1979
Dickinson (T): 04/18/1977
Endicott (V): 05/15/1978
Fenton (T): 08/03/1981
Johnson City (V): 09/30/1977
Kirkwood (T): 06/01/1977
Lisle (T): 01/06/1984
Lisle (V): 01/06/1984
Maine (T): 02/05/1992
Nanticoke (T): 12/18/1985
Port Dickinson (V): 05/02/1977
Sanford (T): 06/04/1980
Triangle (T): 07/20/1984
Union (T): 09/30/1988
Vestal (T): 09/05/1984
Whitney Point (V): 01/06/1984
Windsor (T): 09/30/1992
Windsor (V): 05/18/1992
Cortland County
Chenango County
Tioga County
Delaware County
PENNSYLVANIA
LISLE (T)
LISLE (V)
TRIANGLE (T)
Whitney Point Lake
WHITNEY POINT (V)
NANTICOKE (T)
BARKER (T)
MAINE (T)
CHENANGO (T)
FENTON (T)
COLESVILLE (T)
PORT DICKINSON (V)
UNION (T)
JOHNSON CITY (V)
DICKINSON (T)
BINGHAMTON (C)
KIRKWOOD (T)
ENDICOTT (V)
WINDSOR (V)
SANFORD (T)
DEPOSIT (V)
WINDSOR (T)
VESTAL (T)
BINGHAMTON (T)
CONKLIN (T)
Oquaga Lake
81
26
206
79
12
369
7
235
88
38B
12A
7B
17C
201
363
11
434
17
41
86
7A



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
- Highway Bridge
- Hospital
- Judicial Building
- Landfill
- Library
- Nursing Home
- Pet Store
- Police Station
- Polling Location
- Post Office
- Post-Secondary Education Facility
- Potable Water
- Potable Well
- Primary Education Facility
- Public Works
- Rail Yard
- Secondary Education Facility
- Senior Center
- Shelter
- Town Hall
- Transportation Center
- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
- Zoo

- County Boundary
- Municipality Boundary
- Interstate
- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

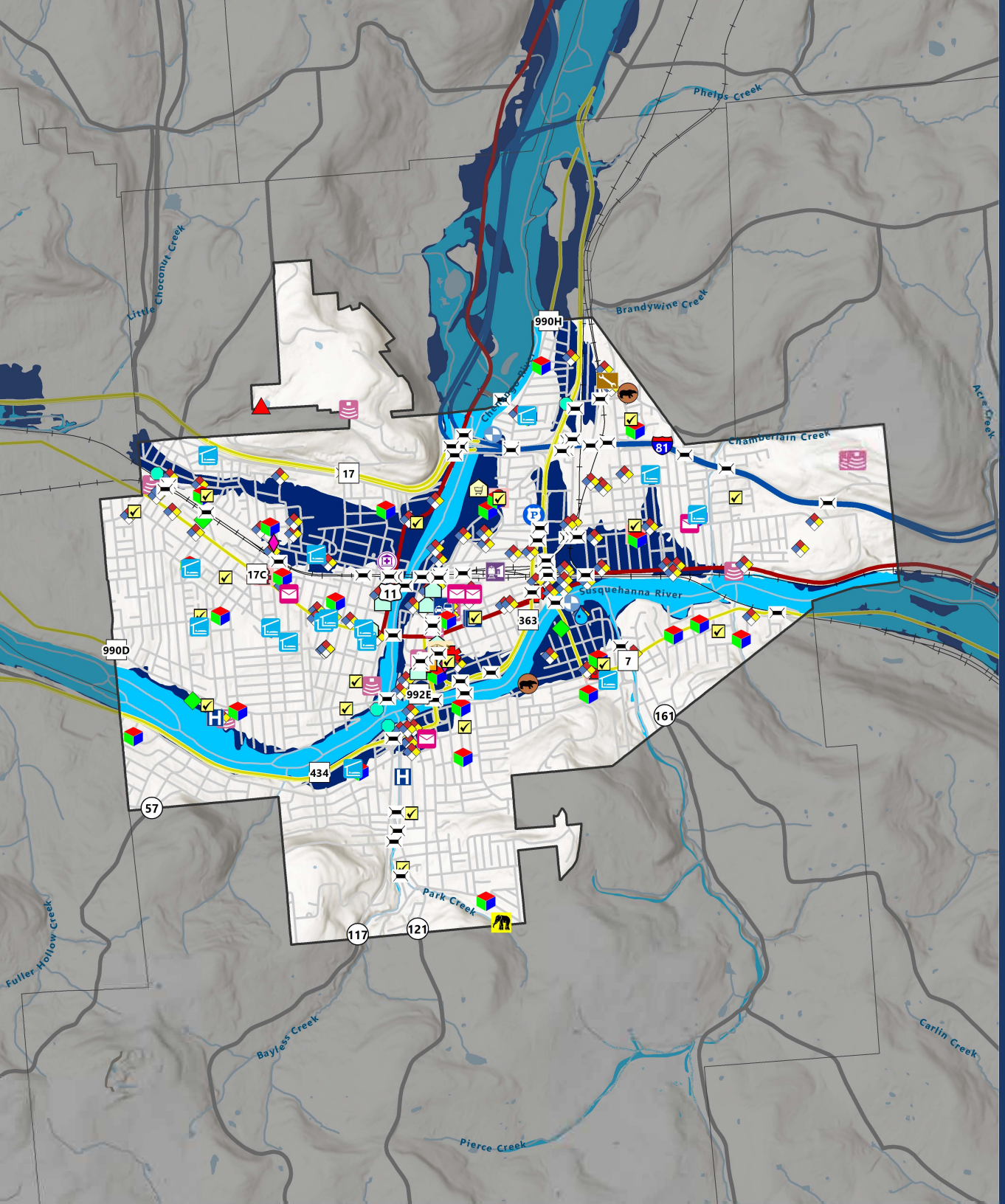
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of February 05, 1992

Barker (T)

0 0.75 1.5 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
- Highway Bridge
- Hospital
- Judicial Building
- Landfill
- Library
- Nursing Home
- Pet Store
- Police Station
- Polling Location
- Post Office
- Post-Secondary Education Facility
- Potable Water
- Potable Well
- Primary Education Facility
- Public Works
- Rail Yard
- Secondary Education Facility
- Senior Center
- Shelter
- Town Hall
- Transportation Center
- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
- Zoo

- County Boundary
- Municipality Boundary
- Interstate
- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

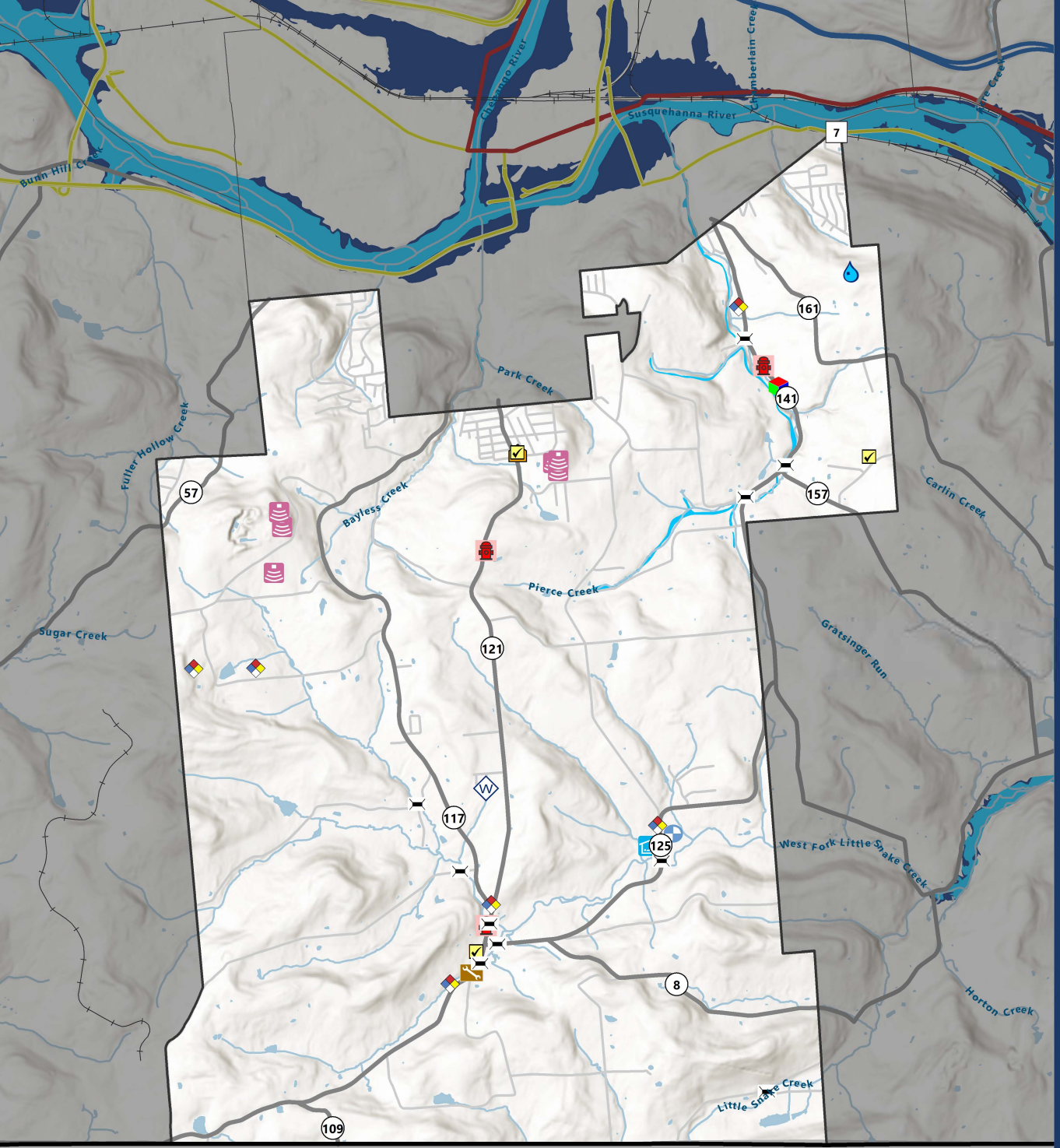
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of June 01, 1977

Binghamton (C)

0 0.5 1 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



PENNSYLVANIA

Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
- Highway Bridge
- Hospital
- Judicial Building
- Landfill
- Library
- Nursing Home
- Pet Store
- Police Station
- Polling Location
- Post Office
- Post-Secondary Education Facility
- Potable Water
- Potable Well
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- Public Works
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- Wastewater Treatment Plant
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- County Boundary
- Municipality Boundary
- Interstate
- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

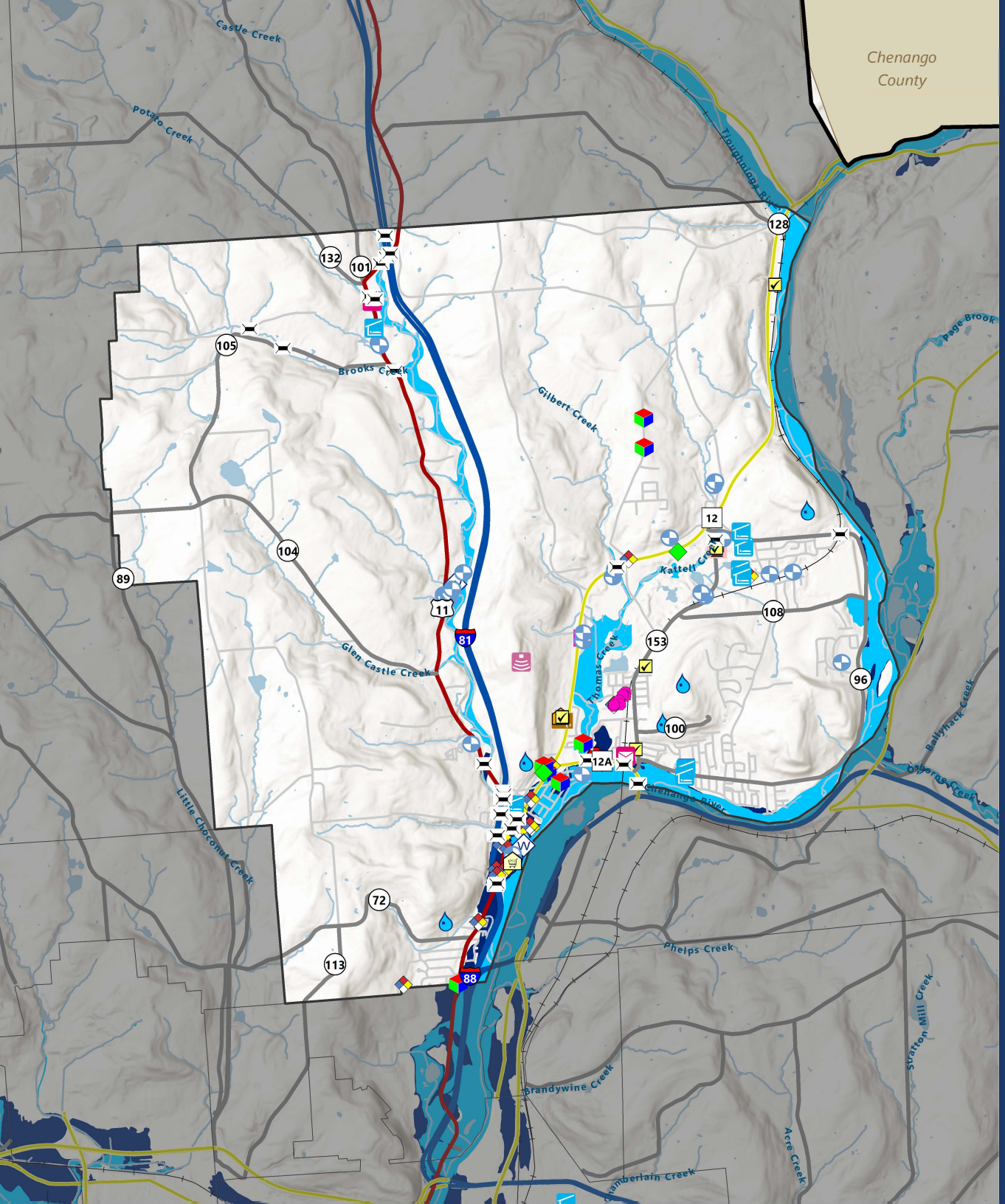
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of January 06, 1984

Binghamton (T)

0 0.5 1 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
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- Municipality Boundary
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- State Route
- County Route
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- Railroad
- Waterbody

Hazard of Concern

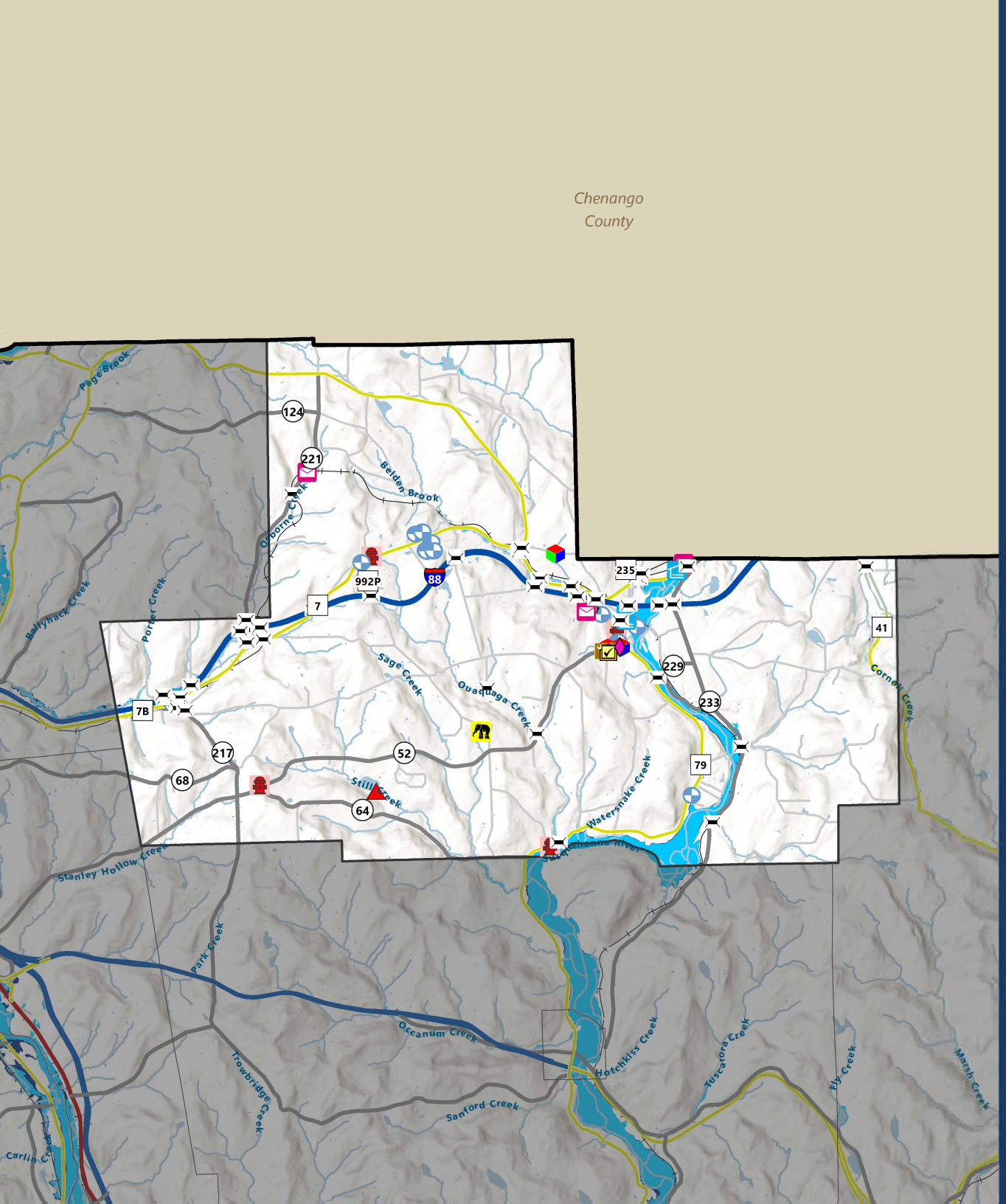
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of August 17, 1981

Chenango (T)

0 0.75 1.5 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
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- Wastewater Treatment Plant
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- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

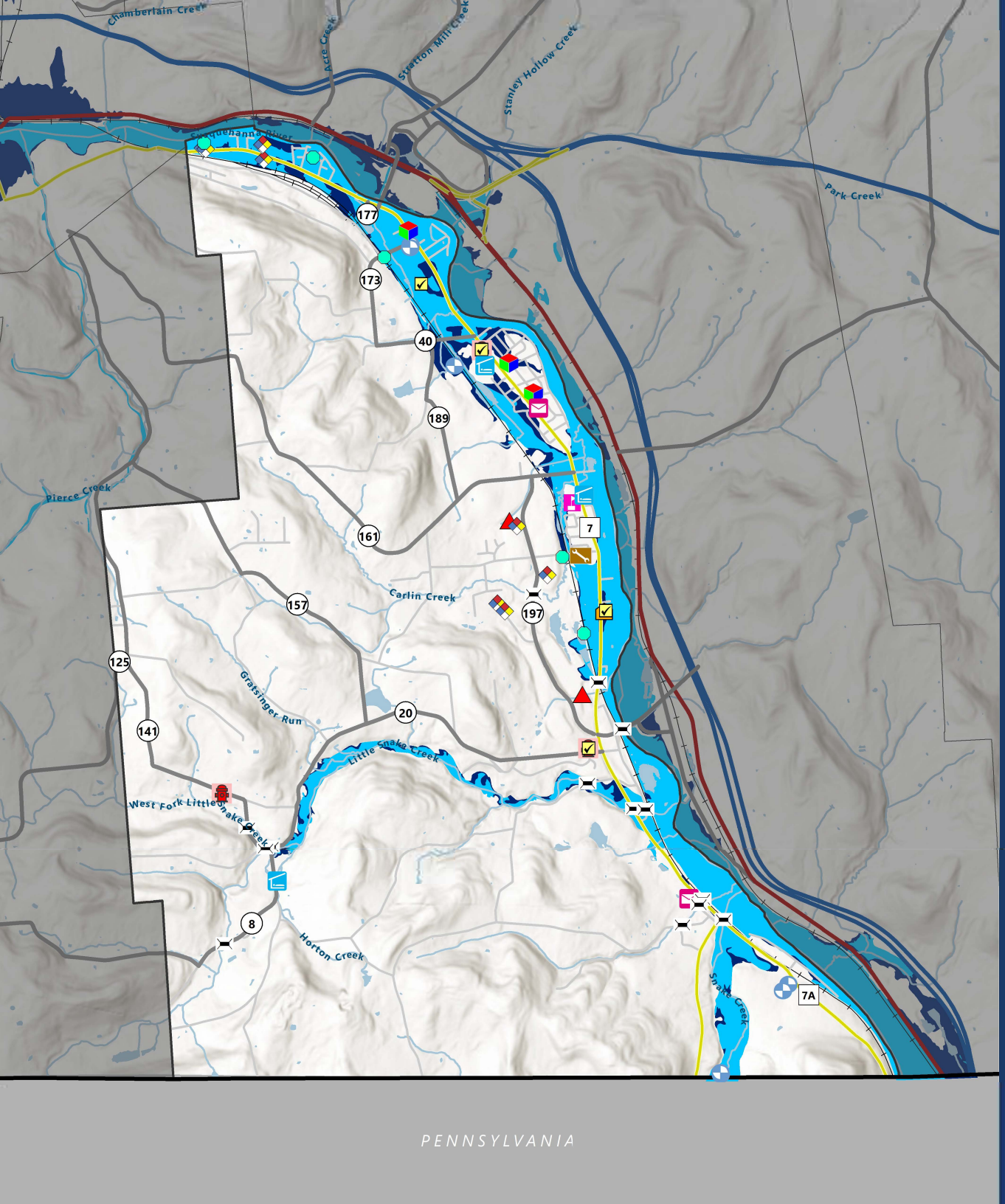
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of January 20, 1993

Colesville (T)

0 1.25 2.5 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
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- Fire Station
- Hazardous Materials Site
- Health Department
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- Waterbody

Hazard of Concern

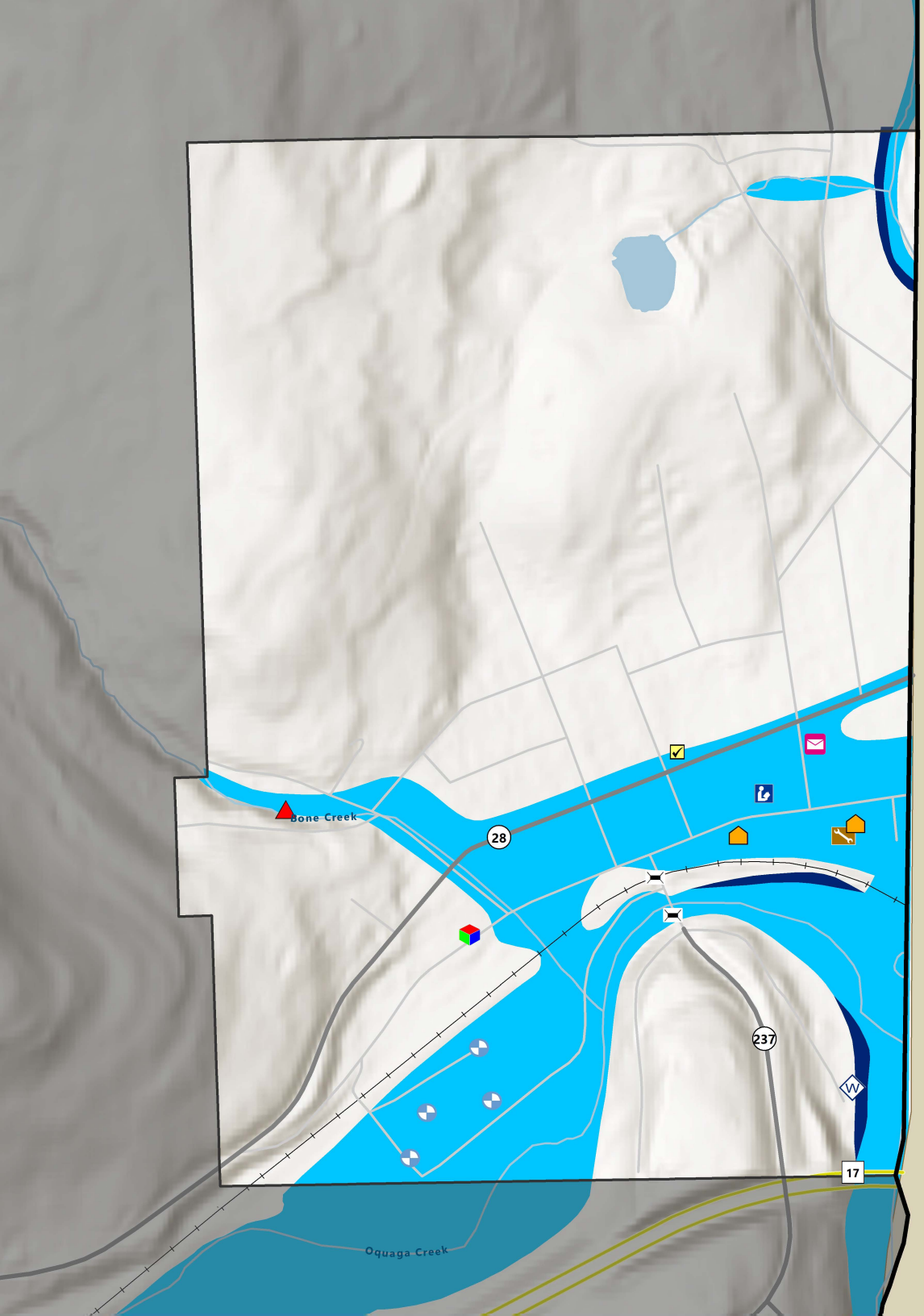
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of July 17, 1981

Conklin (T)

0 0.5 1 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Delaware County

Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
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Hazard of Concern

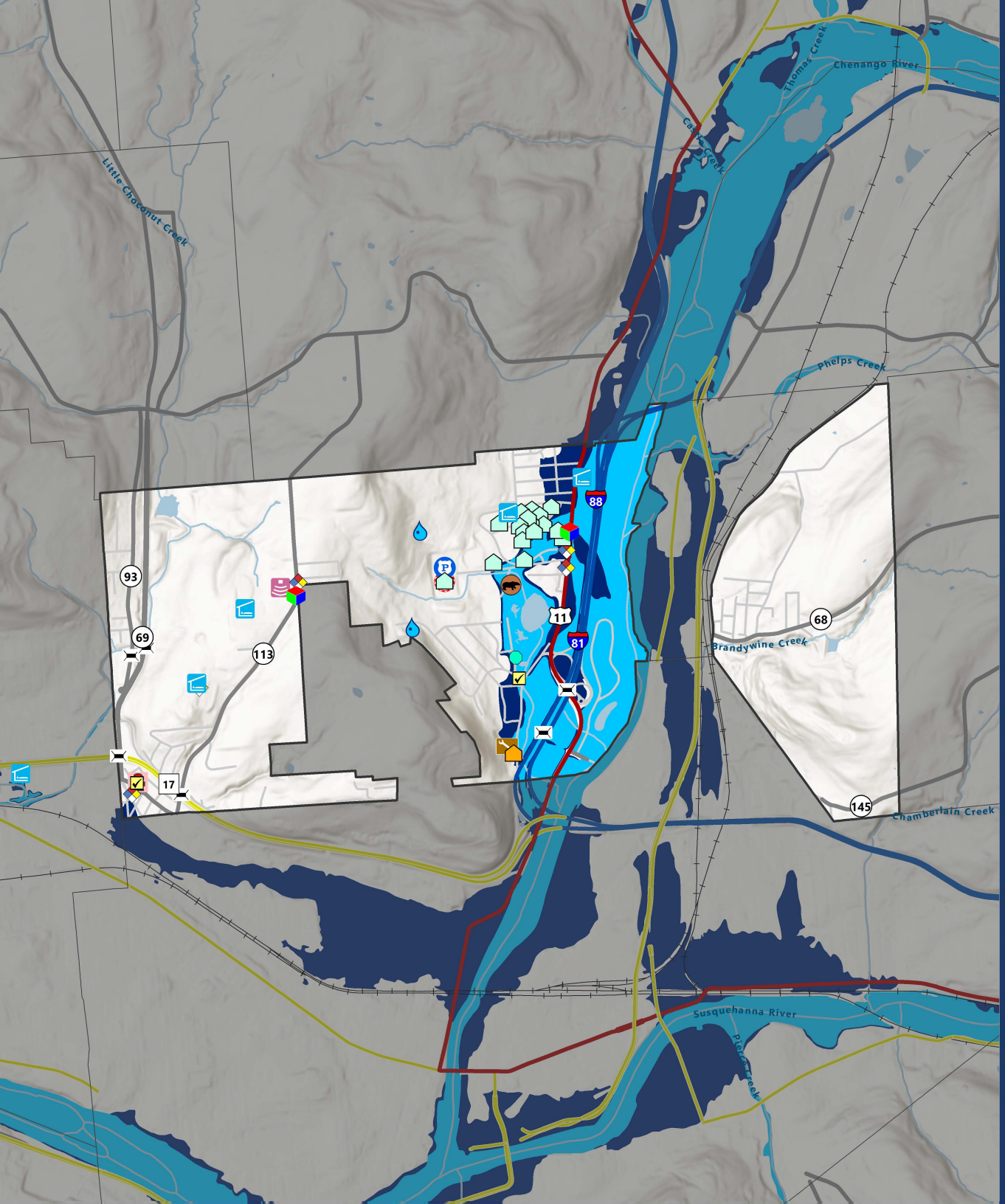
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of February 01, 1979

Deposit (V)

0 0.075 0.15 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
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- EOC
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Hazard of Concern

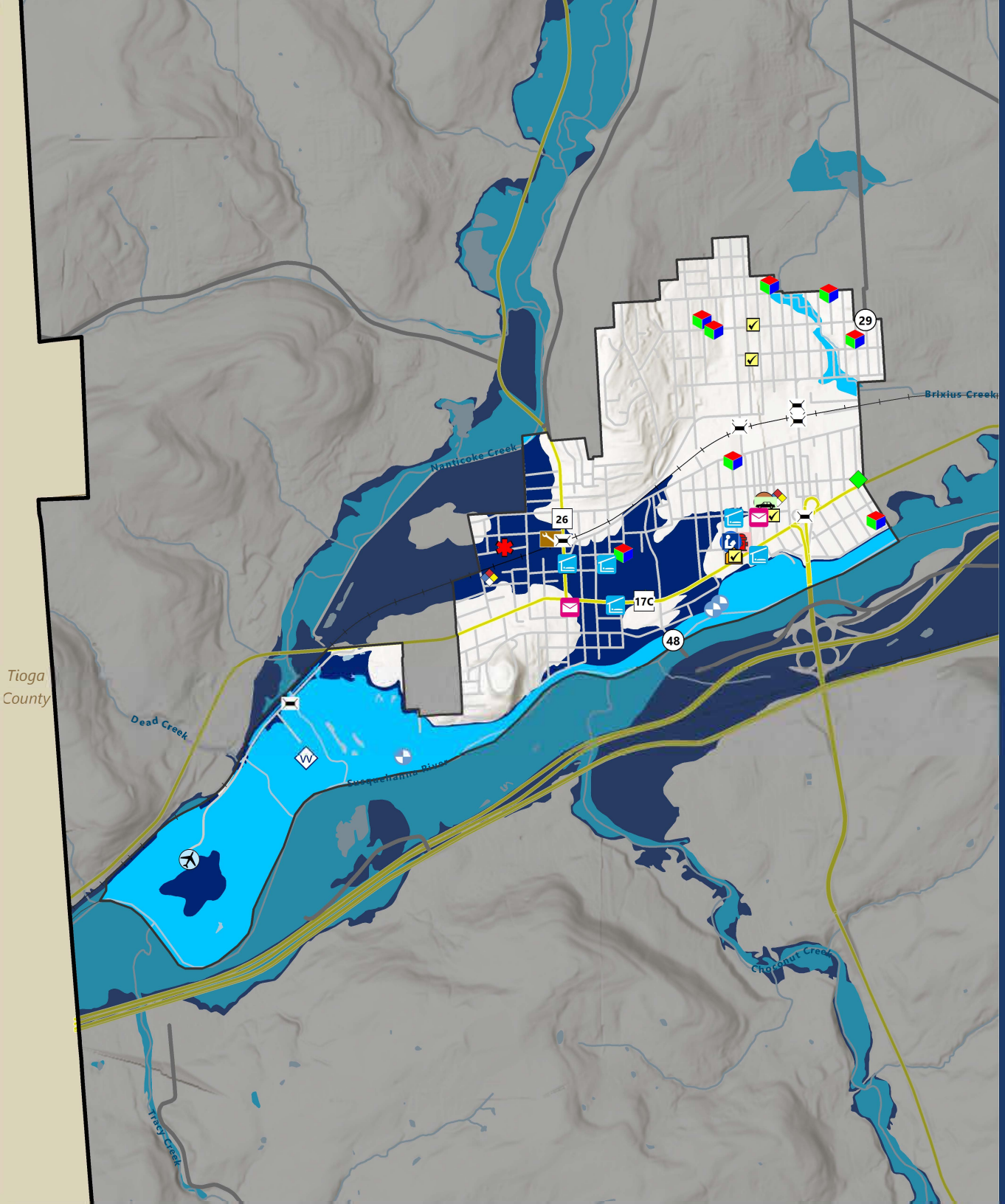
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of April 18, 1977

Dickinson (T)

0 0.35 0.7 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
- Highway Bridge
- Hospital
- Judicial Building
- Landfill
- Library
- Nursing Home
- Pet Store
- Police Station
- Polling Location
- Post Office
- Post-Secondary Education Facility
- Potable Water
- Potable Well
- Primary Education Facility
- Public Works
- Rail Yard
- Secondary Education Facility
- Senior Center
- Shelter
- Town Hall
- Transportation Center
- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
- Zoo

- County Boundary
- Municipality Boundary
- Interstate
- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

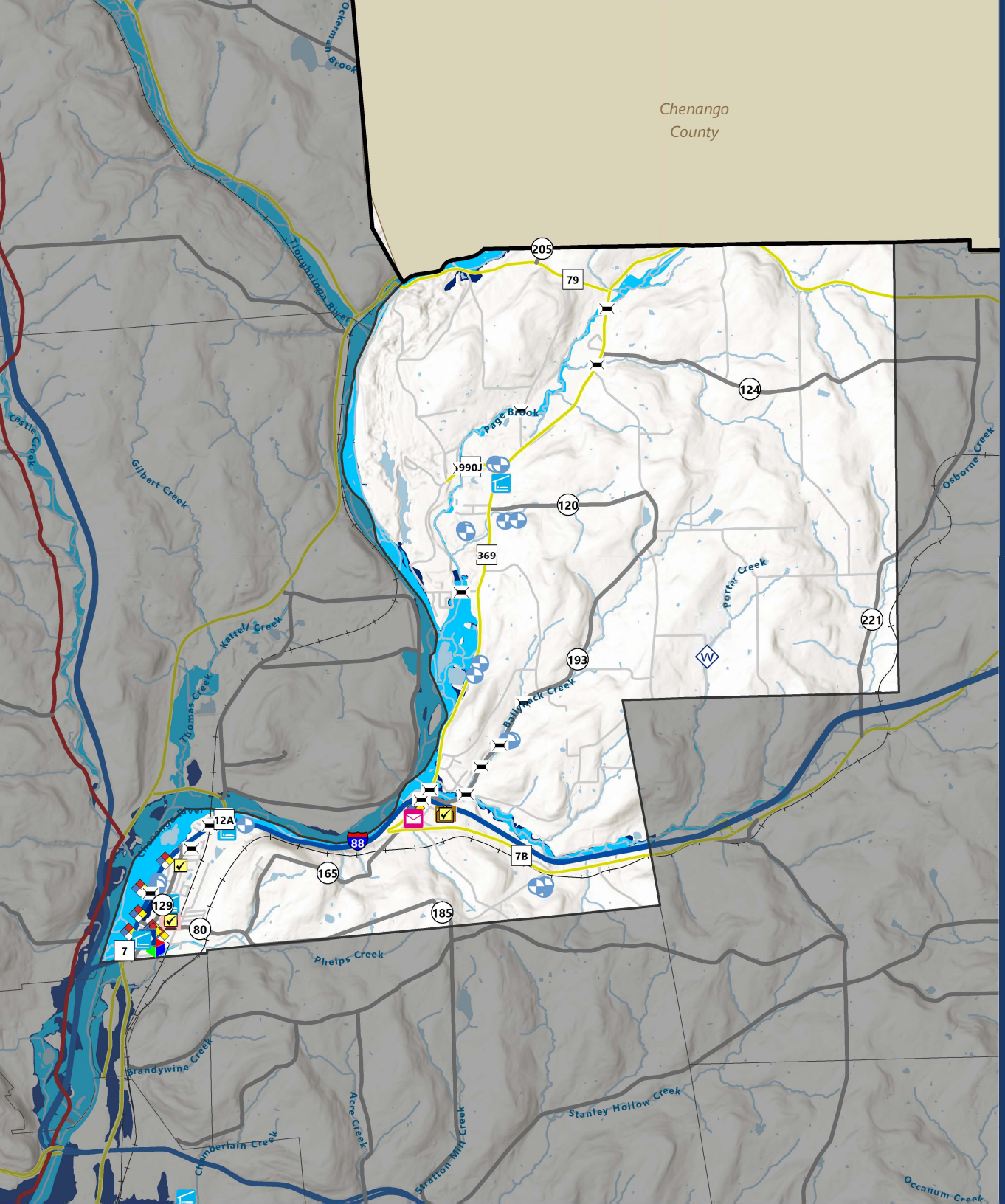
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of May 15, 1978

Endicott (V)

0 0.35 0.7 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
- Highway Bridge
- Hospital
- Judicial Building
- Landfill
- Library
- Nursing Home
- Pet Store
- Police Station
- Polling Location
- Post Office
- Post-Secondary Education Facility
- Potable Water
- Potable Well
- Primary Education Facility
- Public Works
- Rail Yard
- Secondary Education Facility
- Senior Center
- Shelter
- Town Hall
- Transportation Center
- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
- Zoo

- County Boundary
- Municipality Boundary
- Interstate
- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of August 03, 1981

Fenton (T)

0 0.75 1.5 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
- Highway Bridge
- Hospital
- Judicial Building
- Landfill
- Library
- Nursing Home
- Pet Store
- Police Station
- Polling Location
- Post Office
- Post-Secondary Education Facility
- Potable Water
- Potable Well
- Primary Education Facility
- Public Works
- Rail Yard
- Secondary Education Facility
- Senior Center
- Shelter
- Town Hall
- Transportation Center
- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
- Zoo

- County Boundary
- Municipality Boundary
- Interstate
- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

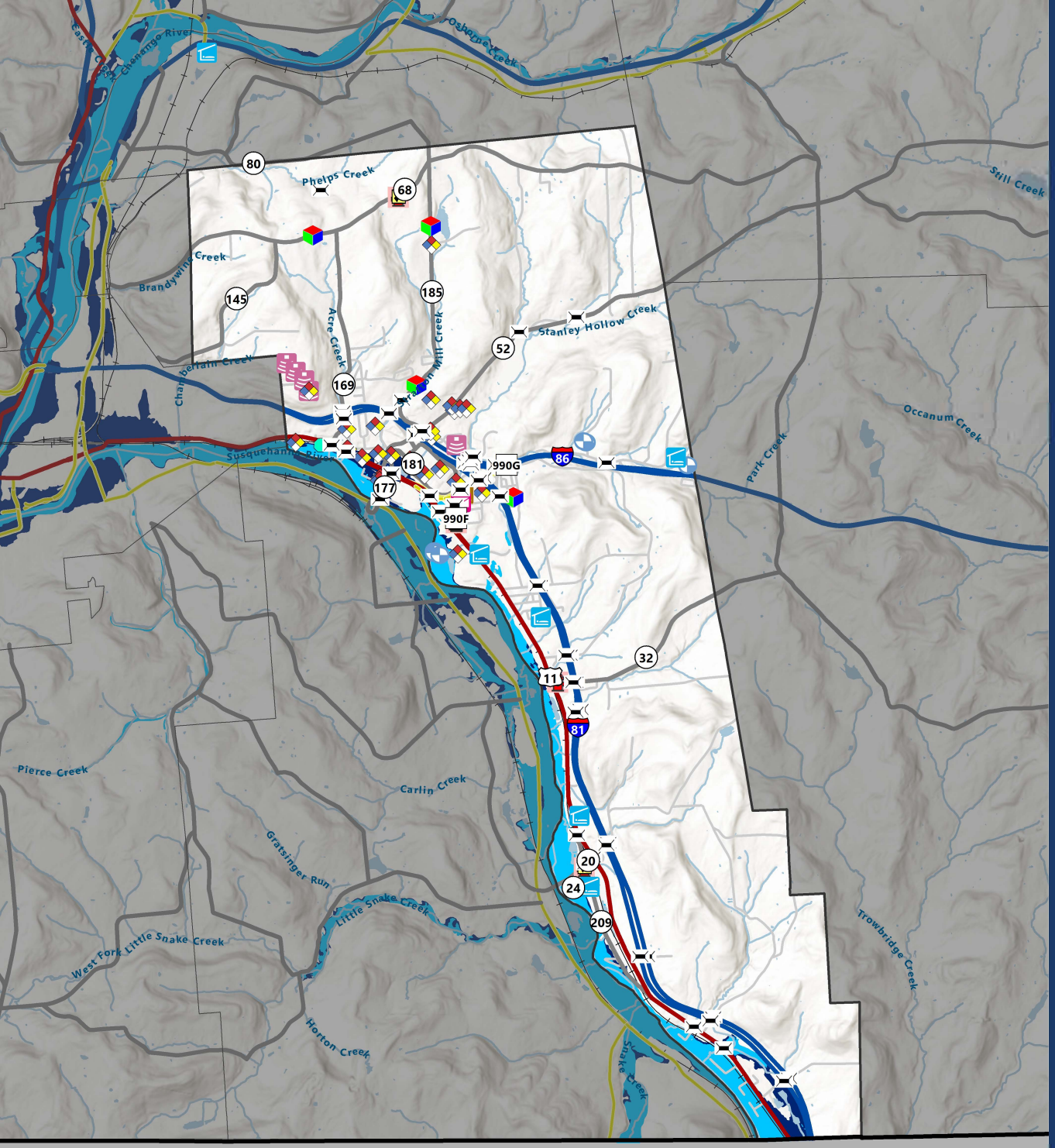
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of September 30, 1977

Johnson City (V)

0 0.3 0.6 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
- Highway Bridge
- Hospital
- Judicial Building
- Landfill
- Library
- Nursing Home
- Pet Store
- Police Station
- Polling Location
- Post Office
- Post-Secondary Education Facility
- Potable Water
- Potable Well
- Primary Education Facility
- Public Works
- Rail Yard
- Secondary Education Facility
- Senior Center
- Shelter
- Town Hall
- Transportation Center
- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
- Zoo

- County Boundary
- Municipality Boundary
- Interstate
- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

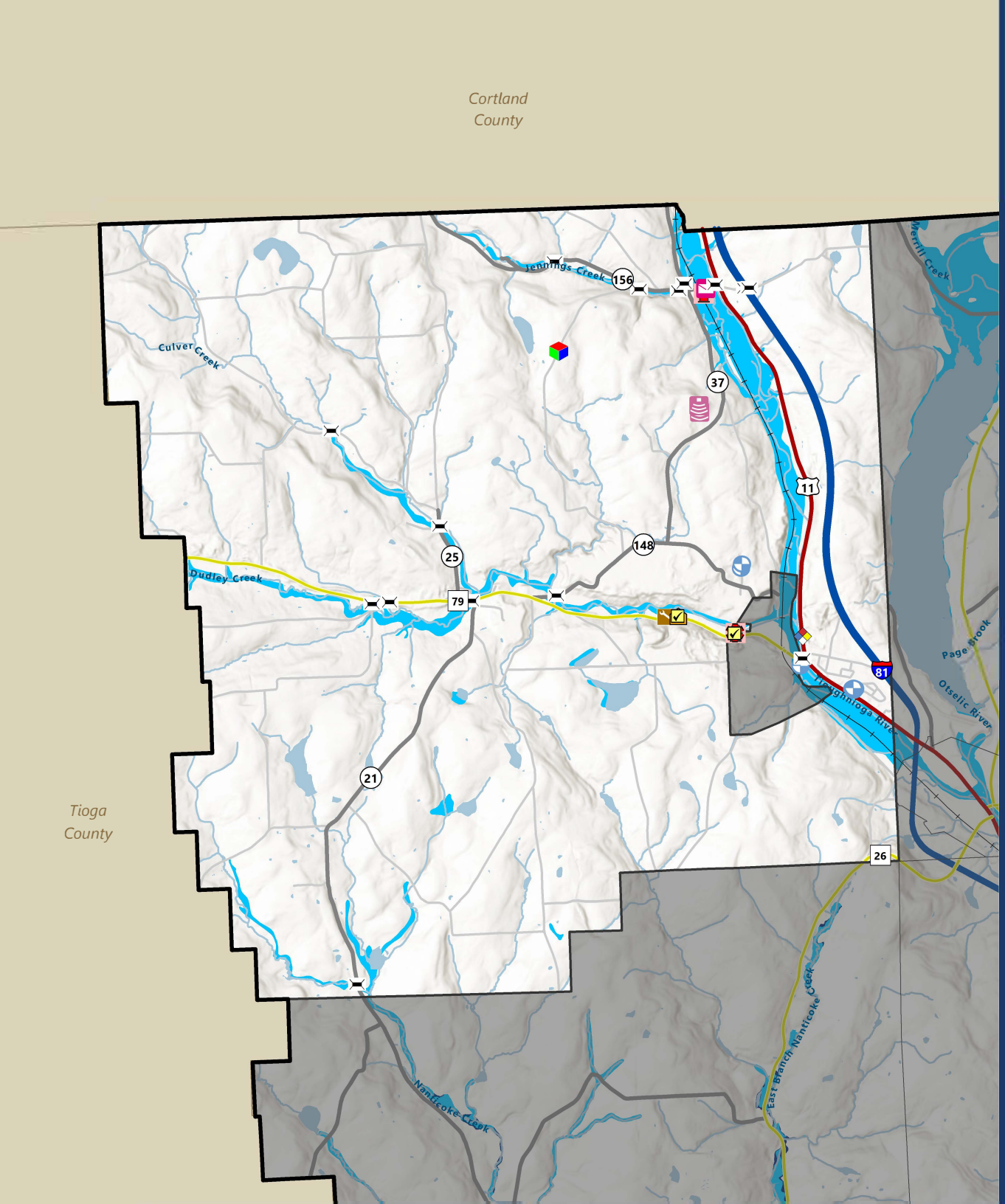
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of June 01, 1977

Kirkwood (T)

0 0.75 1.5 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
- Highway Bridge
- Hospital
- Judicial Building
- Landfill
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- Pet Store
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- Potable Water
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- Town Hall
- Transportation Center
- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
- Zoo

- County Boundary
- Municipality Boundary
- Interstate
- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

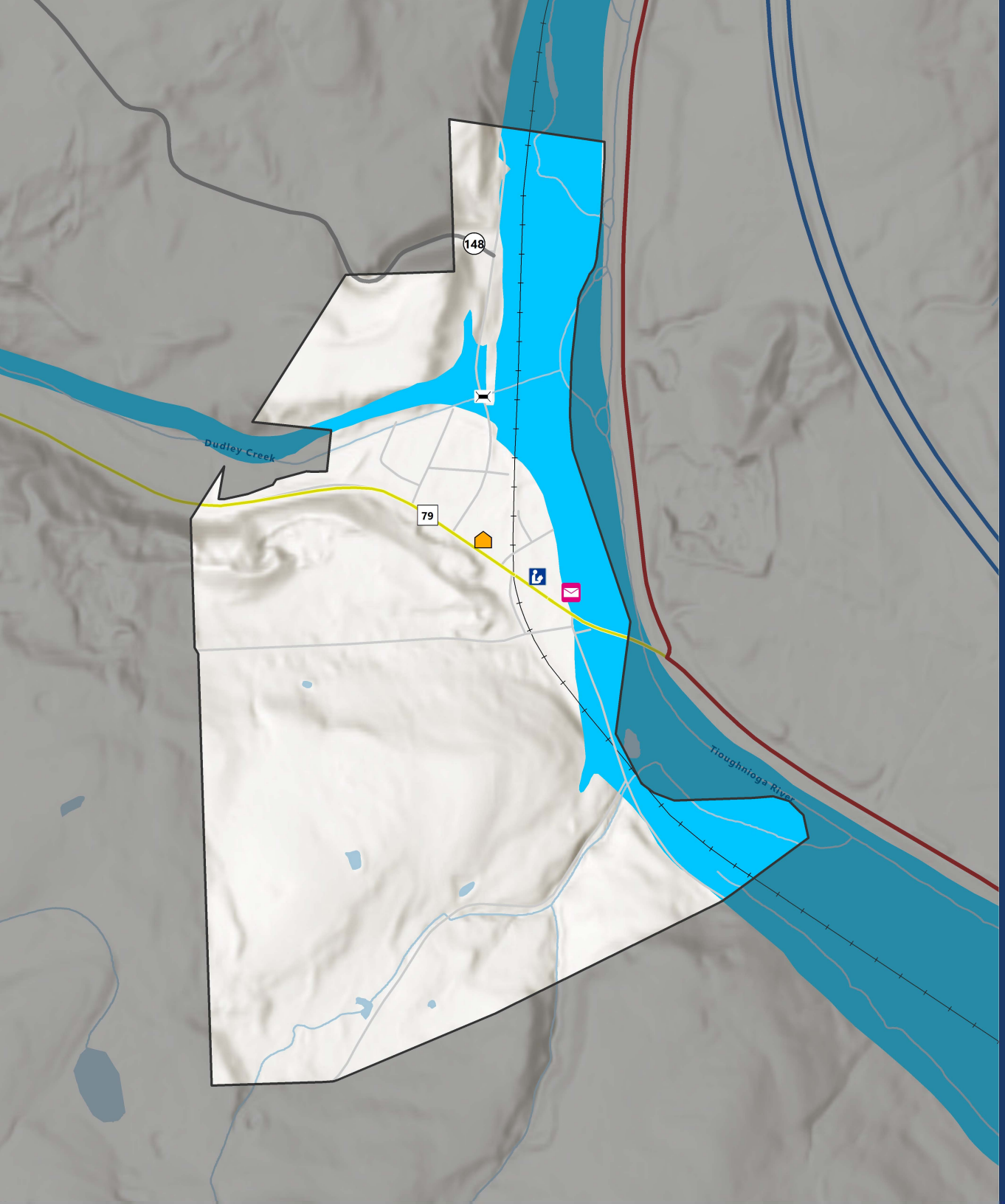
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of January 06, 1984

Lisle (T)

0 0.75 1.5 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
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- Judicial Building
- Landfill
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- Nursing Home
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- Polling Location
- Post Office
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- Public Works
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- Senior Center
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- Town Hall
- Transportation Center
- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
- Zoo

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- Municipality Boundary
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- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

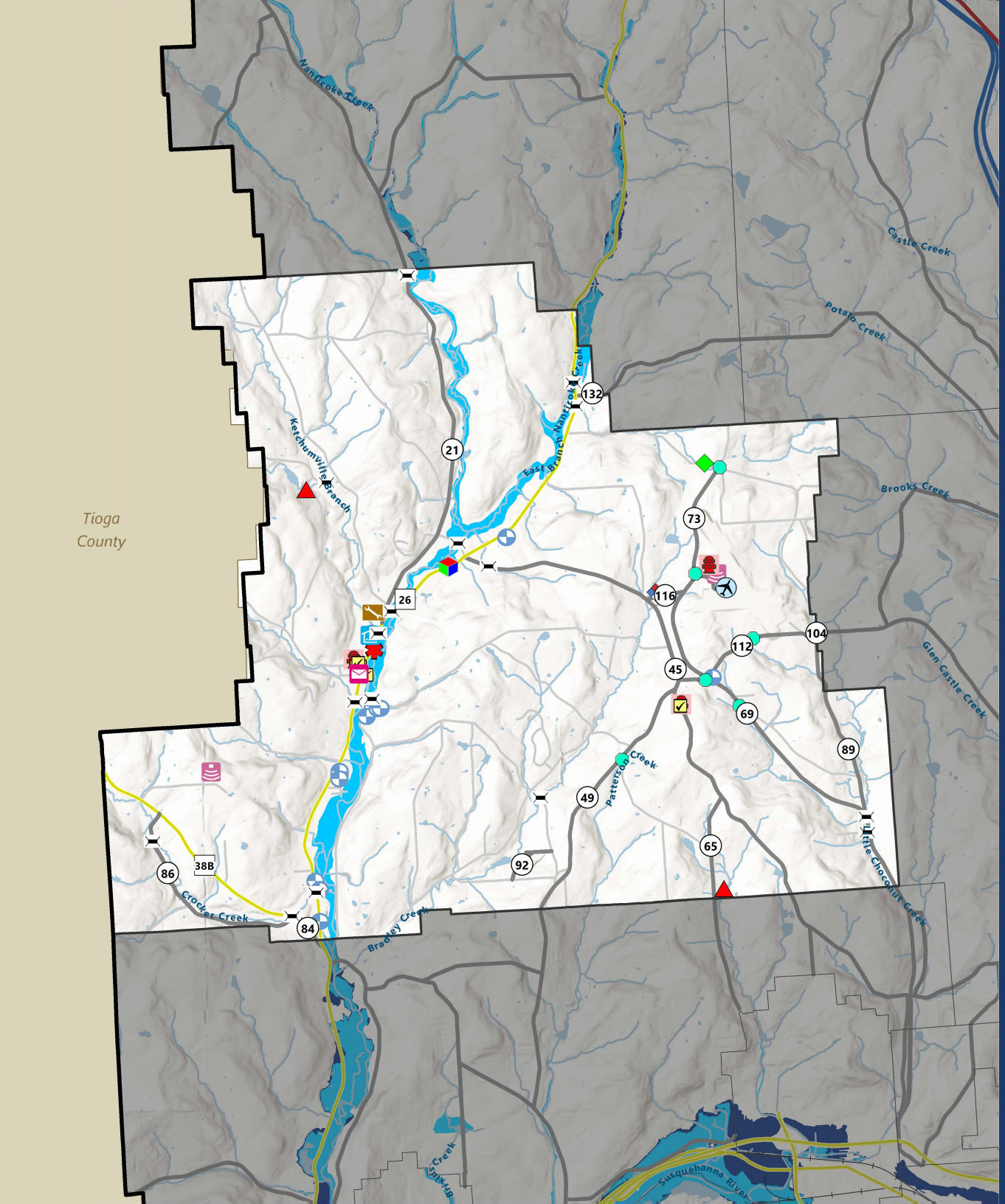
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of January 06, 1984

Lisle (V)

0 0.125 0.25 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
- Highway Bridge
- Hospital
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- Landfill
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- Pet Store
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- Potable Water
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- Town Hall
- Transportation Center
- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
- Zoo

- County Boundary
- Municipality Boundary
- Interstate
- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

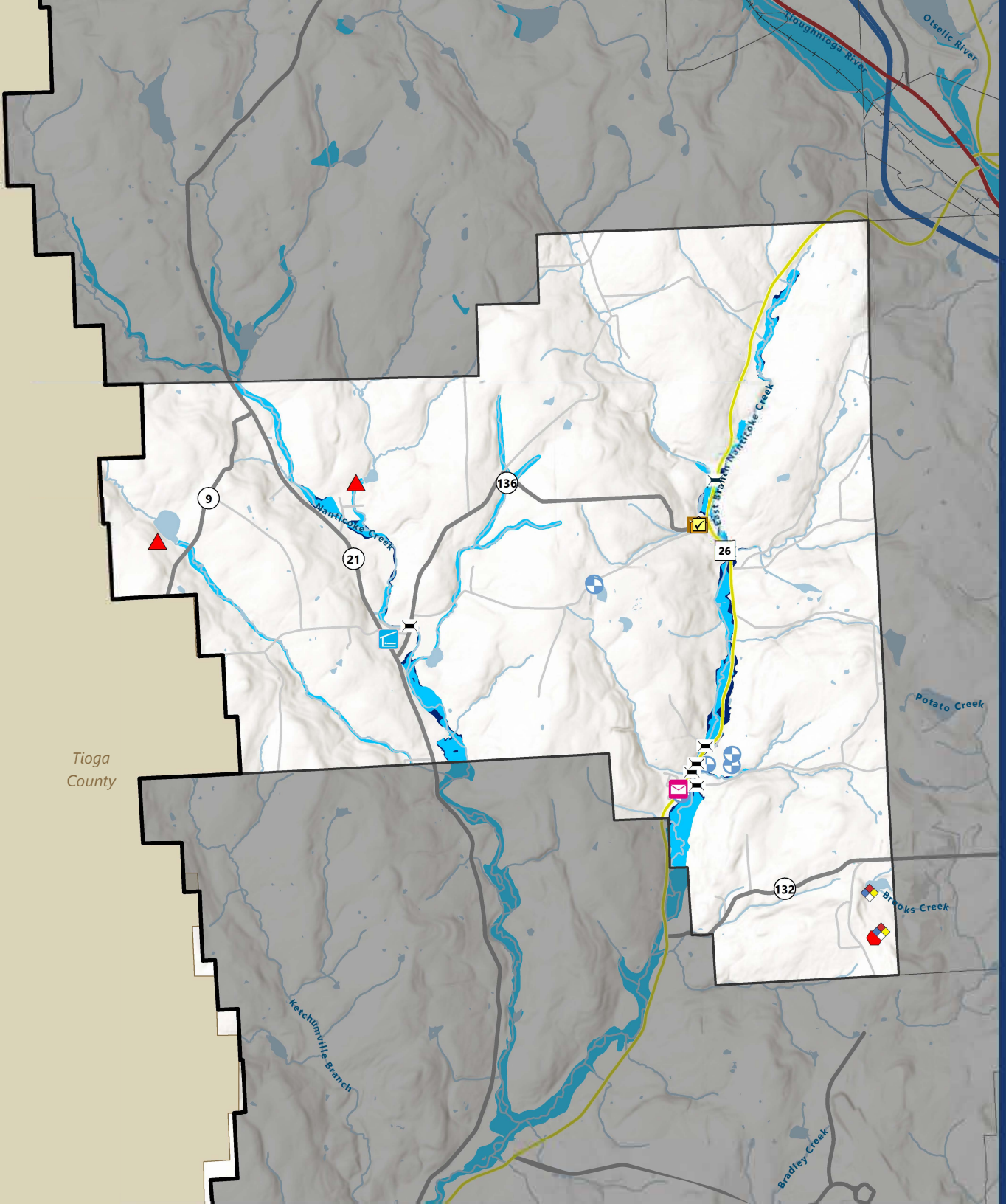
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of February 05, 1992

Maine (T)

0 0.75 1.5 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
- Highway Bridge
- Hospital
- Judicial Building
- Landfill
- Library
- Nursing Home
- Pet Store
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- Polling Location
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- Potable Water
- Potable Well
- Primary Education Facility
- Public Works
- Rail Yard
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- Senior Center
- Shelter
- Town Hall
- Transportation Center
- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
- Zoo

- County Boundary
- Municipality Boundary
- Interstate
- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

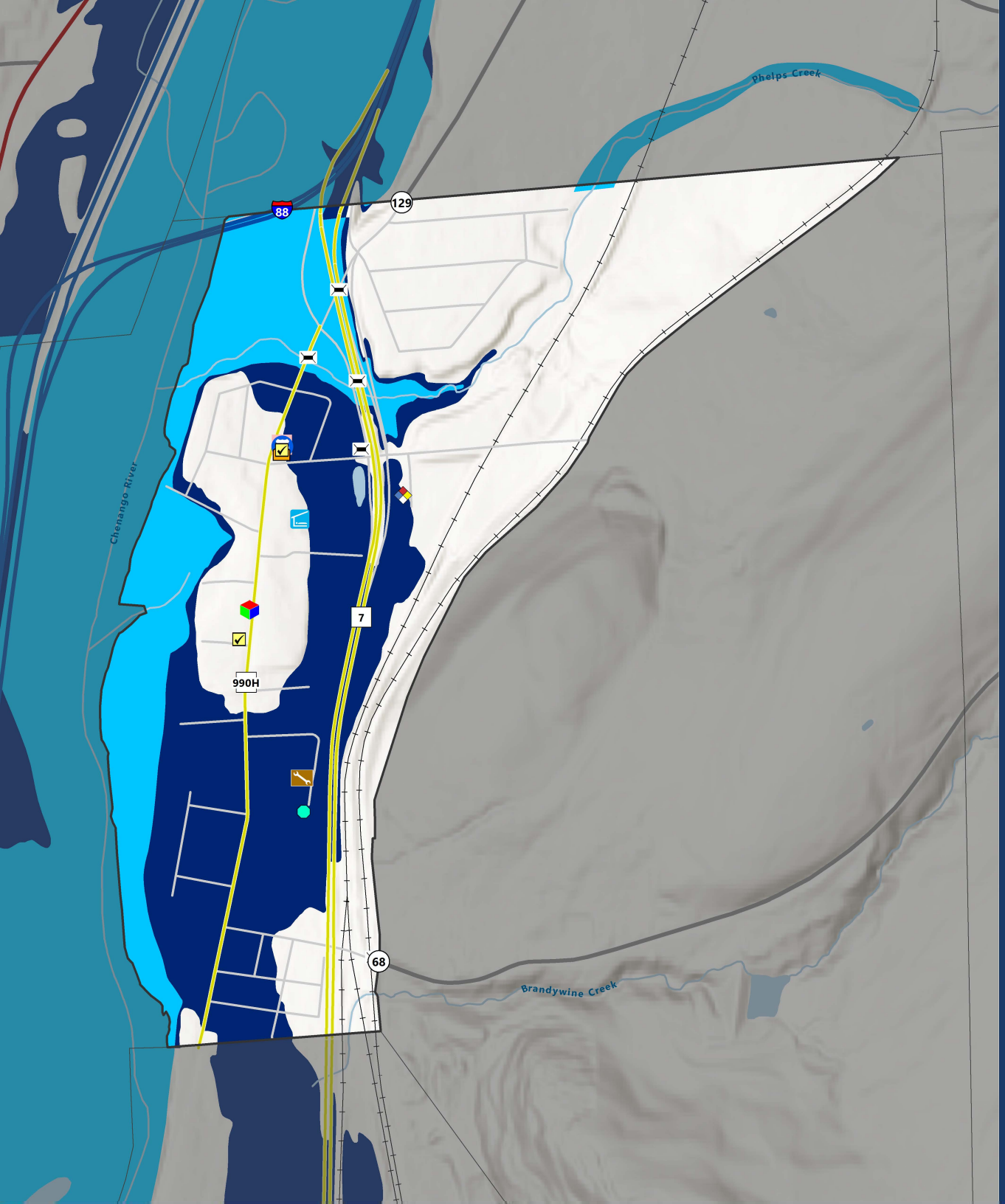
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of December 18, 1985

Nanticoke (T)

0 0.5 1 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
- Highway Bridge
- Hospital
- Judicial Building
- Landfill
- Library
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- Pet Store
- Police Station
- Polling Location
- Post Office
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- Potable Water
- Potable Well
- Primary Education Facility
- Public Works
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- Senior Center
- Shelter
- Town Hall
- Transportation Center
- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
- Zoo

- County Boundary
- Municipality Boundary
- Interstate
- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

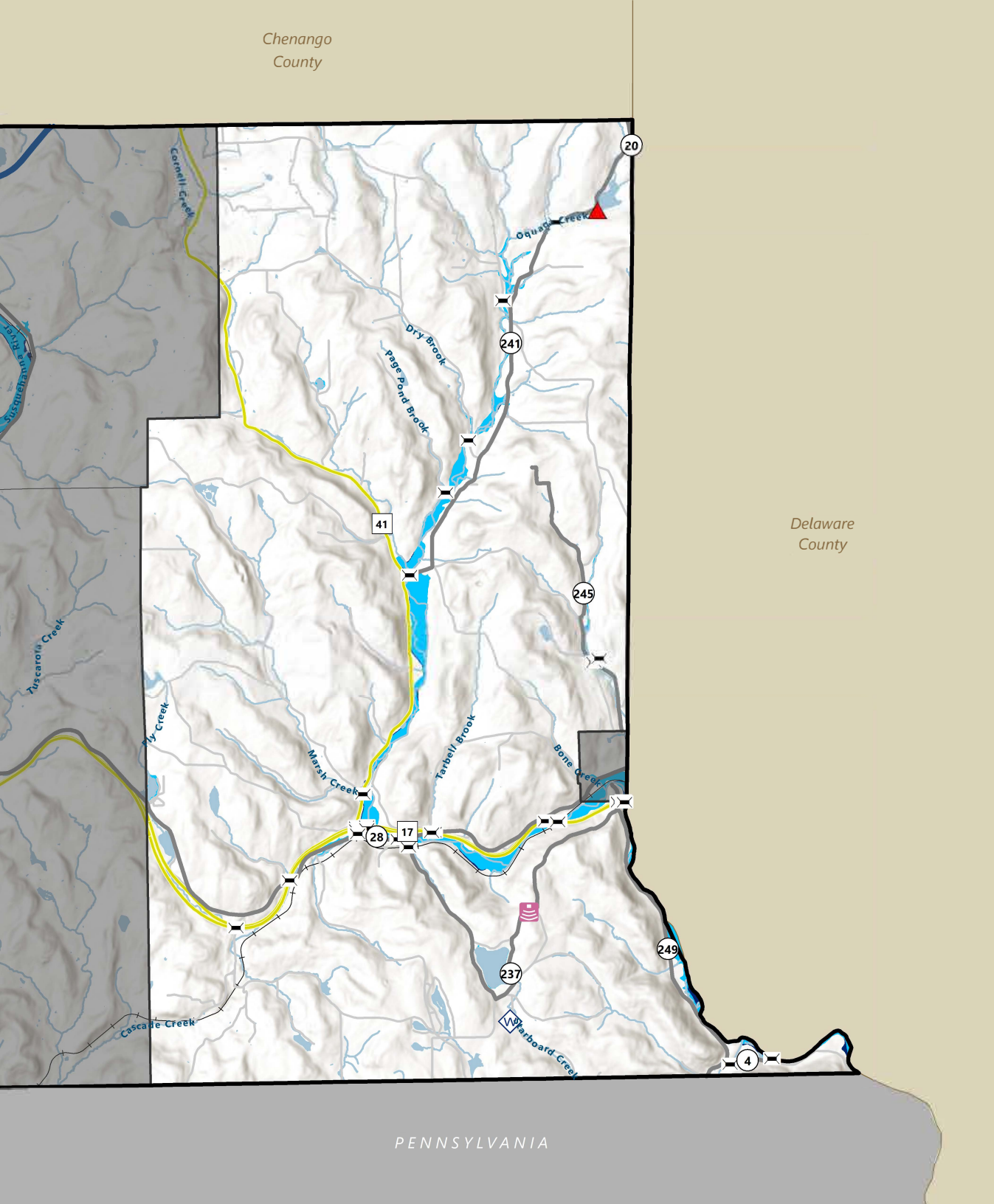
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of May 02, 1977

Port Dickinson (V)

0 0.1 0.2 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
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- Pet Store
- Police Station
- Polling Location
- Post Office
- Post-Secondary Education Facility
- Potable Water
- Potable Well
- Primary Education Facility
- Public Works
- Rail Yard
- Secondary Education Facility
- Senior Center
- Shelter
- Town Hall
- Transportation Center
- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
- Zoo

- County Boundary
- Municipality Boundary
- Interstate
- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of June 04, 1980

Sanford (T)

0 1 2 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
- Highway Bridge
- Hospital
- Judicial Building
- Landfill
- Library
- Nursing Home
- Pet Store
- Police Station
- Polling Location
- Post Office
- Post-Secondary Education Facility
- Potable Water
- Potable Well
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- Public Works
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- Senior Center
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- Transportation Center
- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
- Zoo

- County Boundary
- Municipality Boundary
- Interstate
- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

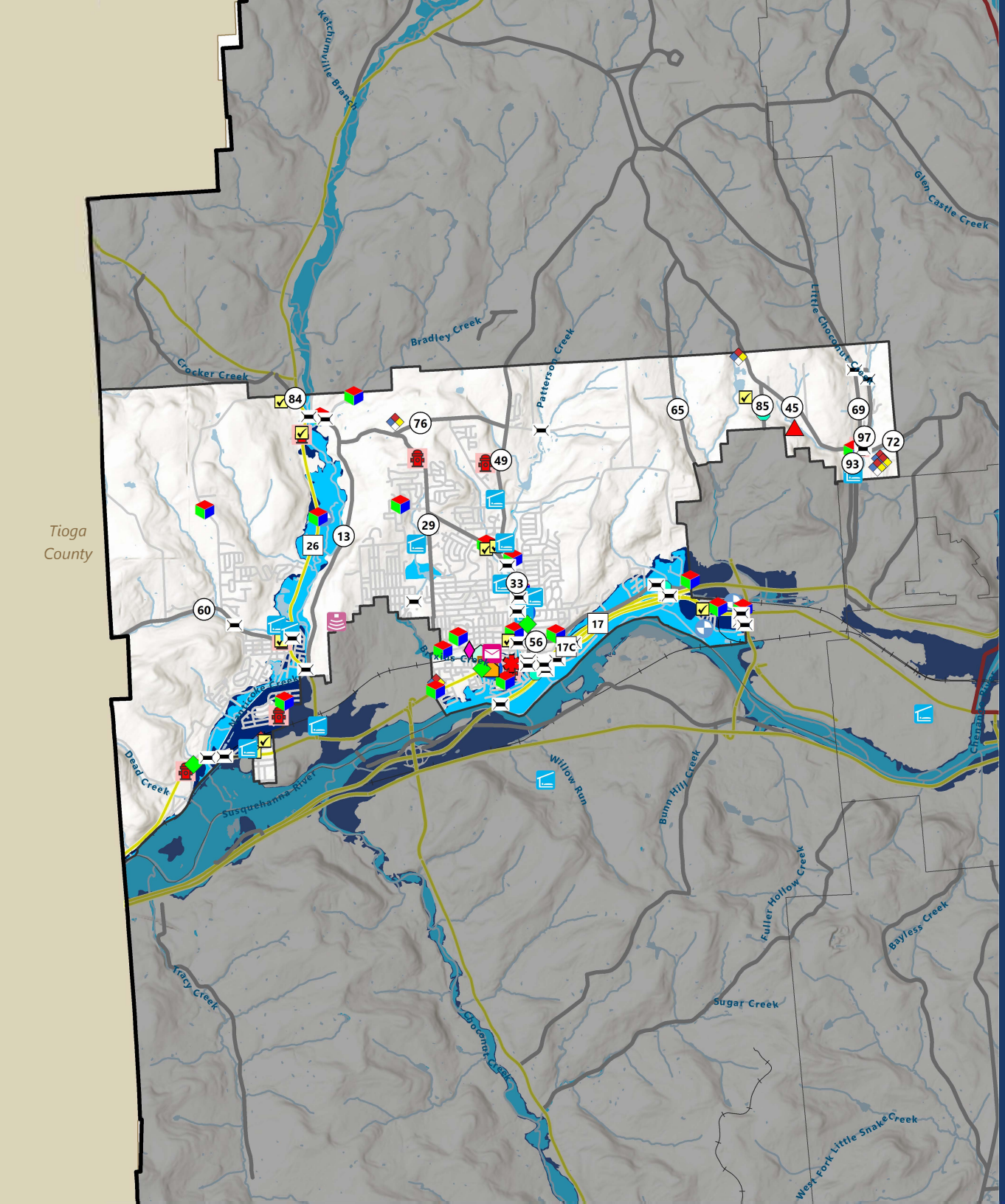
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of July 20, 1984

Triangle (T)

0 0.75 1.5 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
- Highway Bridge
- Hospital
- Judicial Building
- Landfill
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- Pet Store
- Police Station
- Polling Location
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- Municipality Boundary
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- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

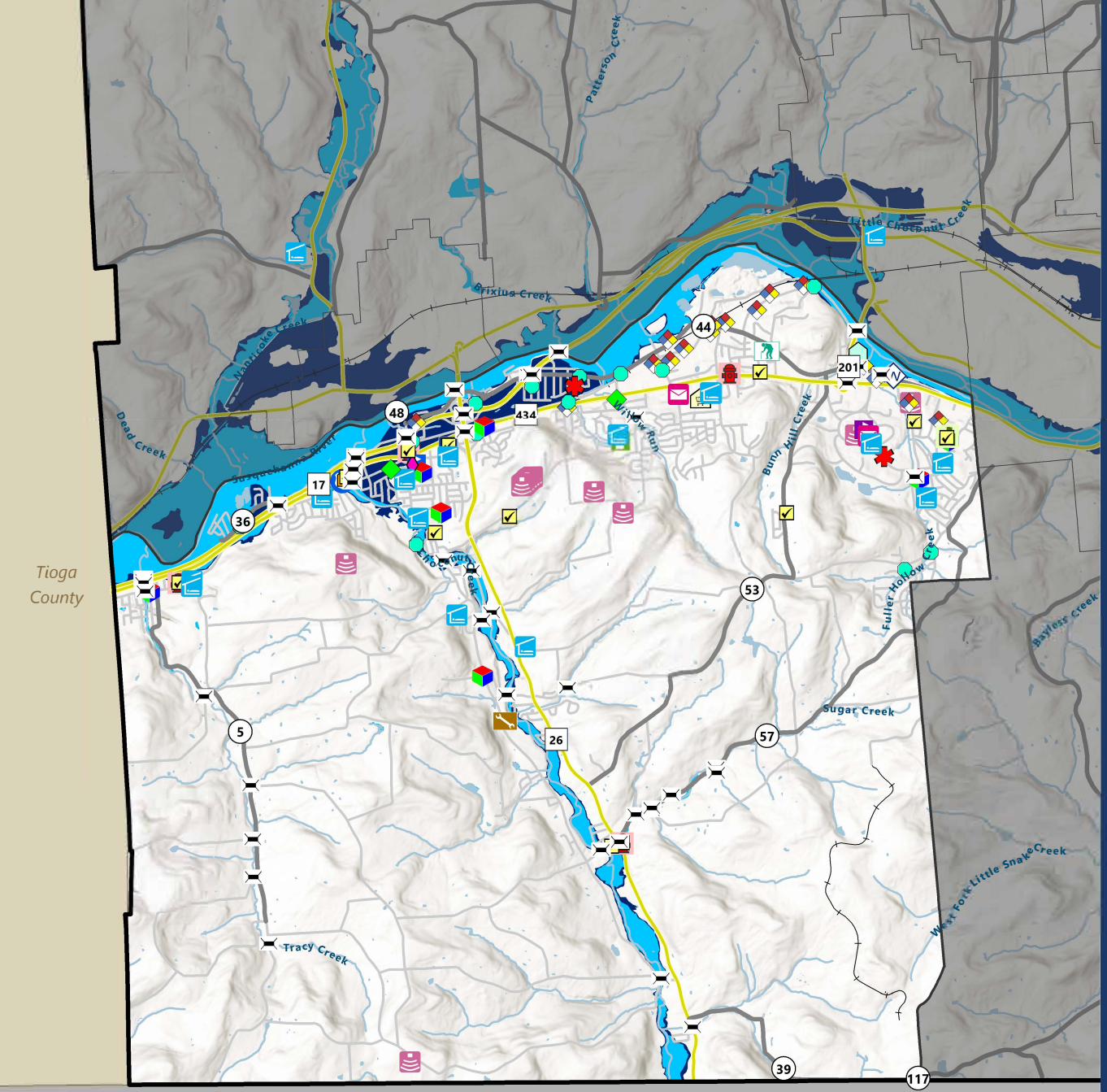
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of September 30, 1988

Union (T)

0 0.75 1.5 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
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- Judicial Building
- Landfill
- Library
- Nursing Home
- Pet Store
- Police Station
- Polling Location
- Post Office
- Post-Secondary Education Facility
- Potable Water
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- Public Works
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- Senior Center
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- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
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- County Boundary
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- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

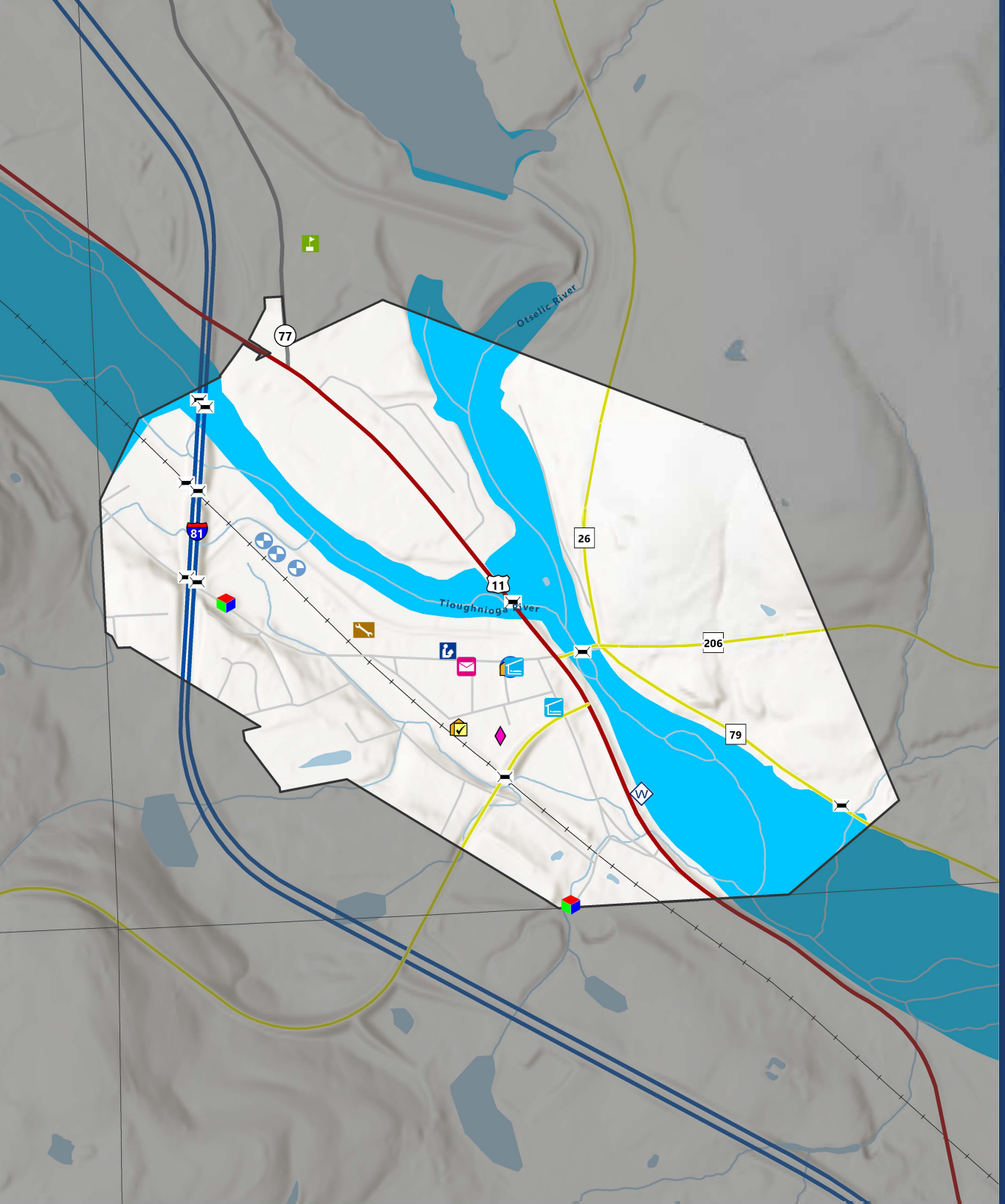
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of September 05, 1984

Vestal (T)

0 0.75 1.5 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
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- County Boundary
- Municipality Boundary
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- U.S. Route
- State Route
- County Route
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- Railroad
- Waterbody

Hazard of Concern

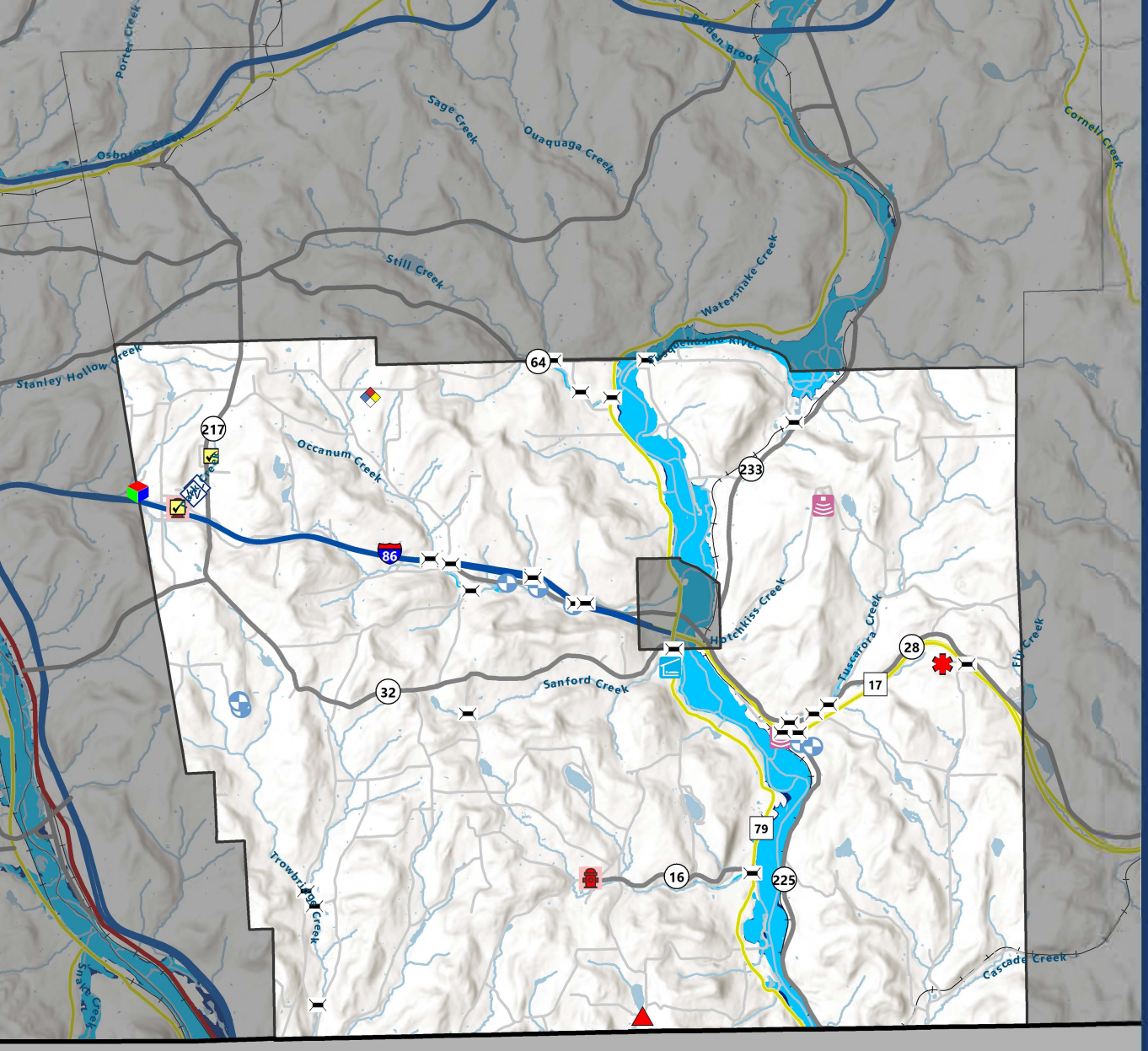
- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of January 06, 1984

Whitney Point (V)

0 0.15 0.3 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
- Health Department
- Highway Bridge
- Hospital
- Judicial Building
- Landfill
- Library
- Nursing Home
- Pet Store
- Police Station
- Polling Location
- Post Office
- Post-Secondary Education Facility
- Potable Water
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- Primary Education Facility
- Public Works
- Rail Yard
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- Senior Center
- Shelter
- Town Hall
- Transportation Center
- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
- Zoo

- County Boundary
- Municipality Boundary
- Interstate
- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of September 30, 1992

Windsor (T)

0 1 2 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA



Critical Facilities

- Airport
- Alternative Education Facility
- Animal Shelter
- Communications
- Community Center
- County Building
- County Highway Facility
- DMV
- Dam
- Daycare
- EMS
- EOC
- Fire Station
- Hazardous Materials Site
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- Highway Bridge
- Hospital
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- Landfill
- Library
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- Pet Store
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- Primary Education Facility
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- Shelter
- Town Hall
- Transportation Center
- Veterinarian
- Wastewater Lift Station
- Wastewater Treatment Plant
- Zoo

- County Boundary
- Municipality Boundary
- Interstate
- U.S. Route
- State Route
- County Route
- Local Streets
- Railroad
- Waterbody

Hazard of Concern

- 1% Annual Chance Flood
- 0.2% Annual Chance Flood

The flood hazard areas are depicted as the Effective FEMA Flood Insurance Rate Maps (FIRM) with an issue date of May 18, 1992

Windsor (V)

0 0.1 0.2 Miles

Source Data: Broome County - 2023; NYS GIS; USGS; FEMA

APPENDIX L: HIGH HAZARD POTENTIAL DAMS IN BROOME COUNTY

This appendix includes worksheets for each high hazard potential dam in Broome County.

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Kevin Burke Email: kburke7@stny.rr.com
Municipality where dam is located: Village of Port Dickinson	Name of Dam: Brandywine Creek Site 1 Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY15021

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5
Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach to the NY Department of Environmental Conservation and information on the high-hazard dams was provided by the New York Department of Environmental Conservation.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners? Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.18.6: Village of Port Dickinson Annex – Risk Assessment, pages 16-18 - *Broome County conducted outreach with the NY Department of Environmental Conservation, which included gather data from provided Emergency Action Plan and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents..*

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23
Within Section 4.3.1, information is provided on the estimated population located within the aggregated dam inundation are for each jurisdiction. See Table 4.3.1-7 for the aggregated data and total population for each jurisdiction.

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.18.5: Village of Port Dickinson Annex – Growth/Development Trends, pages 15-16

Section 9.18.6: Village of Port Dickinson Annex – Risk Assessment, pages 16-18

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.18.5: Village of Port Dickinson Annex – Growth/Development Trends, pages 15-16

Section 9.18.6: Village of Port Dickinson Annex – Risk Assessment, pages 16-18

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.18.6: Village of Port Dickinson Annex – Risk Assessment, pages 16-18

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.18.7: Village of Port Dickinson Annex – Mitigation Strategy and Prioritization, pages 22-42

- 2024-Port DickinsonV-08. Socially Vulnerable Populations Outreach
- 2024- Port DickinsonV -09. Dam Owner Partnership

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.18.7: Village of Port Dickinson Annex – Mitigation Strategy and Prioritization, pages 22-42

- 2024- Port DickinsonV -09. Dam Owner Partnership

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.18.7: Village of Port Dickinson Annex – Mitigation Strategy and Prioritization, pages 22-42

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.18.7: Village of Port Dickinson Annex – Mitigation Strategy and Prioritization, pages 22-42

- Village Administration

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Joshua Holland Email: jcdops@villageofjc.com
Municipality where dam is located: Village of Johnson City	Name of Dam: Finch Hollow Site 1 Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00697

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gather data from provided Emergency Action Plan and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners? Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.12.6: Village of Johnson City Annex – Risk Assessment, pages 21-24

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gather data from provided Emergency Action Plan and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.12.5: Village of Johnson City Annex – Growth/Development Trends, pages 20-21

Section 9.12.6: Village of Johnson City Annex – Risk Assessment, pages 21-24

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.12.5: Village of Johnson City Annex – Growth/Development Trends, pages 20-21

Section 9.12.6: Village of Johnson City Annex – Risk Assessment, pages 21-24

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.12.6: Village of Johnson City Annex – Risk Assessment, pages 21-24

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.12.7: Village of Johnson City Annex – Mitigation Strategy and Prioritization, pages 30-51

- 2024-JohnsonCityV-04. Levee Upgrades
- 2024-JohnsonCityV-05. FIRM Updates
- 2024-JohnsonCityV-07. Outreach to High Hazard Dam Facilities

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.12.7: Village of Johnson City Annex – Mitigation Strategy and Prioritization, pages 30-51

- 2024-JohnsonCityV-04. Levee Upgrades
- 2024-JohnsonCityV-05. FIRM Updates
- 2024-JohnsonCityV-07. Outreach to High Hazard Dam Facilities

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.12.7: Village of Johnson City Annex – Mitigation Strategy and Prioritization, pages 30-51

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.12.7: Village of Johnson City Annex – Mitigation Strategy and Prioritization, pages 30-51

- Department of Public Works
- Village Engineer
- Village Board

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Bryan Moore Email: Vod.Mayor1@gmail.com
Municipality where dam is located: Village of Deposit	Name of Dam: Palmers Pond Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00139

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gather data from provided Emergency Action Plan and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents..

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners?
Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Broome County conducted outreach with the NY Department of Environmental Conservation, which included gather data from provided Emergency Action Plan and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

Section 9.8.6: Village of Deposit Annex – Risk Assessment, pages 17-21

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.8.5: Village of Deposit Annex – Growth/Development Trends, pages 16-17

Section 9.8.6: Village of Deposit Annex – Risk Assessment, pages 17-21

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.8.5: Village of Deposit Annex – Growth/Development Trends, pages 16-17

Section 9.8.6: Village of Deposit Annex – Risk Assessment, pages 17-21

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.8.6: Village of Deposit Annex – Risk Assessment, pages 17-21

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.8.7: Village of Deposit Annex – Mitigation Strategy and Prioritization, pages 28-50

- 2024-DepositV-01. Socially Vulnerable Populations Outreach
- 2024-DepositV-03. Dam Owner Partnership
- 2024-DepositV-07. Disaster Debris Management Plan
- 2024-DepositV-08. Public Education and Outreach
- 2024-DepositV-09. Deposit Levee System Flood Mitigation Study
- 2024-DepositV-10. Village Hall Back-Up Generator

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.8.7: Village of Deposit Annex – Mitigation Strategy and Prioritization, pages 28-50

- 2024-DepositV-03. Dam Owner Partnership
- 2024-DepositV-07. Disaster Debris Management Plan
- 2024-DepositV-09. Deposit Levee System Flood Mitigation Study
- 2024-DepositV-10. Village Hall Back-Up Generator

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.8.7: Village of Deposit Annex – Mitigation Strategy and Prioritization, pages 28-50

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.8.7: Village of Deposit Annex – Mitigation Strategy and Prioritization, pages 28-50

- Public Works
- Village Board
- Village Administration

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Christopher Kylor Email: ckylor@townofunion.com
Municipality where dam is located: Town of Union	Name of Dam: Patterson Brixius Grey Watershed 2 Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00725

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gather data from provided Emergency Action Plan and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents..

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners?
Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.21.6: Town of Union Annex – Risk Assessment, pages 19-21

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HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.21.5: Town of Union Annex – Growth/Development Trends, pages 17-18

Section 9.21.6: Town of Union Annex – Risk Assessment, pages 19-21

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.21.5: Town of Union Annex – Growth/Development Trends, pages 17-18

Section 9.21.6: Town of Union Annex – Risk Assessment, pages 19-21

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.21.6: Town of Union Annex – Risk Assessment, pages 19-21

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.21.7: Town of Union Annex – Mitigation Strategy and Prioritization, pages 26-54

- 2024-UnionT-06. Town-Wide Watershed Drainage Study and Drainage Plan
- 2024-UnionT-07. Generator for Water Booster Station
- 2024-UnionT-08. Upgrades to Westover Levee
- 2024-UnionT-10. Outreach to High Hazard Dams

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.21.7: Town of Union Annex – Mitigation Strategy and Prioritization, pages 26-54

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- 2024-UnionT-07. Generator for Water Booster Station
- 2024-UnionT-08. Upgrades to Westover Levee
- 2024-UnionT-10. Outreach to High Hazard Dams

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.21.7: Town of Union Annex – Mitigation Strategy and Prioritization, pages 26-54

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.21.7: Town of Union Annex – Mitigation Strategy and Prioritization, pages 26-54

- Broome County
- Town of Union P&CD
- Department of Public Works

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Christopher Kylor Email: ckylor@townofunion.com
Municipality where dam is located: Town of Union	Name of Dam: Patterson Brixius Grey Watershed 1 Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00698

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gather ing data from provided Emergency Action Plan and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents..

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners?
Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.21.6: Town of Union Annex – Risk Assessment, pages 19-21

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gather dataing from provided Emergency Action Plan and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

E

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.21.5: Town of Union Annex – Growth/Development Trends, pages 17-18

Section 9.21.6: Town of Union Annex – Risk Assessment, pages 19-21

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.21.5: Town of Union Annex – Growth/Development Trends, pages 17-18

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HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.21.6: Town of Union Annex – Risk Assessment, pages 19-21

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.21.7: Town of Union Annex – Mitigation Strategy and Prioritization, pages 26-54

- 2024-UnionT-06. Town-Wide Watershed Drainage Study and Drainage Plan
- 2024-UnionT-07. Generator for Water Booster Station
- 2024-UnionT-08. Upgrades to Westover Levee
- 2024-UnionT-10. Outreach to High Hazard Dams

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

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- 2024-UnionT-10. Outreach to High Hazard Dams

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.21.7: Town of Union Annex – Mitigation Strategy and Prioritization, pages 26-54

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.21.7: Town of Union Annex – Mitigation Strategy and Prioritization, pages 26-54

- Broome County
- Town of Union P&CD
- Department of Public Works

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Christopher Kylor Email: ckylor@townofunion.com
Municipality where dam is located: Town of Union	Name of Dam: Little Choconut Site 2a Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00720

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

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General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

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[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plan and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners?
Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

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HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

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HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

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Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.21.5: Town of Union Annex – Growth/Development Trends, pages 17-18

Section 9.21.6: Town of Union Annex – Risk Assessment, pages 19-21

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Section 9.21.6: Town of Union Annex – Risk Assessment, pages 19-21

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

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In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.21.7: Town of Union Annex – Mitigation Strategy and Prioritization, pages 26-54

- 2024-UnionT-06. Town-Wide Watershed Drainage Study and Drainage Plan
- 2024-UnionT-07. Generator for Water Booster Station
- 2024-UnionT-08. Upgrades to Westover Levee
- 2024-UnionT-10. Outreach to High Hazard Dams

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
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- 2024-UnionT-08. Upgrades to Westover Levee
- 2024-UnionT-10. Outreach to High Hazard Dams

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.21.7: Town of Union Annex – Mitigation Strategy and Prioritization, pages 26-54

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.21.7: Town of Union Annex – Mitigation Strategy and Prioritization, pages 26-54

- Broome County
- Town of Union P&CD
- Department of Public Works

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Charles Manasse Email: supervisor@townoftriangle.org
Municipality where dam is located: Town of Triangle	Name of Dam: Whitney Point Dam
Name of the Dam Owner: USACE – Baltimore District	NYS Dam ID #: NY01055

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5
Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gather ing data from provided Emergency Action Plan and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners?
Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.20.6: Town of Triangle Annex – Risk Assessment, pages 8-10

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.19.5: Town of Triangle Annex – Growth/Development Trends, pages 14-15

Section 9.20.6: Town of Triangle Annex – Risk Assessment, pages 8-10

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.19.5: Town of Triangle Annex – Growth/Development Trends, pages 14-15

Section 9.20.6: Town of Triangle Annex – Risk Assessment, pages 8-10

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.20.6: Town of Triangle Annex – Risk Assessment, pages 8-10

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.19.7: Town of Triangle Annex – Mitigation Strategy and Prioritization, pages 20-37

- 2024-TriangleT-04. Town Hall Backup Generator
- 2024-TriangleT-05. Highway Department Backup Generator

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.19.7: Town of Triangle Annex – Mitigation Strategy and Prioritization, pages 20-37

- 2024-TriangleT-04. Town Hall Backup Generator
- 2024-TriangleT-05. Highway Department Backup Generator

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.19.7: Town of Triangle Annex – Mitigation Strategy and Prioritization, pages 20-37

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.19.7: Town of Triangle Annex – Mitigation Strategy and Prioritization, pages 20-37

- Town Board
- Highway Department

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Kenneth Wist Email: supervisor@townofsanfordny.com
Municipality where dam is located: Town of Sanford	Name of Dam: Oquaga Creek State Park Dam
Name of the Dam Owner: New York States Park & Recreation – Central New York	NYS Dam ID #: 119-4360

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners?
Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.19.6: Town of Sandford Annex – Risk Assessment, pages 15-17

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

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HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.19.5: Town of Sandford Anex – Growth/Development Trends, pages 13-14

Section 9.19.6: Town of Sandford Annex – Risk Assessment, pages 15-17

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.19.5: Town of Sandford Anex – Growth/Development Trends, pages 13-14

Section 9.19.6: Town of Sandford Annex – Risk Assessment, pages 15-17

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.19.6: Town of Sandford Annex – Risk Assessment, pages 15-17

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.19.7: Town of Sandford Annex – Mitigation Strategy and Prioritization, pages 21-38

- 2024- SanfordT-06. Dam Owner Partnership
- 2024- SanfordT -07. Socially Vulnerable Populations Outreach

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.19.7: Town of Sandford Annex – Mitigation Strategy and Prioritization, pages 21-38

- 2024- SanfordT-06. Dam Owner Partnership

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.19.7: Town of Sandford Annex – Mitigation Strategy and Prioritization, pages 21-38

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.19.7: Town of Sandford Annex – Mitigation Strategy and Prioritization, pages 21-38

- Town Administration

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Roy Willis Email: supervisor@townofnanticokeny.com
Municipality where dam is located: Town of Nanticoke	Name of Dam: Nanticoke Creek Site 10 Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00713

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gather ing data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners? Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.17.6: Town of Nanticoke Annex – Risk Assessment, pages 13-16

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gather ing data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.17.5: Town of Nanticoke Annex – Growth/Development Trends, pages 12-13

Section 9.17.6: Town of Nanticoke Annex – Risk Assessment, pages 13-16

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.17.5: Town of Nanticoke Annex – Growth/Development Trends, pages 12-13

Section 9.17.6: Town of Nanticoke Annex – Risk Assessment, pages 13-16

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.17.6: Town of Nanticoke Annex – Risk Assessment, pages 13-16

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.17.7: Town of Nanticoke Annex – Mitigation Strategy and Prioritization, pages 20-32

- 2024-NanticokeT-03. Dam Owner Partnership
- 2024-NanticokeT-04. Socially Vulnerable Populations Outreach

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.17.7: Town of Nanticoke Annex – Mitigation Strategy and Prioritization, pages 20-32

- 2024-NanticokeT-03. Dam Owner Partnership

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.17.7: Town of Nanticoke Annex – Mitigation Strategy and Prioritization, pages 20-32

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.17.7: Town of Nanticoke Annex – Mitigation Strategy and Prioritization, pages 20-32

- Town Administration

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Roy Willis Email: supervisor@townofnanticokeny.com
Municipality where dam is located: Town of Nanticoke	Name of Dam: Nanticoke Creek Site 9e Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00575

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners?
Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.17.6: Town of Nanticoke Annex – Risk Assessment, pages 13-16

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.17.5: Town of Nanticoke Annex – Growth/Development Trends, pages 12-13

Section 9.17.6: Town of Nanticoke Annex – Risk Assessment, pages 13-16

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.17.5: Town of Nanticoke Annex – Growth/Development Trends, pages 12-13

Section 9.17.6: Town of Nanticoke Annex – Risk Assessment, pages 13-16

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.17.6: Town of Nanticoke Annex – Risk Assessment, pages 13-16

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.17.7: Town of Nanticoke Annex – Mitigation Strategy and Prioritization, pages 20-32

- 2024-NanticokeT-03. Dam Owner Partnership
- 2024-NanticokeT-04. Socially Vulnerable Populations Outreach

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.17.7: Town of Nanticoke Annex – Mitigation Strategy and Prioritization, pages 20-32

- 2024-NanticokeT-03. Dam Owner Partnership

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.17.7: Town of Nanticoke Annex – Mitigation Strategy and Prioritization, pages 20-32

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.17.7: Town of Nanticoke Annex – Mitigation Strategy and Prioritization, pages 20-32

- Town Administration

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Roy Willis Email: supervisor@townofnanticokeny.com
Municipality where dam is located: Town of Nanticoke	Name of Dam: Nanticoke Creek Site 8 Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00573

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners?
Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.17.6: Town of Nanticoke Annex – Risk Assessment, pages 13-16

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.17.5: Town of Nanticoke Annex – Growth/Development Trends, pages 12-13

Section 9.17.6: Town of Nanticoke Annex – Risk Assessment, pages 13-16

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.17.5: Town of Nanticoke Annex – Growth/Development Trends, pages 12-13

Section 9.17.6: Town of Nanticoke Annex – Risk Assessment, pages 13-16

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.17.6: Town of Nanticoke Annex – Risk Assessment, pages 13-16

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.17.7: Town of Nanticoke Annex – Mitigation Strategy and Prioritization, pages 20-32

- 2024-NanticokeT-03. Dam Owner Partnership
- 2024-NanticokeT-04. Socially Vulnerable Populations Outreach

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.17.7: Town of Nanticoke Annex – Mitigation Strategy and Prioritization, pages 20-32

- 2024-NanticokeT-03. Dam Owner Partnership

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.17.7: Town of Nanticoke Annex – Mitigation Strategy and Prioritization, pages 20-32

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.17.7: Town of Nanticoke Annex – Mitigation Strategy and Prioritization, pages 20-32

- Town Administration

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Doug Barton Email: barton@townofmaine.org
Municipality where dam is located: Town of Maine	Name of Dam: Nanticoke Creek Site 13 Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00777

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners? Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.16.5: Town of Maine Annex – Growth/Development Trends, pages 14-15

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.16.5: Town of Maine Annex – Growth/Development Trends, pages 14-15

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- 2024-MaineT-02. Substantial Damage Response Plan
- 2024-MaineT-06. Emergency Dam Evacuation Route
- 2024-MaineT-08. Dam Owner Partnership
- 2024-MaineT-09. Socially Vulnerable Populations Outreach

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- 2024-MaineT-08. Dam Owner Partnership
- 2024-MaineT-06. Emergency Dam Evacuation Route

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- Floodplain Administrator
- Public Works
- Town Administration

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Doug Barton Email: barton@townofmaine.org
Municipality where dam is located: Town of Maine	Name of Dam: Nanticoke Creek Site 7a Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY01550

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gather ing data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners? Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gather ing data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.16.5: Town of Maine Annex – Growth/Development Trends, pages 14-15

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.16.5: Town of Maine Annex – Growth/Development Trends, pages 14-15

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- 2024-MaineT-02. Substantial Damage Response Plan
- 2024-MaineT-06. Emergency Dam Evacuation Route
- 2024-MaineT-08. Dam Owner Partnership
- 2024-MaineT-09. Socially Vulnerable Populations Outreach

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- 2024-MaineT-08. Dam Owner Partnership
- 2024-MaineT-06. Emergency Dam Evacuation Route

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- Floodplain Administrator
- Public Works
- Town Administration

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Doug Barton Email: barton@townofmaine.org
Municipality where dam is located: Town of Maine	Name of Dam: Little Choconut Site 2e Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00723

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners? Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.16.5: Town of Maine Annex – Growth/Development Trends, pages 14-15

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.16.5: Town of Maine Annex – Growth/Development Trends, pages 14-15

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- 2024-MaineT-02. Substantial Damage Response Plan
- 2024-MaineT-06. Emergency Dam Evacuation Route
- 2024-MaineT-08. Dam Owner Partnership
- 2024-MaineT-09. Socially Vulnerable Populations Outreach

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- 2024-MaineT-08. Dam Owner Partnership
- 2024-MaineT-06. Emergency Dam Evacuation Route

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- Floodplain Administrator
- Public Works
- Town Administration

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Doug Barton Email: barton@townofmaine.org
Municipality where dam is located: Town of Maine	Name of Dam: Little Choconut Site 2c Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00722

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners? Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.16.5: Town of Maine Annex – Growth/Development Trends, pages 14-15

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.16.5: Town of Maine Annex – Growth/Development Trends, pages 14-15

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- 2024-MaineT-02. Substantial Damage Response Plan
- 2024-MaineT-06. Emergency Dam Evacuation Route
- 2024-MaineT-08. Dam Owner Partnership
- 2024-MaineT-09. Socially Vulnerable Populations Outreach

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- 2024-MaineT-08. Dam Owner Partnership
- 2024-MaineT-06. Emergency Dam Evacuation Route

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- Floodplain Administrator
- Public Works
- Town Administration

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Doug Barton Email: barton@townofmaine.org
Municipality where dam is located: Town of Maine	Name of Dam: Little Choconut Site 2b Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00721

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners? Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.16.5: Town of Maine Annex – Growth/Development Trends, pages 14-15

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.16.5: Town of Maine Annex – Growth/Development Trends, pages 14-15

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- 2024-MaineT-02. Substantial Damage Response Plan
- 2024-MaineT-06. Emergency Dam Evacuation Route
- 2024-MaineT-08. Dam Owner Partnership
- 2024-MaineT-09. Socially Vulnerable Populations Outreach

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- 2024-MaineT-08. Dam Owner Partnership
- 2024-MaineT-06. Emergency Dam Evacuation Route

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- Floodplain Administrator
- Public Works
- Town Administration

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Doug Barton Email: barton@townofmaine.org
Municipality where dam is located: Town of Maine	Name of Dam: Little Choconut Site 1A Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00578

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gather ing data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners? Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.16.5: Town of Maine Annex – Growth/Development Trends, pages 14-15

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.16.5: Town of Maine Annex – Growth/Development Trends, pages 14-15

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.16.6: Town of Maine Annex – Risk Assessment, pages 15-17

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- 2024-MaineT-02. Substantial Damage Response Plan
- 2024-MaineT-06. Emergency Dam Evacuation Route
- 2024-MaineT-08. Dam Owner Partnership
- 2024-MaineT-09. Socially Vulnerable Populations Outreach

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- 2024-MaineT-08. Dam Owner Partnership
- 2024-MaineT-06. Emergency Dam Evacuation Route

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: Town of Maine Annex – Mitigation Strategy and Prioritization, pages 21-45

- Floodplain Administrator
- Public Works
- Town Administration

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Brenda Tillotson, Town Clerk Email: lisletownclerk@hotmail.com
Municipality where dam is located: Town of Lisle	Name of Dam: Nanticoke Creek Site 9c Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00628

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners?
Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The Town of Lisle did not participate in this plan update and did not develop mitigation actions.

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The Town of Lisle did not participate in this plan update and did not develop mitigation actions.

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The Town of Lisle did not participate in this plan update and did not develop mitigation actions. Participating jurisdictions used the following criteria to prioritize actions related to HHPD:

Section 6.5: Mitigation Strategy Development and Update – Mitigation Strategy Evaluation and Prioritization, pages 8-9

Section 6.5: Mitigation Strategy Development and Update – Benefit-Cost Review, page 10

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The Town of Lisle did not participate in this plan update and did not develop mitigation actions. The Town would receive support from the County and State if it pursued future actions to mitigate hazards to or from HHPDs.

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Brenda Tillotson, Town Clerk Email: lisletownclerk@hotmail.com
Municipality where dam is located: Town of Lisle	Name of Dam: Nanticoke Creek Site 9a Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00567

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gather ing data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners?
Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The Town of Lisle did not participate in this plan update and did not develop mitigation actions.

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The Town of Lisle did not participate in this plan update and did not develop mitigation actions.

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The Town of Lisle did not participate in this plan update and did not develop mitigation actions. Participating jurisdictions used the following criteria to prioritize actions related to HHPD:

Section 6.5: Mitigation Strategy Development and Update – Mitigation Strategy Evaluation and Prioritization, pages 8-9

Section 6.5: Mitigation Strategy Development and Update – Benefit-Cost Review, page 10

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The Town of Lisle did not participate in this plan update and did not develop mitigation actions. The Town would receive support from the County and State if it pursued future actions to mitigate hazards to or from HHPDs.

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Brenda Tillotson, Town Clerk Email: lisletownclerk@hotmail.com
Municipality where dam is located: Town of Lisle	Name of Dam: Nanticoke Creek Site 3 Dam
Name of the Dam Owner: NYS Division of Lands and Forests	NYS Dam ID #: NY00612

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners? Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The Town of Lisle did not participate in this plan update and did not develop mitigation actions.

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The Town of Lisle did not participate in this plan update and did not develop mitigation actions.

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The Town of Lisle did not participate in this plan update and did not develop mitigation actions. Participating jurisdictions used the following criteria to prioritize actions related to HHPD:

Section 6.5: Mitigation Strategy Development and Update – Mitigation Strategy Evaluation and Prioritization, pages 8-9

Section 6.5: Mitigation Strategy Development and Update – Benefit-Cost Review, page 10

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

The Town of Lisle did not participate in this plan update and did not develop mitigation actions. The Town would receive support from the County and State if it pursued future actions to mitigate hazards to or from HHPDs.

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Michael A. Marinaccio Email: mmarinaccio@townofdickinson.com
Municipality where dam is located: Town of Dickinson	Name of Dam: Finch Hollow Site 2 Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00719

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners? Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6

Section 9.9.6: Town of Dickinson Annex – Risk Assessment, pages 14-16

Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.9.5: Town of Dickinson Annex – Growth/Development Trends, pages 13-14

Section 9.9.6: Town of Dickinson Annex – Risk Assessment, pages 14-16

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.9.5: Town of Dickinson Annex – Growth/Development Trends, pages 13-14

Section 9.9.6: Town of Dickinson Annex – Risk Assessment, pages 14-16

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.9.6: Town of Dickinson Annex – Risk Assessment, pages 14-16

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.9.7: Town of Dickinson Annex – Mitigation Strategy and Prioritization, pages 20-41

- 2024-DickinsonT-06. Public Education and Outreach
- 2024-DickinsonT-07. Dam Owner Partnership

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.9.7: Town of Dickinson Annex – Mitigation Strategy and Prioritization, pages 20-41

- 2024-DickinsonT-07. Dam Owner Partnership

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.9.7: Town of Dickinson Annex – Mitigation Strategy and Prioritization, pages 20-41

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.9.7: Town of Dickinson Annex – Mitigation Strategy and Prioritization, pages 20-41

- Town Administration

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Nick Pappas Email: code@townofconklin.org
Municipality where dam is located: Town of Conklin	Name of Dam: Broome Corporate Park Pond Dam #2
Name of the Dam Owner: Broome County Industrial Development Agency	NYS Dam ID #: NY12014

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5
Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners?
Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6
Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

Section 9.7.6: Town of Conklin Annex – Risk Assessment, pages 18-20

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.7.5: Town of Conklin Annex – Growth/Development Trends, pages 17-18

Section 9.7.6: Town of Conklin Annex – Risk Assessment, pages 18-20

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.7.5: Town of Conklin Annex – Growth/Development Trends, pages 17-18

Section 9.7.6: Town of Conklin Annex – Risk Assessment, pages 18-20

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.7.6: Town of Conklin Annex – Risk Assessment, pages 18-20

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.7.7: Town of Conklin Annex – Mitigation Strategy and Prioritization, pages 25-36

- 2024-ConklinT-07. Socially Vulnerable Populations Outreach
- 2024-ConklinT-08. Dam Owner Partnership

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.7.7: Town of Conklin Annex – Mitigation Strategy and Prioritization, pages 25-36

- 2024-ConklinT-08. Dam Owner Partnership

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.7.7: Town of Conklin Annex – Mitigation Strategy and Prioritization, pages 25-36

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.7.7: Town of Conklin Annex – Mitigation Strategy and Prioritization, pages 25-36

- Town Administration

High Hazard Potential Dam (HHPD) Worksheet

A job aid for Municipalities Preparing /Amending Mitigation Plans[1]
Complete a Separate Worksheet for each[2] state regulated HHPD in your community.

Name of the Mitigation Plan: 2024 Broome County Hazard Mitigation Plan	Point of Contact for this Worksheet Name: Juliet Berling Email: jmberling@cityofbinghamton.gov
Municipality where dam is located: City of Binghamton	Name of Dam: Finch Hollow Site 3C Dam
Name of the Dam Owner: Broome County Department of Parks and Recreation	NYS Dam ID #: NY00724

Dams are critical infrastructure that can be impacted by natural hazards and if they fail to operate as designed, there could be cascading consequences downstream in the inundation area and potentially to a larger area if the use of the pooled reservoir is lost or diminished.

This worksheet, when completed, will:

1. Describe the process followed for assessing the risks to /from the identified high hazard potential dam located in the municipality.
2. Describe the risks to the dam from natural hazards, and from the dam should it fail to operate as designed.
3. Describe the mitigation plan goal that covers addressing the vulnerabilities to/from HHPDs.
4. Describe one or more planned mitigation actions / projects related to a high hazard potential dam, be it with a HHPD grant or other FEMA hazard mitigation grant programs.

This worksheet is designed to be placed in the annex of the municipality with jurisdiction over the area where the dam is located. Use of this worksheet will ensure no HHPD requirement has been overlooked for the dam being assessed. Completing worksheets for each of the HHPDs in the municipality will allow FEMA to quickly confirm the municipality has a hazard mitigation plan that included all dam risks.

It is highly recommended that when the dam owner is another municipality, the worksheet should also be added to the other municipality's mitigation plan. Doing so will ensure the other municipality meets Element B1-a and C4-b for approval of their mitigation plan under the Stafford Act requirements.

General or generic discussion of high hazard dams and their risks is welcomed content in a mitigation plan. However, it is not a substitute meeting HHPD requirements 1 thru 4, as covered by this worksheet.

[1] Source: Local Mitigation Planning Policy Guide (pages 34-35 and 57), Released April 19, 2022

[2] This change, to include all state regulated HHPDs, per the Policy Guide went into effect with the release of the release of the Rehabilitation of High Hazard Potential Dams Grant Program Fiscal Year 2022 Notice of Funding Opportunity.

HHPD1: Did the plan describe the incorporation of existing plans, studies, reports, and technical information for HHPD?

HHPD1-a: Does the plan describe how the local government worked with the local dam owners and/or the state dam safety agency? Describe the process followed. The local community mitigation planning lead is encouraged to coordinate with the dam owners and the state dam safety office to determine any issues/risks associated with that dam.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-5
Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

HHPD1-b: Does the plan incorporate information shared by the state and/or local dam owners? Describe the information used in assessing the risk to/from the dam, that came from plans, reports, studies, or other technical information reviewed when preparing the mitigation plan, **while ensuring sensitive and/or personally identifiable information is protected and is not included in the plan or on this worksheet**.

Examples of plans, reports, studies or other technical information include:

- Inundation maps, emergency action plans, floodplain management plans, and/or data or summarizes provided by dam breach modeling software, such as HEC=RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question. Inundations maps (optional) may be attached to this worksheet.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1-6
Most of the HHPD's are owned by Broome County. There are 23 high-hazards dams in Broome County and 21 are owned by Broome County, 1 is owned by the State of New York, and 1 is owned by the Army Corps of Engineers. Broome County conducted outreach with the NY Department of Environmental Conservation, which included gathering data from provided Emergency Action Plans and inundation maps for each high-hazard dam. This data was incorporated in compiling referenced maps and in the Identified Issues section of each municipality annex with high-hazard dams identified for their municipality. EAPs and associated inundation maps are kept on file with each municipality and Broome County so as to protect the confidential and sensitive information contained within the documents.

Section 9.3.6: City of Binghamton Annex – Risk Assessment, pages 20-22

HHPD2: Did the plan address HHPD in the risk assessment?

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (1) Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on the dam that might affect upstream and downstream flooding potential. Impacts from the loss or diminishment of the pooled reservoir created by the dam, and flooding impacts downstream.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 1, 3-4, 6-8, 13-14, 16-23

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (2) Potential significant economic, environmental, or social impacts, as well as multi-jurisdictional impacts from a dam incident.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 16-24

Section 9.3.5: City of Binghamton Annex – Growth/Development Trends, pages 18-19

Section 9.3.6: City of Binghamton Annex – Risk Assessment, pages 20-22

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (3) The location and size of populations at risk from this HHPD eligible dam, as well as potential impacts to institutions and critical infrastructure / facilities / lifelines.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.3.1: Hazard Profiles – Dam Failure, pages 13-14, 16-24

Section 9.3.5: City of Binghamton Annex – Growth/Development Trends, pages 18-19

Section 9.3.6: City of Binghamton Annex – Risk Assessment, pages 20-22

HHPD2-a: Does the plan describe the risk and vulnerabilities to and from dams, including:

- (4) The methodology and/or assumptions for risk data and inundation modeling.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools, pages 5-6

Section 4.3: Hazard Profiles – Dam Failure, pages 16-22

Section 9.3.6: City of Binghamton Annex – Risk Assessment, pages 20-22

HHPD2-b: Does the plan document the limitations and describe the approach for addressing deficiencies, as appropriate? If there were limitations in completing this risk assessment, document the limitations and describe the approach for addressing deficiencies.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 4.2: Risk Assessment Methodology and Tools – Limitations, page 10

Section 4.2: Risk Assessment Methodology and Tools – Considerations for Mitigation and Next Steps, page 11-12

HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?

HHPD3-a: With a specific focus on HHPDs, does the plan must address a reduction in vulnerabilities to / from HHPDs as part of its own goals or with other long-term strategies?
Hazard mitigation goals are broad, long-term policy and vision statements. Goals do not need to mention specific actions, specific dams, or use the term "high hazard potential dam." Projects submitted for consideration for HHPD funding must be consistent with the goals and actions identified in the current, approved hazard mitigation plan.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 6.4: Mitigation Strategy – Review and Update of Mitigation Goals and Objectives, pages 3-4 (Goal 1, 5)

HHPD3-b: Does the plan link a proposed action(s) to reducing long-term vulnerabilities consistent with its goals? It is recommended all vulnerabilities be described as problem statements to which a proposed action(s) is intended to mitigate.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: City of Binghamton Annex – Mitigation Strategy and Prioritization, pages 51-76

- 2024-BinghamtonC-03 High Hazard Dam Mitigation
- 2024-BinghamtonC-09 Fire Station Generator
- 2024-BinghamtonC-10 Vulnerable Population Support
- 2024-BinghamtonC-19 City Resident Education
- 2024-BinghamtonC-25 Pump Station Generators

HHPD4: Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPD?

HHPD4-a: Does the plan describe specific actions to address HHPDs? Actions such as:

- Rehabilitating/removing dams
- Adopting and enforcing land use ordinances in inundation zones
- Elevating structures in inundation zones
- Adding flood projections, such as berms, floodwalls, or floodproofing, in inundation zones.

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: City of Binghamton Annex – Mitigation Strategy and Prioritization, pages 51-76

- 2024-BinghamtonC-03 High Hazard Dam Mitigation
- 2024-BinghamtonC-09 Fire Station Generator
- 2024-BinghamtonC-25 Pump Station Generators

HHPD4-b: Does the plan describe the criteria used to prioritize actions related to HHPD?

In the space below cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: City of Binghamton Annex – Mitigation Strategy and Prioritization, pages 49-50

HHPD4-c: Does the plan identify the position, office, department, or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?

In this space cite the page number in the plan that answers this question for the dam identified or use this space to answer the question.

Section 9.3.7: City of Binghamton Annex – Mitigation Strategy and Prioritization, pages 51-76

- City Administration
- Public Works