



## **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 ALL-HAZARD MITIGATION PLAN UPDATE**  
**Steering Committee Meeting #1**  
**MEETING DATE/TIME: June 12, 2018 11:00 a.m. – Noon**  
**AGENDA**



- 1. Introductions**
- 2. Hazard Mitigation Planning and Update Overview**
  - Focus on clearer communication of risk
  - Focus on stronger connection between risk assessment and mitigation strategy
  - Focus on integration of plan into county and municipal policies, procedures and decision-making
- 3. Steering Committee Composition and Ground Rules**
- 4. Schedule**
  - Overview and Milestones
  - Meeting Schedule
- 5. Data Collection Status**
  - NFIP Data Request
  - Letters of Intent to Municipalities
  - Critical Facility Inventory
  - Reports and Plans
    - NY Rising Community Reconstruction Plan
    - Upper Susquehanna River Basin (USRB) Comprehensive Flood Damage Reduction Study
    - Local Watershed Studies
    - FEMA Flood Mapping
  - Shared Site
  - Template Data Gathering/Update Tools
    - Municipal Information Sheets
    - Capability Assessments
    - Mitigation Strategy Updates
- 6. Hazards of Concern Identification**
- 7. Public and Stakeholder Outreach**
  - Strategy
  - Tracking
- 8. In-kind Services Tracking**



**BROOME COUNTY ALL-HAZARD MITIGATION PLAN UPDATE**  
 Steering Committee Meeting #1  
 MEETING DATE/TIME: June 12, 2018 11:00 a.m. - Noon  
 SIGN-IN SHEET



Name	Title	Agency/Municipality	Phone Number	E-mail
Beth Lucas	Senior Planner	Broome County	607-778-2375	blucas@co.broome.ny.us
Hailey McCrory	PIO	Broome Co	778-2109	HMcCrory@co.broome.ny.us
JOHN MAJSTRONARDI	ENGINEER	KRATWOOD (T) DING, CONTRACTOR, FENGA	607-724-2400	john.majstronardi@kratwood.com
NAZAR LOGUIS	ENGINEER-IT	BROOME COUNTY	607 778 2457	nloguis@co.broome.ny.us
Kesha Baulton	DPW Commiss.	" "	607-778-2490	kbaulton@co.broome.ny.us
Cynthia Franco	Tetra Tech	Tetra Tech	973-630-8044	cynthia.franco@tetratech.com
RON LAKE	ENGR	T/O BET DICKS	607-343-8957	ronbert18@stn1.com
NEAL HAIGHT	Deputy Director	BCOES	607-778-3044	
Daria Golarz eski	DCPW Codes & Ord.	Tafkator	607-786-8920	dgolarz@tafkator.com
Heather Appgar	Tetra Tech	Tetra Tech	973-630-8046	heather.appgar@tetratech.com
Juliet Berling	Director PHCD	C of G Bingham	(607) 772-7078	Julberling@coffbingham.com





# Broome County All-Hazard Mitigation Plan Update Minutes of Meeting



<b>Purpose of Meeting:</b>	Steering Committee Meeting #1
<b>Location of Meeting:</b>	Town of Chenango Town Hall – 1529 NY 12, Binghamton, NY
<b>Date/Time of Meeting:</b>	June 12, 2018; 11:00 a.m. – 12:00 p.m.

<b>Attendees:</b>	Beth Lucas, Broome County Planning Frank Evangelisti, Broome County Planning Stephanie Brewer, Broome County Planning Neil Haight, Broome County Emergency Services Nazar Logvis, Broome County Division of Engineering Leslie Boulton, Broome County Public Works Commissioner Haley McCrory, Broome County Public Information Officer Daria Golazeski, Town of Union Code Enforcement	Juliet Berling, City of Binghamton Planning John Mastronardi, Town Engineer for Conklin, Kirkwood, Binghamton (T), and Fenton Ronald Lake, Town/Village Engineer, Dickinson, Windsor and Port Dickinson Cynthia Bianco, Tetra Tech Heather Apgar, Tetra Tech
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**Agenda Summary:** To discuss the Hazard Mitigation Plan update process, expectations of steering committee, and discuss new hazards of concern

Item No.	Description	Action By:
1.	<p>Introductions -</p> <p>Beth Lucas, County Planning, welcome the committee and explained that the update of the Broome County HMP is important to the county and participating jurisdictions because at the end of this process, the FEMA-approved plan will provide eligibility for pre-disaster mitigation funding and the plan will help decrease the vulnerability of people, property, and the economy to impacts of natural hazards and provide guidance for mitigation projects.</p>	
2.	<p>Hazard Mitigation Planning and Update Overview -</p> <p>Tetra Tech provided an overview of the planning process which consists of several phases including 1) Organizing the Resources, 2) Risk Assessment, 3) Developing the Plan, and 4) Preparing a Plan Maintenance Strategy and ongoing public engagement to comply with the requirements of the Disaster Mitigation Act of 2000 (DMA2000), the authorizing legislation for this process.</p> <p>Tetra Tech explained that we will be focusing on the following: 1) clearer communication of risk, 2) stronger connection between risk assessment and mitigation strategy, and 3) integration of plan into county and municipal policies, procedures, and decision-making. To do so, Tetra Tech suggested that data be summarized and more visual by showing exposure, losses, etc. in a visual aide, such as charts and graphs. Steering Committee members agreed this is a good idea to incorporate into the update.</p>	



# Broome County All-Hazard Mitigation Plan Update Minutes of Meeting



	<p>The update will require additional opportunities for public comment and stakeholder involvement, updated risk assessment, updated mitigation strategy, and plan maintenance and adoption. In addition, NYS DHSES has requirements above and beyond federal requirements which must be met to enable FEMA approval. Several of these requirements are new to this update.</p>	
<p><b>3.</b></p>	<p><b>Steering Committee Composition and Ground Rules</b> Tetra Tech reviewed the Steering Committee composition and ground rules which provide committee procedures during the process. The Steering Committee agreed that it is a good idea to identify alternates. The Steering Committee also identified several other member possibilities – American Red Cross, facilities director of Binghamton University, and Jim Rollo an insurance agent.</p>	
<p><b>4.</b></p>	<p><b>Schedule -</b> The current plan expires at the end of July. County to check with FEMA and NYSDHSES about an extension because several communities are preparing grant applications.</p> <p>Tetra Tech reviewed the project schedule and noted the following milestones.</p> <ul style="list-style-type: none"> <li>• June: Kick-Off Meeting</li> <li>• August: Risk Assessment and Problem Identification</li> <li>• September: Mitigation Strategy Workshop with FEMA</li> <li>• Final Draft Meeting</li> </ul> <p>Tetra Tech will distribute a list of meetings to the Steering Committee. The Steering Committee agreed that some meetings can be a conference call as long as they are not too visual of a meeting.</p>	<p style="text-align: center;">Tetra Tech</p>
<p><b>5.</b></p>	<p><b>Data Collection Status -</b> Tetra Tech provided a status on the requested and received data to support risk analysis for the planning process and reported the following:</p> <ul style="list-style-type: none"> <li>• NFIP data request – Beth Lucas sent request to NYSDHSES</li> <li>• Letters of Intent to Participate – Beth Lucas is gathering letters from each municipality.</li> <li>• Critical facility inventory</li> <li>• Reports and plans – Tetra Tech provided a list of reports and plans collected so far. It was asked of the Steering Committee to review the list and provide comments and additional reports and plans to Tetra Tech.</li> <li>• Share Point Site – Tetra Tech to develop a SharePoint site where Steering Committee can log on and see a status of where we are in the planning process, calendar of upcoming meetings, etc.</li> <li>• Tetra Tech will provide critical inventory maps to the committee and</li> </ul>	<p style="text-align: center;">Tetra Tech, Steering Committee</p>



# Broome County All-Hazard Mitigation Plan Update Minutes of Meeting



	<p>participating jurisdictions for review and comment prior to initiating the risk analysis for the hazards of concern.</p> <ul style="list-style-type: none"> <li>• Tetra Tech will send out worksheets to communities to obtain information that will be incorporated into each municipal annex.</li> </ul>	
<b>6.</b>	<p><b>Hazards of Concern Identification</b> Tetra Tech reviewed the hazards of concern included in the current HMP and the committee discussed the possible inclusion of additional hazards. At the time of the meeting, no additional hazards will be added to the 2018 Plan Update.</p>	Tetra Tech, Steering Committee
<b>7.</b>	<p><b>Public and Stakeholder Outreach</b> Tetra Tech noted that outreach will be necessary to include stakeholder and public input. Much of this will be done via survey but some direct contact.</p> <ul style="list-style-type: none"> <li>• Neighboring Counties – Frank Evangelisti will distribute a letter and survey link to neighboring counties</li> <li>• Tetra Tech requested the dates of the LEPC meetings. These meetings will be a good way to inform the municipalities of the planning process and inform them of the stakeholder surveys.</li> <li>• It was brought up that the county executives meet quarterly with all municipalities – another possibility in discussing the HMP Update</li> <li>• The municipal engineers distribute flyers and handouts – possible to get a write-up about the HMP Update?</li> <li>• Flood Task Force distributes information electronically – possible to get a write-up about the HMP Update?</li> <li>• Media Releases <ul style="list-style-type: none"> <li>○ Tetra Tech will send out templates for the County to use</li> <li>○ County to update the HMP webpage (<a href="http://www.gobroomecounty.com/planning/hazardmitigation">http://www.gobroomecounty.com/planning/hazardmitigation</a>)</li> <li>○ Twitter and Facebook posts – Tetra Tech to provide templates</li> <li>○ Postcards – possibility of sending out with survey link and information about the HMP</li> <li>○ Email blasts to all county employees asking them to take the citizen survey</li> </ul> </li> <li>• County Legislature – invite staff member to be on the Steering Committee</li> </ul>	Tetra Tech, County Planning, Steering Committee, Planning Partnership
<b>8.</b>	<p><b>In-Kind Services Tracking</b></p> <ul style="list-style-type: none"> <li>• Members of the Steering Committee and Planning Partnership need to track their hours for participating during the planning process.</li> </ul>	Steering Committee, Planning Partnership



**BROOME COUNTY ALL-HAZARD MITIGATION PLAN UPDATE**  
**Planning Committee Kick-Off Meeting**  
**MEETING DATE/TIME: June 12, 2018 1:00 PM – 3:00 PM**  
**AGENDA**



- Welcoming Remarks and Introductions
- Updating the Mitigation Plan – Why?
- Schedule
- Role of the Municipal and County Participants
- Planning Process
- Organize Resources
- Re-assess Risk
- Review and Update HMP
- Implement Plan and Monitor Progress
- Action Items
  - Return Letter of Intent to Participate
  - Confirm Local Floodplain Administrator and Contact Information
  - Worksheets – Complete electronic Word versions
- Upcoming Meetings
  - Risk Assessment and Problem Identification
  - FEMA Mitigation Strategy Meeting/Municipal Workshops
- Questions and Answers

**Broome County Project Contact**

Beth A. Lucas  
Senior Planner  
Broome County Planning Department  
60 Hawley St, PO Box 1766, Binghamton, NY 13902  
607-778-2375  
BLucas@co.broome.ny.us

**Tetra Tech Project Contacts**

Cynthia Addonizio-Bianco, CFM  
Tetra Tech, Inc., 6 Century Drive, Parsippany, NJ 07054  
(973) 630-8044 | cynthia.bianco@tetrattech.com

Heather Apgar, CFM  
Tetra Tech, Inc., 6 Century Drive, Parsippany, NJ 07054  
(973) 630-8046 | heather.apgar@tetrattech.com



**BROOME COUNTY ALL-HAZARD MITIGATION PLAN UPDATE**  
 Planning Committee Kick-Off Meeting  
**MEETING DATE/TIME: June 12, 2018 1:00 PM – 3:00 PM**  
**SIGN-IN SHEET**



Name	Title	Agency/Municipality	Phone Number	E-mail
JOHN MASTRONARDI	ENGINEER	BINGHAMTON (T) CONULT, FEN-CON, K&K INC	607-724-2400	johnmastronardi@tetratech.com
Daria Golazeski Frank Evangelisti	DPW Codes-Ordinance Director of Planning	TOWN of Union Broome County	607-786-2980 607 778 2414	dgolazeski@townofunion.com fevangelisti@co.broome.ny.us
Stephanie Brewer	Planner	BROOME COUNTY	607-778-2390	sbrewer@co.broome.ny.us
Leslie Boulton	DPW Commissioner	Broome County	607-778-2450	lboulton@co.broome.ny.us
NAZAR LOGUIS	ENGINEER PPW	BROOME COUNTY	607 778 2457	nloguis@co.broome.ny.us
Juliet Beding	Director	City of Binghamton Planning Dept. PG CS	607 772-7208	Juliet.Beding@cityofbinghamton.com
RON LAKE	ENGINEER	T/O DICKINSON	607-797-0438	ronbert18@stny.rr.com
Cynthia Bianco	Consultant	Tetra-Tech	973-630-8046	cynthia.bianco@tetratech.com
Heather Apgar	Consultant	Tetra Tech	973-630-8046	heather.apgar@tetratech.com
Lincoln Ellis	Code Officer	Town of Vestal	607-786-0960	lellis@vestal.ny.com
David Decker	Supt. of Public Works	Village of Windsor	607-222-8457	deckd3vow@gmail.com
THOMAS COSTELLO	Dir. of Bldg Const	City of Binghamton	607-343-9600	thomas.tello@binghamton.com City of



**BROOME COUNTY ALL-HAZARD MITIGATION PLAN UPDATE**  
 Planning Committee Kick-Off Meeting  
 MEETING DATE/TIME: June 12, 2018 1:00 PM - 3:00 PM  
 SIGN-IN SHEET



Name	Title	Agency/Municipality	Phone Number	E-mail
Kent Rupp	Engineering Aide	Village of Endicott	607-757-2425	engineer@endicott.ny.com
DAVID MACKAY	Highway Syst	Town of BARKER	607-692-3990	TOB.H.WAY@ST.N.Y.P.R.COM
Vernon Myers	Town Engineer	Town of Vestal	607 786 0980	vmyerse@vestal.ny.com
Beth Lucas	Senior Planner	Broome County	607-778-2375	blucas@co.broome.ny.us
BOB BENNETT	DIRECT PUBLIC SERVICES	V of JC	607-797-3031	jcdaps@villageofjcs.com
Joy Kosmotic	Highway	Town of Chenango	607-648- <del>3300</del> 4809	highway@townofchenango.com
Charlie Vranasse	Supervisor	Town of TRINACLE	607-765-3304	tringle@supervisor@slingshot.com
Joseph Griswold	Fire Chief	Village of Endicott	607-343-6347	JGriswold@CO.BROOME.NY.US
ALEX UROA	Engineer (T) Chenango		607 760 6545	ALEX.UROA@CHENANGO.NY.GOV
Franco A. Inerith	Asst. City Engineer	City of Binghamton	607-772-7007	franco.inerith@cityofbinghamton.com
NEAL HAIGHT	Deputy Director	BCOES	607-778-3044	NHAIGHT@CO.BROOME.NY.US



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# Broome County and Participating Municipalities Hazard Mitigation Plan Update

June 12, 2018



## Today's Topics

- Introductions
- Updating the Mitigation Plan – Why?
- Schedule
- Participation
- Planning Process
- Action Items



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## Hazard Mitigation

*“Mitigation” -  
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).**

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## Are there any Benefits to Mitigation Planning?

National Benefit-Cost Ratio Per Peril		Federally Funded
<small>*BCR numbers in this study have been rounded</small>		
<b>Overall Hazard Benefit-Cost Ratio</b>		<b>6:1</b>
<b>Riverine Flood</b>		<b>7:1</b>
<b>Hurricane Surge</b>		Too few grants
<b>Wind</b>		<b>5:1</b>
<b>Earthquake</b>		<b>3:1</b>
<b>Wildland-Urban Interface Fire</b>		<b>3:1</b>

Per FEMA's 2005 National Institute of Building Sciences report, mitigation saves \$ !

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# Benefits of Hazard Mitigation!

On average,

**\$1** spent on  
**HAZARD MITIGATION**

provides the  
**NATION**  
approximately

**\$4** IN FUTURE  
**BENEFITS**



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# Hazard Mitigation has Multiple Positive Outcomes

**3 KEY COMPONENTS**  
THAT CONTRIBUTE  
TO NATURAL HAZARD  
MITIGATION PLANNING



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## Broome County and DMA 2000

The mitigation plan update will:

- Help the County prepare for and mitigate the effects of disasters
- Continue to allow the county and participating partners to be eligible for pre- and post-disaster mitigation funding
- Support CRS participation/rating of municipalities

A **Local Mitigation Plan** demonstrates the jurisdiction's commitment to reducing risk and serves as a guide for decision makers as they commit resources to minimize the effects of natural hazards.

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## Requirements for Local Mitigation Plan Updates

- Include the opportunity for public comment and for relevant agency and stakeholder involvement
- Updated Risk Assessment - a factual basis for activities proposed in the Mitigation Strategy section include:
  - Overview of hazards (type, location, probability)
  - Vulnerability analysis (impact on buildings, infrastructure, economy, development trends)
  - Multiple jurisdictions (specific to each town/borough/city)
- Updated Mitigation Strategy – a blueprint for reducing losses identified in the risk assessment
- Plan Maintenance and Adoption Processes

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## NYS DHSES Requirements

- Establish Jurisdictional Teams
- Assess Critical Facilities
- Plan for Displaced Residents
  - Intermediate (Temporary Housing) and Long-Term (Permanent Housing)
- Plan for Evacuation and Sheltering
- Document Past Mitigation Accomplishments
- Include Jurisdictional Annexes
- Develop Mitigation Actions (minimum of 2 projects)
- Plan for Climate Change



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## Key Schedule Milestones

- |                       |   |
|-----------------------|---|
| ➤ June 12, 2018       | Project Kick-Off Meeting                                    |
| ➤ August              | Risk Assessment Results / Problem Identification            |
| ➤ September           | FEMA Mitigation Strategy Meeting / Municipal Annex Workshop |
| ➤ September / October | Municipal Annex Support                                     |
| ➤ November            | Updated Plan Submittal to NYS DHSES / FEMA                  |
| ➤ December            | FEMA Approval Pending Adoption                              |
| ➤ January 2019        | County and Municipal Adoptions                              |

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## Plan Document

- Volume 1 will contain all information that applies to the whole planning area (county) such as description of the planning process, risk assessment, goals and objectives, County/multi-jurisdictional mitigation strategies and a plan maintenance program.
- Volume 2 will contain those elements that are “jurisdiction specific”. Your community’s chapter. These annexes will meet DMA requirements for each jurisdiction.

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## Organization of the Planning Group

- County Management Team (Department of Planning and Economic Development)
- Contract Consultant (Tetra Tech, with Woitd Engineering Consultants)
- Steering Committee
- Planning Committee
- Stakeholders
- General Public

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## Municipal Planning Partnership

- All municipalities are encouraged to participate (and continue to be covered by the County-wide Plan), and all have indicated their interest.
- FEMA has greatly expanded their scrutiny of “participation”... Municipalities are required to actively participate.
- All municipalities who wish to join the update process must formally indicate their intent to participate.

### Letters of Intent to Participate

**Your Letter of Intent to Participate (LOIP) for your community are due ASAP to Beth Lucas. Copies will be included in the HMP.**

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## Municipal Participation

- Attend planning partnership meetings/workshops
- Provide data and information in a timely manner
- Support public and stakeholder outreach in your jurisdiction
- Assist with the development of your jurisdictional annex
- 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

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## Plan Update Process Steps

- Organize Resources
  - Re-Assess the Risk
  - Review and Update the Mitigation Plan
  - Develop Procedures for Plan Implementation, Monitoring and Update
  - NYS DHSES / FEMA Approval
  - Adopt the Plan
- Engage a Wide Range of "Stakeholders"*
- Federal, State, Regional and Local Agencies
  - Business and Civic Groups
  - Academic Institutions
  - Other "local governments"
  - The Public



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## Organize the Resources

- Steering Committee oversees the Municipal Planning Partnership organizational structure
- Letter of Intent to document municipal participation
  - Identifying municipal participation expectations
  - Authorizing a Steering Committee to act on their behalf as appropriate

Municipal Involvement will be encouraged and promoted by:

- Three to four formal municipal planning partnership meetings (Kick-Off, Municipal Workshop, FEMA Mitigation Strategy)
- Data collection and annex tools, templates, surveys
- Completion of Municipal Annex supports "buy in" and "ownership"
- Planning process execution and municipal training programs builds local capability
- Local public outreach including RL/SRL outreach

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## Data Collection (see handout)

We are collecting:

- Critical Facilities
- Plans/Reports/Studies

Please send us any  
Plans/Studies that are  
not in this table.

**BROOME COUNTY ALL-HAZARD MITIGATION PLAN UPDATE**  
DATA COLLECTION: STUDIES/PLANS

County/Local – Comprehensive Plans, Emergency Plans, Floodplain Management Plans, Stormwater Management Plans

Studies/Plans Obtained to Date - Please provide others, including:

Existing plan, program or technical documents	Date	Jurisdictional Applicability
Chenango Ordinance		
Town of Chenango Comprehensive Plan		
Water Ordinance		
Ringbush Comprehensive Plan	November 3, 2014	Chenango (T)
First Consolidated Plan		Chenango (T)
First Ward Revitalization Strategy	August 1, 2014	Chenango (T)
Department of Planning, Housing and Community Development Annual Action Plan	July 8, 2015	Binghamton (C)
Town of Coleville Comprehensive Plan	April 1, 2016	Binghamton (C)
Town of Coxsack Comprehensive Plan Update June 2004	2014-2018	Binghamton (C)
Town of Dickinson Broome County, New York Comprehensive Plan Update	2015	Binghamton (C)
Dickinson Ordinances	June 1, 2004	Colesville (T)
Town of Fenton Comprehensive Plan	August 8, 2009	Covelin (T)
	2007	Dickinson (T)
		Dickinson (T)
		Fenton (T)

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## Re-Assess the Risk



These are the Five Steps to Assess Risk:

1. Identify Hazards
2. Profile Hazards
3. Inventory Assets
4. Estimate Losses
5. Evaluate Mitigation Options

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## Assess the Risk – Step 1: Hazard of Concern Identification

Hazards of Concern (HOCs)- Those natural hazards that pose significant risk to the Planning Area – and we can address through mitigation rather than only through preparedness, response and recovery.

- Review and update the “hazards of concern” that we will carry through the planning process.
- Our effort should be proportional to the risk the hazards pose.
- Each municipality has differing risk to the HOCs.
- We are generally limiting this plan to natural hazards.



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## Hazards of Concern for Broome County

- Review of Hazards of Concern for the 2018 Update:
  - Drought
  - Earthquake
  - Extreme Temperatures
  - Flood (riverine, flash, ice jam, dam failure, ground failure due to saturated soils)
  - Severe Storm (hail, wind, lightning, thunderstorm, tornado, tropical storms, hurricanes)
  - Severe Winter Storm (heavy snow, blizzard, sleet/freezing rain, Nor'Easter)
  - Others?



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## Assemble Your Municipal Mitigation Team

*Here is who we suggest you include as part of your Hazard Mitigation Planning team:*

- Floodplain Administrator
- Building Code Official
- Municipal Engineer
- Land Use Planner
- Municipal Clerk
- Municipal Mayor/Administrator
- Municipal CFO/Fiscal Rep
- Public Works Director
- Police Official
- Fire Official

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## Assess the Risk – Step #2: Hazard Profiling (Worksheet)

- Hazards are profiled (described) according to:
  - Background and local conditions
  - Historic frequency and probability of occurrence
  - Severity
  - Historic losses and impacts
  - Designated hazard areas
- Looking at the 2013 HMP hazards of concern - how was the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?
- What hazard events have occurred since the 2013 Plan?
- What County and local losses have occurred as a result of these events?



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# Worksheet #1 – Evaluation of Identified Hazards and Risk

**Please fill in and follow-up**

**Complete Worksheet #1 and send Word electronic version via email to Heather Appgar by June 22nd**

Identified Hazard of Concern in the 2013 Broome County HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?	
	NC – No Change; I – Increase; D – Decrease	Additional Comments
Drought		
Earthquake		
Extreme Temperatures		
Flood – riverine/flash flood, ice jam, dam failure, and ground failure due to saturated soils		
Severe Storm – hail, wind, lightning, thunderstorm, tornado, tropical cyclone, tropical depression, tropical storm, and hurricane		
Severe Winter Storm – heavy snow, blizzard, sleet/freezing rain, and Nor'Easter		

**For example**

The municipality has seen an increase in flood damages. Main Street is closed every time it rains due to ponding and flooding. This prevents emergency personnel from reaching residents in this part of the town.

# Worksheet #1 Events and Losses (Continued)



**BROOME COUNTY HAZARD MITIGATION PLAN UPDATE**  
Worksheet #1 – Evaluation of Identified Hazards and Risk



Please identify any other hazards that you believe should be considered in the 2018 Update of the Broome County Hazard Mitigation Plan (e.g. landslides, wildfires, etc.)

Please identify hazard events that have caused damage/losses in your community.

Date (s) of Event	Event Type	Did your community suffer losses/costs from this event? If yes, please provide details*
	I/I/MA Disaster Declaration if applicable	

- \*Please provide the following details, if applicable:
- **Life Safety** – evacuations, sheltering, injuries, deaths
  - **Loss of Service** – road closures, utility outages, commercial closures (include location, time of closure and/or number of people affected)
  - **Infrastructure Damage** – roads, bridges, culverts, wastewater treatment facilities, etc.
  - **Facility/Structural Damage (Public)** – schools, police stations, fire department, etc.
  - **Facility/Structural Damage (Private)** – residential, commercial, etc.

## Assess the Risk – Step #3: Inventory Assets

What is at risk? People, Property, Economy, Environment

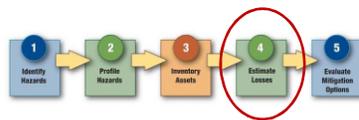
- Population and Demographics – Has this changed since 2013?
- Building Stock (Residential, Commercial, Industrial, Educational, etc.) – Has this changed since 2013?
- Facilities (critical and essential facilities, utilities, transportation features, high-potential loss facilities and user-defined facilities)
  - Police, Fire, Emergency Services
  - Hospitals and Medical Care Facilities
  - Schools and Care Facilities
  - Sheltering Facilities
  - Infrastructure (Transportation Systems, Utilities)



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## Assess the Risk – Step #4: Estimate Losses

- Vulnerability Assessment - What do we predict our suffering to be if we do nothing to mitigate our risk:
  - Given current conditions, which have changed since 2013?
  - Given our improved understanding of risk, and tools to assess that risk, which have changed since 2013?



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## Assess the Risk –

### Step #5: Re-evaluate Hazard Mitigation Goals and Objectives

**Goals:** General guidelines that state what we want to achieve.  
Should be consistent with the State goals and other local goals.  
Example: “Protect property”

**Objectives:** Define strategies or implementation steps to attain a stated goal.  
Example: “Enact or enforce regulatory measures that ensure new development will not increase flood threats to existing properties”.



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## Assess the Risk –

### Step #5: Re-evaluate Capabilities

#### What resources do we have at our disposal to Mitigate Risk?

“Proposed mitigation actions will be evaluated against the backdrop of what is feasible in terms of your government’s legal, administrative, fiscal and technical capacities” (FEMA 386-3)

- Serve to identify legal authority and administrative, technical and fiscal capabilities in the state, county and jurisdictions that will facilitate or hinder hazard mitigation goals and objectives.
- State-level mitigation capabilities summarized in the State HMP
- Part of this Planning Process is to build County and Local Mitigation Capabilities
- Training, Workshops and Seminars

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## Municipal Input and Data Collection to Support Planning

#	Worksheet Name	Who is Responsible to Complete and Submit this Worksheet?	Where do you find the requested information?
1	Events/Losses	OEM, Police, Fire, DPW, Engineer	FEMA Project Worksheets (PWs) DPW records, Police response records
2	Capability Assessment	Code Official, Planner, CFO/Fiscal Rep, Clerk	Code Book, e-Code, Municipal ordinances, Master Plan
3	NFIP Floodplain Administrator	Floodplain Administrator	NFIP Records
4	Mitigation Action Progress	HMP Main POC – see 'Responsible Party' column in the table provided for guidance	LOIs, NYS DHSES Grants, Capital Improvement records
5	Plan Integration Questionnaire	HMP Main POC	Discuss with Engineer, Clerk, Administrator, Planner, CFO, and Municipal Mayor/Administrator
6	New Development Table	Engineer, Planner, Building Department	Redevelopment Plans, Permits
7	Evacuation and Sheltering Needs	OEM, Code Official, Planner	Master Plan, Emergency Plans

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## Update, Identification and Analysis of Mitigation Actions

- Mitigation strategies need to be realistic, achievable and action-oriented.
- Will include both regional (county-wide) strategies, as well as jurisdiction-specific.
- For each proposed mitigation strategy, the following will be identified:
  - Implementation timeline
  - Estimated budget
  - Potential funding sources
  - Lead agency or department
  - Supporting agencies
  - Priority
  - For prior/old strategies provide update of status
- Proposed mitigation activities are evaluated using a Cost-Benefit Screening



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## Confirm Progress on 2013 Actions

- Confirm reported progress made on mitigation actions identified in 2013 plan.
- If an action wasn't completed, why not?
- This strategy review process is NOT meant to blame or punish. The answer can reveal things that need to be addressed to allow mitigation to progress (new initiatives), for example:
  - Obstacle: We do not have the technical resources to prepare a grant application.
  - Possible Action: Develop a county-level support team trained in application development.

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## New Mitigation Actions for ???? HMP Update

- Opportunity to add new mitigation actions
- This includes all in-progress grant applications (HMGP generators, CDBG acquisitions, etc.)
- FEMA's Mitigation Workshop – TBD



*"At the first sign of a flood, you just push this little button."*

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## Types of Mitigation Actions

- **Plans and/or Regulations.** Measures such as zoning and building code, ordinances, planning (comprehensive/master plans, stormwater management plans, open space), hazard/risk insurance (e.g. NFIP).
- **Property Protection.** Measures such as acquisition, elevation, relocation, structural retrofits, storm shutters, rebuilding, barriers, floodproofing.
- **Public Education and Outreach.** Measures such as public awareness projects, real estate disclosure, hazard information centers, technical assistance.
- **Natural Resource Protection.** Measures such as erosion and sediment control, stream corridor protection, vegetative management, wetlands preservation.

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## Mitigation Action Example

General Action: Retrofit Vulnerable Infrastructure

Detailed Action:

The Village will replace the Jefferson Avenue Bridge, located in the center of the Village to avoid river flow restrictions created by the current design of the bridge. The current bridge has suffered extensive structural damage during past flooding events. The center piling of the bridge is located mid-stream in the Mamaroneck River and contributes to debris back-up and reduced flow capacity of the river.

Action Words to Use: Replace; Retrofit; Reconstruct; Improve Design; Increase Capacity; Acquire; Elevate

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## Integration with Other Plans and Programs

The Hazard Mitigation Plan should complement and support other Plans and Regulatory Mechanisms

- Emergency Operations Plan (EOP) / Comprehensive Emergency Management Plans (CEMP)
- Master Plans (regional and local) – these plans guide and direct land use and development
- Community Recovery and Redevelopment Programs
- Stormwater Management Plans
- Capital Improvement Plans (some of these projects are grant eligible)
- Higher Regulatory Standards (e.g. increased free-board, cumulative substantial damages)

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## New Development

- Please indicate recent development since 2013, and any known or anticipated major new residential/commercial development and major infrastructure development that are identified for the next five (5) years in your municipality.

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## Sheltering and Evacuation

- Please indicate shelters, potential sites for temporary housing after a disaster, potential sites to relocate buildings out of the floodplain, and evacuation routes and procedures.

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## Plan Implementation

- Your mitigation strategy section provides a “blueprint” to follow for progressively reducing your community’s natural hazard risk.
- It includes two types of initiatives/projects – those that your community can “self fund”, and those that will require outside (e.g. grant) funding.
- Mitigation grant opportunities open regularly:
  - The annual HMA grant window (PDM and FMA) opens April of this year.
  - HMGP funding comes in the wake of Declared Disasters in the State.



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## Other Planning Tasks

- Assuring wide involvement and public participation
  - Notices and News Releases on planning effort (newspapers)
  - HMP Webpage detailing effort, providing downloadable drafts of the plan, and providing a way for public input (local contact information and email link)
  - Invite Stakeholder and Public Participation
    - Citizen Survey
    - Stakeholder Surveys
    - Participate in County Comprehensive Economic Development Strategic Committee (County and Stakeholder Involvement)
  - Public access to draft and final plan documents
- Documentation of the Planning Process
- Plan implementation and maintenance procedures
- Adoption by local governments

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## We Need You Engaged and Involved!

### Outreach

- Update your Municipal webpage and link to County's HMP Web Page – *in process of being updated*
- Social Media Blasts
- Local Announcements of HMP Update
- Local public meetings
- *Look for additional "homework" to provide input and feedback for the plan*

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## Public Outreach

- Link to the County Mitigation website  
<http://www.gobroomecounty.com/planning/hazardmitigation/plandocuments>
- Place brochures at municipal hall/libraries
- Utilize social media
  - Facebook
  - Twitter

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## Next Meeting – Risk Assessment Results

- Who needs to attend:
  - Municipal Engineer
  - Floodplain Administrator
  - Land Use Planner
  - Building Code Official
  - Municipal Clerk
  - Administrator
  - OEM Coordinator
  - Public Works Director
  - Police/Fire/EMS Officials

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Thank you!

Cynthia Bianco, CFM

Heather Apgar, CFM

Tetra Tech, Inc.

[cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

[heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



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## **BROOME COUNTY, NEW YORK ALL-HAZARD MITIGATION PLAN 2018 UPDATE**



Steering Committee Meeting #3 - Agenda

Meeting Date / Time: September 19, 2018 at 10:00AM – 11:30AM

Location: Community Room at Chenango Town Hall – 1529 State Route 12, Binghamton, NY

- 1. Opening Remarks**
- 2. Project Status** - where we are in the process, public outreach, outreach to non-responsive communities
- 3. Finalize Goals and Objectives**
- 4. SWOO Overview (Strengths, Weaknesses, Obstacles and Opportunities) related to limiting impact of Hazards of Concern**
- 5. Discussion of Risk Assessment and Overall Ranking**
- 6. Next Steps**
- 7. Adjournment**

### **Broome County Project Contact**

Beth A. Lucas, Senior Planner  
Broome County Planning Department  
60 Hawley St, PO Box 1766, Binghamton, NY 13902  
607-778-2375 | BLucas@co.broome.ny.us

### **Tetra Tech Project Contacts**

Cynthia Addonizio-Bianco, CFM  
6 Century Drive, Parsippany, NJ 07054  
(973) 630-8044 | cynthia.bianco@tetrattech.com

Heather Apgar, CFM  
6 Century Drive, Parsippany, NJ 07054  
(973) 630-8046 | heather.apgar@tetrattech.com



**BROOME COUNTY ALL-HAZARD MITIGATION PLAN UPDATE**  
**Steering Committee Meeting #2**  
**MEETING DATE/TIME: September 19, 2018 10:00am – 12:00pm**  
**SIGN-IN SHEET**



Initial for Attendance	Name	Title	Agency/Municipality	Phone Number	E-mail
<i>BLA</i>	Beth Lucas	Senior Planner	Broome County Planning	(607) 778-2375	blucas@co.broome.ny.us
<i>FE</i>	Frank Evangelisti	Director	Broome County Planning	(607) 778-2114	fevangelisti@co.broome.ny.us
<i>SB</i>	Stephanie Brewer	Planner	Broome County Planning	(607) 778-2114	sbrewer@co.broome.ny.us
	Doug English	GIS Administrator	Broome County GIS Administrator	(607) 778-6505	denglish@co.broome.ny.us
<i>NE</i>	Neil Haight	Deputy Director	Broome County Emergency Services	(607) 778-2170	NHaight@co.broome.ny.us
<i>NLC</i>	Nazar Logvis	Engineer	Broome County Division of Engineering	(607) 778-2909	NLogvis@co.broome.ny.us
	Leslie Boulton	Deputy Commissioner of Engineering	Broome County Public Works Commissioner	(607) 778-2490	lboulton@co.broome.ny.us
	Haley McCrory	Public Information Officer	Broome County Health Department	(607) 778-2812	HMcCrory@co.broome.ny.us
	Daria Golazeski	Code Enforcement Officer	Town of Union Code Enforcement	(607) 786-2920	dgolazeski@townofunion.com
<i>PN</i>	Paul Nelson	Director	Town of Union Planning	(607) 786-2985	pnelson@townofunion.com
	Vernon Myers	Town Engineer	Town of Vestal	(607) 786-0980 ext 209	vmyers@vestalny.com
<i>FR</i>	Ray Standish Franco Incitti	City Engineer Senior Engineer	City of Binghamton Engineering	(607) 772-7007	rstandish@cityofbinghamton.com faincitti@cityofbinghamton.com





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## Planning Together for a Resilient Broome County

### 2018 Broome County Hazard Mitigation Plan

Steering Committee Meeting September 19, 2018



## Today's Topics

- Opening Remarks
- Project Status
- Finalize Goals and Objective
- SWOO Summary
- Risk Assessment Overview
- County Hazard Risk Ranking
- Next Steps



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# Homework Status

No input from Towns of Lisle, Maine, Nanticoke, and Village of Lisle. No data sheets from V Windsor

Jurisdiction	LOIP	Worksheet 1 - Events and Losses	Worksheet 2 - Capability Assessment	Worksheet 3 - NFIP/FPA	Worksheet 4 - Post-Action Progress	Worksheet 5 - Plan Integration	Worksheet 6 - New Development	Worksheet 7 - Shelters
Broome County	X	X	X	N/A	X	X	X	waiting for ARC
Barker (T)	X			X				
Binghamton (C)	X	X	X		X	X	X	
Binghamton (T)		X	X					X
Chenango (T)	X	X		X		X	X	X
Colesville (T)	X	X	X			X	X	X
Conklin (T)		X	X			X	X	X
Deposit (V)								
Dickinson (T)	X	X	X	X		X	X	X
Endicott (V)	X	X						
Fenton (T)		X	X	X		X	X	X
Johnson City (V)	X	X		X			X	
Kirkwood (T)		X	X			X	X	X
Lisle (T)								
Lisle (V)								
Maine (T)								
Nanticoke (T)								
Port Dickinson (V)	X	X	X			X	X	X
Sanford (T)		X	X			X	X	X
Trianda (T)	X	X	X			X	X	X
Union (T)	X	X	X	X		X	X	X
Vestal (T)	X	X	X			X	X	X
Whitney Point (V)		X	X	X		X	X	X
Windsor (T)	X	X	X			X	X	X
Windsor (V)	X							

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# Stakeholder Engagement

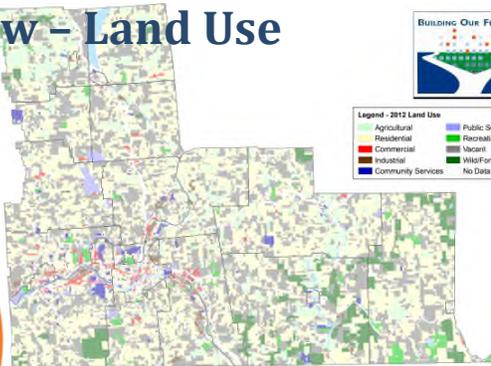
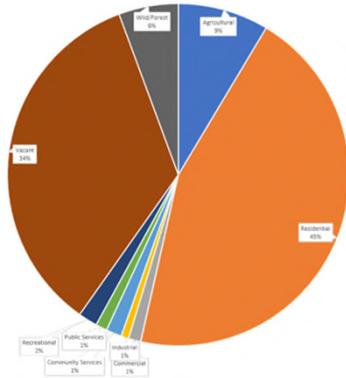
- ✓ County Website
- ✓ County Event Calendar
- ✓ Stakeholder surveys
- ✓ Citizen Survey
- ✓ Brochure
- ✓ Press Release
- ✓ Neighboring Counties
- ✓ Municipal Websites?
- ✓ Local Meetings?



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# County Overview – Land Use



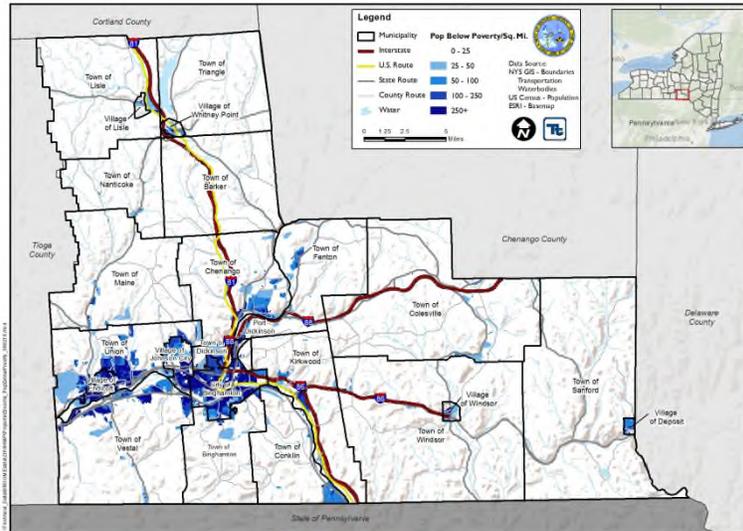
**Legend - 2012 Land Use**

- Agricultural
- Residential
- Commercial
- Industrial
- Community Services
- Public Services
- Recreational
- Wild/Forest
- No Data

Land Use Category	Acres	Total % Land
Agricultural	36,580	9%
Residential	191,411	45%
Commercial	4,991	1%
Industrial	3,073	1%
Community Services	6,265	1%
Public Services	4,631	1%
Recreational	7,682	2%
Vacant	147,191	35%
Wild/Forest	24,007	6%

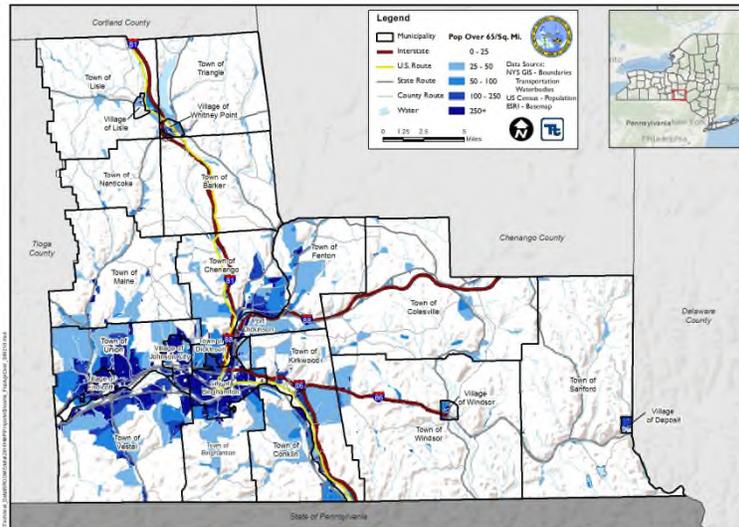
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# County Overview – Vulnerable Populations Low-Income



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## County Overview – Vulnerable Populations Residents 65+



## Hazards of Concern

### 2018 Hazard Mitigation Plan Update – Hazards of Concern

Drought

Earthquake

Extreme Temperatures

Flood – riverine/flash, ice jam, and dam failure

Invasive Species – giant hogweed, kudzu, emerald ash borer, and hemlock woolly adelgid

Severe Storm – hail, wind, thunderstorms, tornadoes, hurricanes, and tropical storms

Severe Winter Storm – heavy snow, blizzards, sleet, freezing rain, ice storms, and Nor'Easters

Wildfire\*

\*Under consideration

# Drought

## ➤ USDA Disaster Designation History (2012 to 2017) for Broome County

Date of Event	Event Type	USDA Designation Number
June 2012	Drought, Excessive Heat	S3427
June 2012	Drought	S3441
April 2016	Drought	S4062
July 2016	Drought	S4031
August 2016	Drought	S4023



### 2012 Census of Agriculture for Broome County

- Number of Farms = 563
- Land in Farms = over 79,000 acres (~18% of the county's total land)
- Generate \$30.7 million in sales each year and over \$100 million in business investments
- Droughts lead to crops drying and farmers losing money



### Water Supply and Quality

- Drought conditions can lead to water supply shortages
- Both ground water and surface water supplies are impacted
- City reliance on river for potable water



### Recreation

- Lower water levels can restrict boating and water sports
- Stress to ecosystem can impact fishing

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# Earthquake



### Overall County Impacts

- 97,890 people living in Class D and E Soils
- 52,010 buildings located in Class D and E Soils
- Total damages:
  - 250-year event - \$28.4 million
  - 1,000-year event - \$241.8 million

- Population most susceptible to the impacts of earthquakes are those living in areas of National Earthquake Hazard Reduction Program (NEHRP) Class D and E soils. These types of soils can amplify ground shaking.

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## Extreme Temperatures

Name	Begin	End	Max (°F)	Max Date	Min (°F)	Min Date	Avg Max (°F)	Avg Min (°F)
300691 - Binghamton	1893	1968	103	7/9/1936	-28	1/17/1893	50	30.5
300687 - Binghamton	1951	2003	98	7/16/1988	-20	1/15/1957	46.1	29.4
302030 - Deposit	1962	2003	98	7/15/1995	-31	1/21/1994	49.3	27.5
302627 - Endicott	1985	2003	101	7/17/1988	-26	1/21/1994	50.1	27.9
308831 - Vestal	1968	1977	92	6/28/1969	-14	1/23/1976	47	27.7
308833 - Vestal	1977	1985	95	7/21/1980	-17	2/11/1979	46.8	27.7

Between 2012 and 2018, Broome County was included in five USDA declarations involving extreme temperatures.

- S3249 – March 2012 – Frosts and freezes
- S3427 – June 2012 – Drought, excessive heat
- S3746 – February 2014 – Freeze
- S4023 – August 2016 – Drought, heat, excessive heat
- S4031 – September 2016 – Drought, heat, excessive heat

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## Extreme Temperatures

Health Hazard	Symptoms
Sunburn	Redness and pain. In severe cases: swelling of skin, blisters, fevers, and headaches
Dehydration	Excessive thirst, dry lips and slightly dry mucous membranes
Heat Cramps	Painful spasms, usually in muscles of legs and abdomen, and possible heavy sweating
Heat Exhaustion	Heavy sweating; weakness; cold, pale and clammy skin; weak pulse; possible fainting and vomiting
Heat Stroke	High body temperature (104°F or higher), hot and dry skin, rapid and strong pulse, and possible coma

Extreme Temperature Events 1950-2018

Hazard Type	Number of Occurrences Between 1950 and 2018	Total Fatalities	Total Injuries	Total Property Damage (\$)	Total Crop Damage (\$)
Cold/Wind Chill	13	0	0	\$20K	\$0
Excessive Heat	2	0	0	\$0	\$0
Extreme Cold/Wind Chill	2	0	0	\$0	\$0
Heat	3	0	0	\$0	\$0
<b>TOTAL</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>\$20K</b>	<b>\$0</b>

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# Flood

## ➤ History of flood events

- 11 FEMA Flood Disaster Declarations since 1954

Date(s) of Incident	Incident Type	FEMA Disaster Type and Number
July 22, 1970	Heavy Rains and Flooding	DR-290
October 2, 1975	Storms, Rains, Landslides and Flooding	DR-487
July 21, 1976	Severe Storms and Flooding	DR-515
January 19-30, 1996	Severe Storms and Flooding	DR-1095
May-June 2004	Severe Storms and Flooding	DR-1534
August-September 2004	Severe Storms and Flooding	DR-1564
April 2-4, 2005	Severe Storms and Flooding	DR-1589
June-July 2006	Severe Storms and Flooding	DR-1650
November 16-17, 2006	Severe Storms and Flooding	DR-1670
April-May 2011	Severe Storms, Flooding, Tornadoes, and Straight-Line Winds	DR-1993
June-July 2013	Severe Storms and Flooding	DR-4129

- 31 flood events between 2012 and May 2018 (FEMA and NOAA-NCEI)

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## Flood History (1950-May 2018)

Hazard Type	Number of Occurrences between 1950 and May 2018	Total Fatalities	Total Injuries	Total Property Damage (\$)	Total Crop Damage (\$)
Flash Flood	89	7	3	\$328.2 million	None reported
Flood	61	None reported	None reported	\$479.7 million	None reported
Dam Failure	0	None reported	None reported	None reported	None reported
Ice Jam	17	None reported	None reported	None reported	None reported
<b>TOTAL</b>	<b>167</b>	<b>7</b>	<b>3</b>	<b>\$807.9 million</b>	<b>None reported</b>

Sources: NOAA-NCEI 2018; USACE 2018; NPDP 2018  
 Notes: The numbers shown here are as reported to NOAA, USACE and NPDP. It may not contain all events that occurred in Broome County.

The most recent flooding event occurred in mid-August 2018 with Conklin and Vestal among the hardest-hit communities. A state of emergency was declared for the county. Flood warnings were issued, multiple road closures, and evacuations occurred.



- ✓ 11 FEMA declarations – 2 since 2011
- ✓ Over 150 flood-related events as reported by NOAA-NCEI
- ✓ August 2018 event most recent

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## Estimated Exposure for Flood

### ➤ Estimated Exposure (Life, Health and Safety)

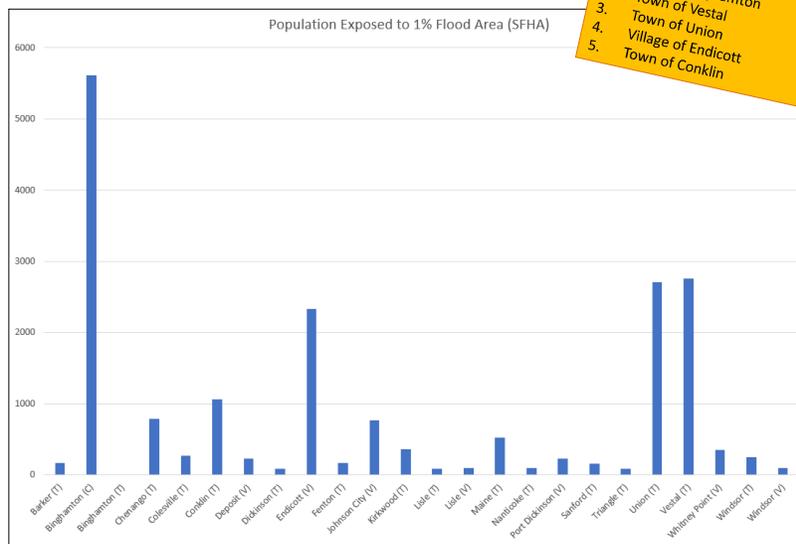
- 19,261 people (9.6% of the total population) in the 1% annual chance floodplain
- 25,804 people (12.9% of the total population) in the 0.2 annual chance floodplain (2010 Census)
- City of Binghamton has the highest number of people located in a floodplain, followed by the Town of Vestal and the Town of Union.
- Estimated 18,629 households could be displaced during a 1% annual chance flood
- Estimated 1,402 persons seeking shelter during a 1% annual chance flood

### ➤ Economic and Social Loss/Impact

- 7,586 buildings exposed to 1% annual chance flood
- Over \$17 billion in exposed property in 1% annual chance flood
- Over \$4 billion in estimated losses to general building stock (1% flood)

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## Impact on Population

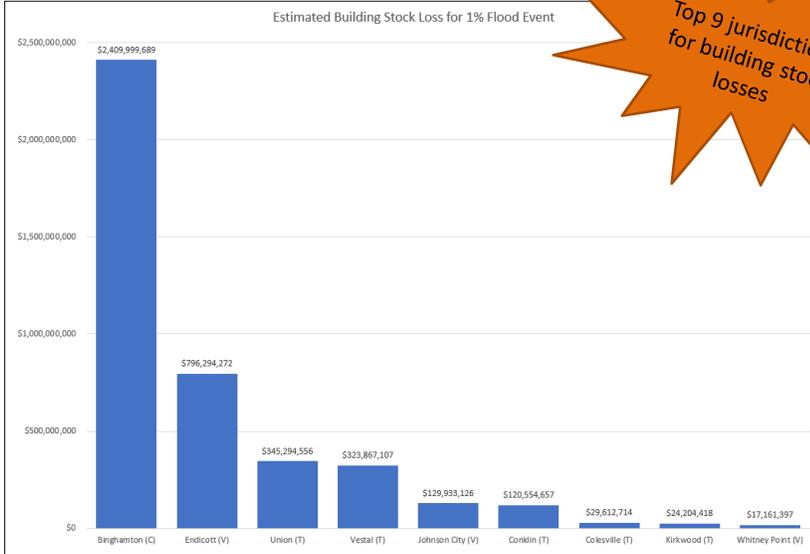


Top 5 communities with population exposed to SFHA:

1. City of Binghamton
2. Town of Vestal
3. Town of Union
4. Village of Endicott
5. Town of Conklin

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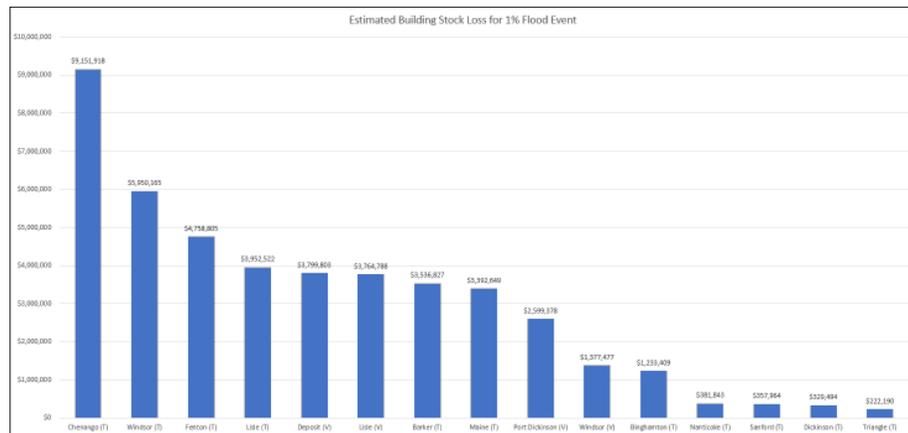
## Impact on Building Stock



Top 9 jurisdictions for building stock losses

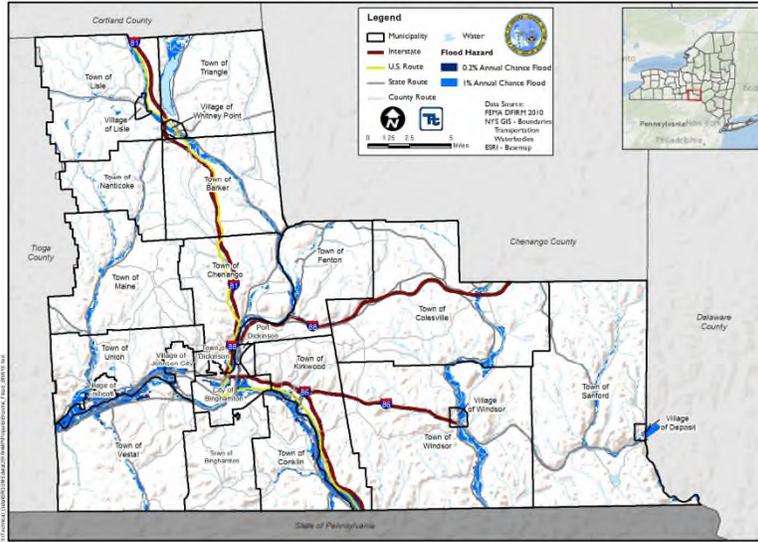
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## Impact on Building Stock



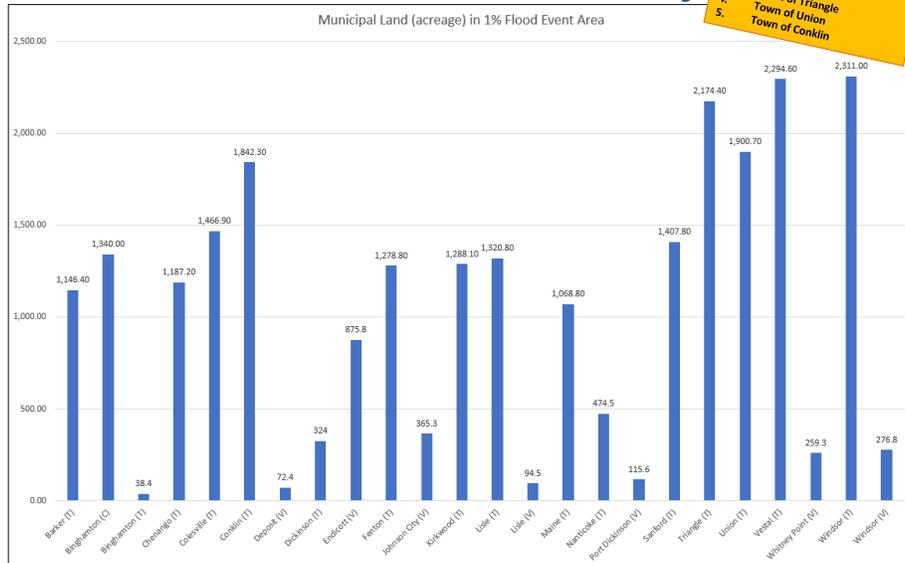
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# Flood Areas in Broome County



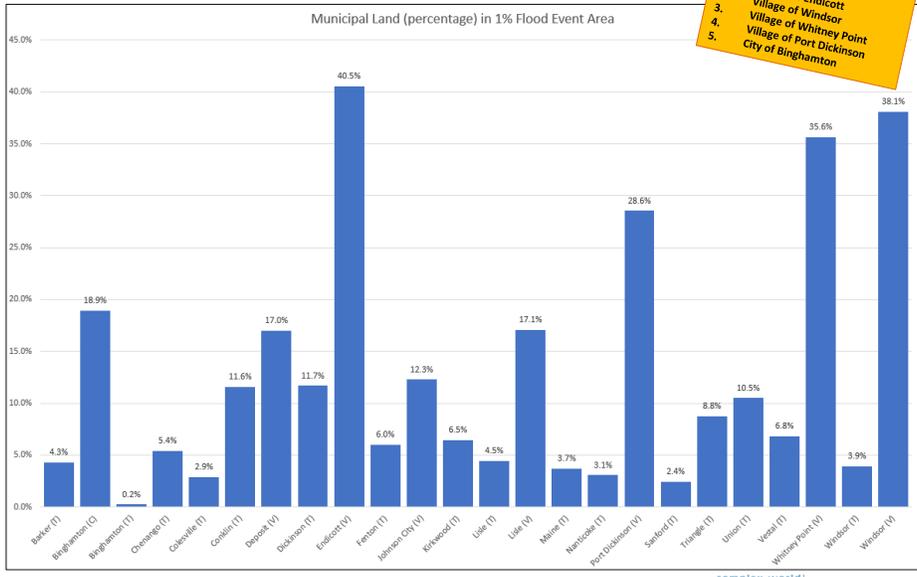
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# Flood Areas in Broome County



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# Flood Areas in Broome County



Communities with largest percentage of land in SFHA:

1. Village of Endicott
2. Village of Windsor
3. Village of Whitney Point
4. Village of Port Dickinson
5. City of Binghamton

# NFIP Statistics

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties	#SRL Properties
Barker (T)	9	17	\$83,242	0	0
Binghamton (C)	399	299	\$16,591,799	42	0
Binghamton (T)	8	6	\$148,564	1	0
Chenango (T)	111	81	\$1,977,608	9	0
Colesville (T)	49	69	\$1,608,140	13	0
Conklin (T)	285	741	\$35,956,107	137	8
Deposit (V)	94	38	\$1,185,236	16	0
Dickinson (T)	32	42	\$1,077,186	6	0
Endicott (V)	93	76	\$3,724,023	8	0
Fenton (T)	38	37	\$318,937	6	0
Johnson City (V)	289	185	\$13,954,272	28	0
Kirkwood (T)	62	205	\$7,914,451	36	1
Lisle (T)	9	4	\$17,449	1	0
Lisle (V)	1	1	\$7,958	0	0
Maine (T)	32	21	\$702,004	1	0
Nanticoke (T)	9	4	\$64,181	1	0
Port Dickinson (V)	28	21	\$445,259	0	0
Sanford (T)	34	22	\$256,442	3	0
Triangle (T)	0	1	\$3,427	0	0
Union (T)	388	578	\$24,241,637	87	1
Vestal (T)	518	476	\$24,072,693	73	1
Whitney Point (V)	4	0	\$0	1	0
Windsor (T)	23	57	\$1,371,857	7	0
Windsor (V)	15	10	\$112,819	2	0
<b>TOTAL</b>	<b>2,530</b>	<b>2,991</b>	<b>\$135,835,292</b>	<b>478</b>	<b>11</b>

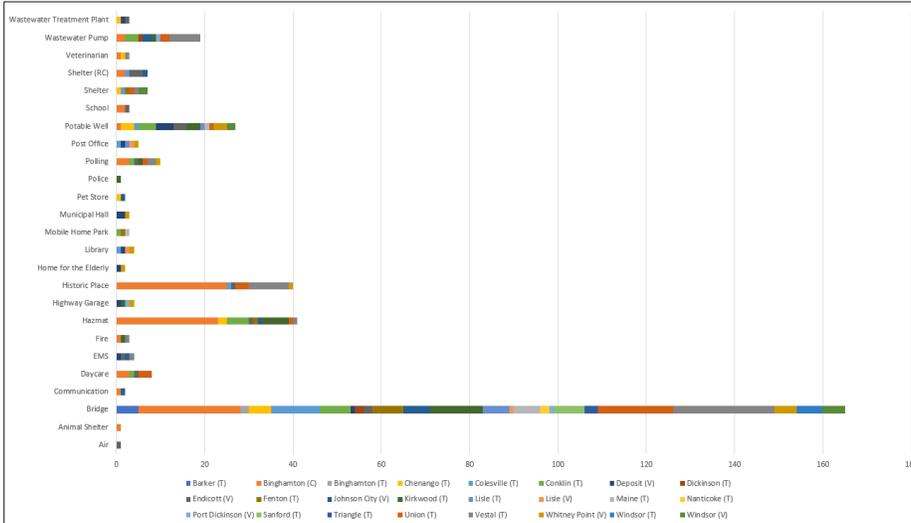
## Countywide Stats

- Policies: 2,530
- Claims: 2,991
- Total Losses: \$135.8 million

Town of Conklin has the largest number of RL and SRL properties



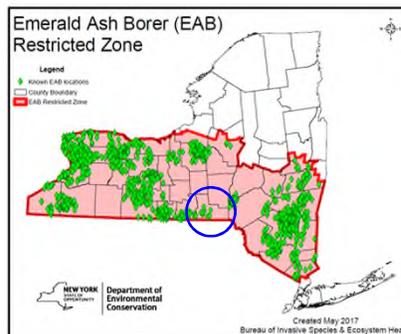
# Critical Facilities in the Floodplain



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# Invasive Species

- Invasive Plants
  - Giant Hogweed
  - Kudzu
- Invasive Animals/Insects
  - Emerald Ash Borer
  - Hemlock Woolly Adelgid



# Severe Storm

Hazard Type	Number of Events Between 1950 and 2018	Total Fatalities	Total Injuries	Total Property Damages (\$)	Total Crop Damage (\$)
Funnel Cloud	2	0	0	\$0	\$0
Hail	192	0	0	\$332,000	\$0
Heavy Rain	20	0	0	\$2,000	\$0
High Wind	14	0	0	\$652,340	\$0
Hurricane	0	0	0	\$0	\$0
Lightning	15	0	1	\$88,000	\$0
Strong Wind	3	0	0	\$11,000	\$0
Thunderstorm Wind	337	0	6	\$1,816,000	\$2,000
Tornado	9	0	18	\$4,092,000	\$0
Tropical Depression	0	0	0	\$0	\$0
Tropical Storm*	2	0	0	\$0	\$0
<b>TOTAL</b>	<b>594</b>	<b>0</b>	<b>25</b>	<b>\$6,993,340</b>	<b>\$2,000</b>

Sources: NOAA-NCEI 2018; NHC 2018  
 Notes: The numbers shown here are as reported to NOAA and NHC. It may not contain all events that occurred in Broome County.



## History

- 16 federally declared severe storm events since 1954
  - Three declarations since 2011 – DR-4031 (Tropical Storm Lee), EM-3351 (Hurricane Sandy), and DR-4129 (Severe Storms and Flooding)
- 594 severe storm events between January 1, 1950 and May 31, 2018
- 104 reported severe storm events between 2012 and May 31, 2018

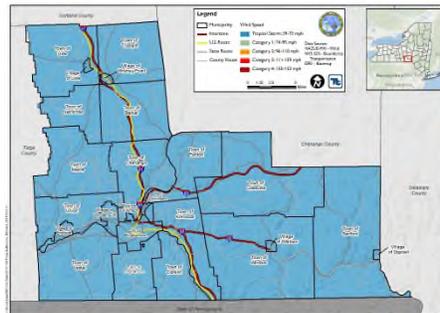
## Vulnerability Assessment Results

- \$6.9 Million Property Damages from events (1950 -2018)
- Annualized Losses
  - \$89,705 (Hazus 4.2)

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# Severe Storm

- Estimated 100-year mean return period (MRP) event losses:
  - Wind speeds below 39 mph
  - No damages or debris estimated
- Estimated 500-year MRP event losses:
  - Wind speeds between 54 and 60 mph (Tropical Storm)
  - \$5.2 million (structure only) in building damages
  - Over 15,000 tons of tree debris
    - 15,811 cubic yards of eligible tree debris



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## Severe Winter Storm

- 14 winter storm events 2012 – May 31, 2018
- 4 FEMA winter-related disaster declarations since 1954
  - EM-3107 – Severe Blizzard – March 1993
  - EM-3173 – Snowstorm – January 2003
  - EM-3184 – Snow – February 2003
  - DR-4322 – Severe Winter Storm – March 2017
- Exposure
  - Entire County is vulnerable to severe winter storms
  - Over \$199 billion in structural value
  - Impacts
    - Vulnerable populations
    - Damage to roofs and building frames
    - Power outages
    - Cost of snow/ice removal
    - Damage to roadways and infrastructure



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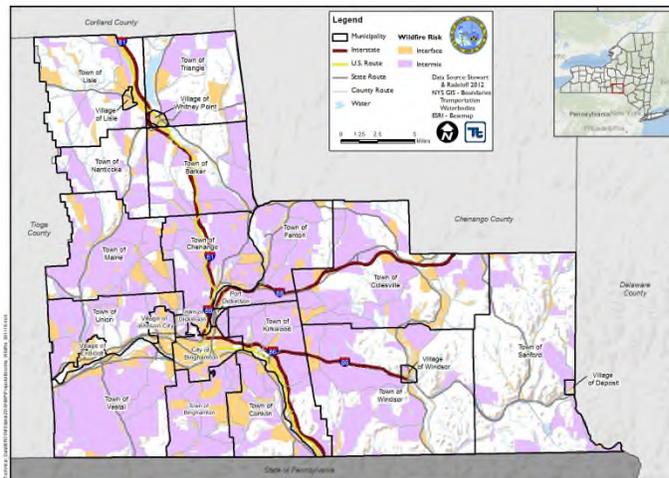
## Wildfire

### History

- Between 2003 and 2017, 10 wildfires of over 10 acres were reported to NYSDEC Forest Rangers

### Vulnerability

- Over 165,000 residents live in wildfire risk areas
- Over \$143 billion in buildings exposed
- 1,399 critical facilities located in wildfire risk areas



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## Public and Agency Feedback

- 145 people in total took the citizen survey.
- Most of the respondents have lived in the area 20 or more years, own their place of residence, and most have a single family detached home.
- Hazards that most have experienced: Severe Winter Storm, Street/Property Flooding, Severe Storm (wind, lightning, hail), and Basement Flooding
- Hazards most concerned with: Climate Change, Street/Property Flooding, and Streambank Erosion
- There were a wide variety of preparedness actions that people have taken.
- Most respondents received their information concerning a disaster from the TV news, internet, and social media.
- Most do not have a home in the floodplain or own flood insurance (property hasn't flooded or located on high ground)
- Only 2 respondents noted having issues getting homeowners/renters insurance due to being in a flood zone.

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## Areas of Concern – Public Feedback

- Received 86 responses identifying floodprone areas throughout Broome County. A few include:
  - Nanticoke Ave. and Oak Hill under railroad bridges
  - Stillwater Road in Corbettsville
  - NYS Route 7A from Montrose Drive to Stillwater Road in Corbettsville
  - Westover, Castle Gardens, Old Vestal Road in the area of 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> Streets, Riverside Drive near Lourdes Hospital, Brown and Olive Streets in Johnson City, and Harry L Drive near Heritage Country Club
  - Vestal Center
  - Areas by Patterson, Brixius Creeks, Watson Blvd. Oakdale Road, Pine Street, 17C some area in West Corners
  - Pierce Hill near African Road
  - Endwell near Main Street and Shady Drive

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## Types of Projects - Public Feedback

- Respondents voted on a wide range of mitigation projects. Enhancing stream maintenance and retrofitting infrastructure were the most voted. Several respondents identifying installing a bridge between Endwell and Vestal to provide safer routes.
- Over 70% of respondents feel that their municipality is not doing enough for flood prevention and mitigation. 50 of those respondents provided feedback as to why they feel this way.
- Most respondents would be willing to undergo buyouts, relocation or elevation. Costs/funding were the major influencing issues identified.
- Respondents had mitigated their properties in the past through various projects, including: installing drainage system due to groundwater flooding; building addition above high water mark; installing sump pump; improving gutters and drainage; installing stronger windows; and roof replacements.
- Grant funding was the number one incentive identified to spend money on home mitigation projects.
- Possible mitigation projects identified:
  - Removing debris, islands and trees from creeks
  - Building bridge from Vestal to Endwell, connecting to the highway
  - Acquire homes in the floodplain
  - Better outreach and education to public
  - Stream maintenance
  - Dredge the river

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### Academia Feedback

- Three responses, all indicating their institutions have been impacted by natural hazard events
- Two of the respondents indicated they provide sheltering services, neither are ARC designated
- All do not think the utility infrastructure is sufficiently disaster-resistant
- None identified suggestions for projects or programs

### Business & Commerce Feedback

- Two responses, all indicating their businesses have been impacted by natural hazard events
- Neither respondent believes their facilities are disaster resistant, nor do they think the transportation infrastructure are properly designed to withstand closures or damages
- All do not think the utility infrastructure is sufficiently disaster-resistant
- Identified projects or programs include: dredge the river and streams

### Hospitals & Health Care Feedback

- Four responses, with three indicating their facilities have been impacted by natural hazard events
- Some believe the critical facilities in the County are disaster resistant.
- Some believe the transportation infrastructure is properly designed to withstand closures and damages
- Majority believe that local public education and awareness programs are effective

### Emergency Services Feedback

- Three responses - two police and one HAZMAT
- Some believe the critical facilities in the County are disaster resistant.
- Some believe the transportation infrastructure is properly designed to withstand closures and damages
- Some believe that local public education and awareness programs are effective
- Two respondents identified projects they have implemented to reduce their department's vulnerability to hazards

Please note that this is a brief summary of responses and does not include all feedback.

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## Ranking of Hazards

*What is your mitigation priority to reduce the impacts of natural hazards?*

**Ranking** = [(Population Impact + Property Impact + Economy Impact) x 30% + Capability x 30% + Climate Impact x10%] + Probability of Occurrence x 30%

### Hazard Probability of Occurrence

Rating	Probability	Definition
0	Unlikely	Hazard event is not likely to occur or Hazard event is unlikely to occur with less than a 1% annual chance probability
1	Rare	Hazard event has between 1 and 10% annual probability
2	Occasional	Hazard event has between 10 and 100% annual probability
3	Frequent	Hazard event has 100% annual probability; may occur multiple times per year

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## Ranking of Hazards

*What is your mitigation priority to reduce the impacts of natural hazards?*

Category	Weighting Factor	Low Impact (1)	Medium Impact (2)	High Impact (3)
Population	3	<14% of developed land area is exposed to a hazard due to its extent and location	15% to 29% of your developed land area is exposed to a hazard due to its extent and location	30% or more of your developed land area is exposed to a hazard due to its extent and location
Property	2	Property exposure is 14% or less of the total replacement cost for your community	Property exposure is 15% to 29% of the total replacement cost for your community	Property exposure is 30% or more of the total replacement cost for your community
Economy	1	Loss estimate is 9% or less of the total replacement cost for your community	Loss estimate is 10% to 19% of the total replacement cost for your community	Loss estimate is 20% or more of the total replacement cost for your community

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## Ranking of Hazards (continued)

What is your mitigation priority to reduce the impacts of natural hazards?

Category	Weighting Factor	Low Impact (1)	Medium Impact (2)	High Impact (3)
Capability	2	Weak/outdated/inconsistent plans, policies, codes/ordinances in place; no redundancies; limited to no deployable resources; limited capabilities to respond; long recovery	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	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	1	No local data is available; modeling projects are uncertain on whether there is increased future risk; confidence level is low (inconclusive evidence)	Studies and modeling projections indicate a potential for exacerbated conditions due to climate change; confidence level is medium to high (suggestive to moderate evidence)	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)

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## Countywide Risk Ranking

HAZARD	RISK ASSESSMENT CATEGORY														RELATIVE RISK FACTOR
	PROBABILITY		IMPACT							ADAPTIVE CAPACITY		CHANGING FUTURE CONDITIONS			
	Numeric Value	Score	Population		Built Environment		Economy		Total	Numeric Value	Score	Numeric Value	Score		
			Numeric Value	Score	Numeric Value	Score	Numeric Value	Score							
Earthquake	1	0.3	1	3	2	4	1	1	2.4	2	0.6	2	0.2	3.5	
Extreme Temperature	2	0.6	2	6	2	4	2	2	3.6	2	0.6	2	0.2	5	
Flood	3	0.9	2	6	2	4	2	2	3.6	1	0.3	3	0.3	5.1	
Invasive Species	3	0.9	1	3	0	0	2	2	1.5	1	0.3	2	0.2	2.9	
Severe Storm	3	0.9	2	6	2	4	1	1	3.3	2	0.6	2	0.2	5	
Severe Winter Storm	3	0.9	2	6	2	4	1	1	3.3	1	0.3	1	0.1	4.6	
Wildfire	1	0.3	2	6	3	6	1	1	3.9	1	0.3	2	0.2	4.7	

Low	<4
Medium	4-5
High	>=5.1

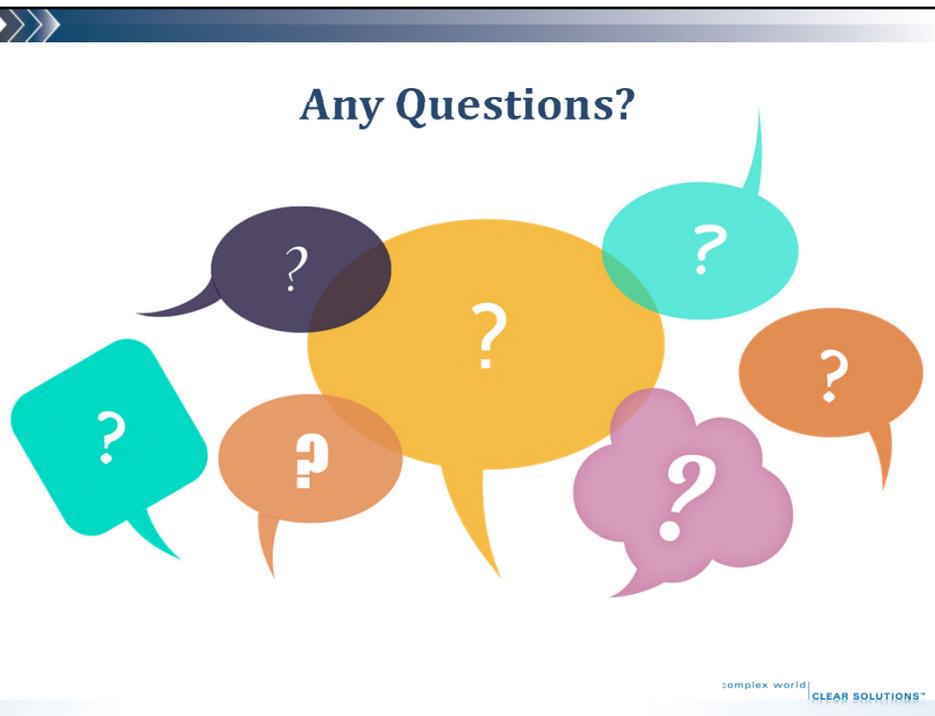
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## This is where we are heading....



## Any Questions?





**Broome County Project Contact**

Beth A. Lucas, Senior Planner  
Broome County Planning Department  
60 Hawley St, PO Box 1766, Binghamton, NY 13902  
607-778-2375 | [BLucas@co.broome.ny.us](mailto:BLucas@co.broome.ny.us)

**Tetra Tech Project Contacts**

Cynthia Addonizio-Bianco, CFM  
6 Century Drive, Parsippany, NJ 07054  
(973) 630-8044 | [cynthia.bianco@tetratech.com](mailto:cynthia.bianco@tetratech.com)

Heather Apgar, CFM  
6 Century Drive, Parsippany, NJ 07054  
(973) 630-8046 | [heatherapgar@tetratech.com](mailto:heatherapgar@tetratech.com)

## 2014 SWOO – Flood

Strengths	Weaknesses	Obstacles	Opportunities
<ul style="list-style-type: none"> <li>• City of Binghamton have side lot program to allow neighbors to lease (\$1) for vacant lots purchased using CDBG funds to use properties for yards, gardens, non-permanent purposes.</li> <li>• County has a flood task for that meets as necessary and communicates via email.</li> <li>• Army Corps is studying flood projects.</li> <li>• Regional studies include the Upper Susquehanna Coalition.</li> <li>• County is aggressive in maintaining 19 watersheds-aggressive for decades</li> <li>• Whitney point dam has been successful in reducing downstream flow-NYDEC and Army Corps (ACOE)</li> <li>• Levee network there is also good</li> <li>• Dam in Sidney is also good</li> <li>• Coordination is good for the tools they have-good communication before releases-these are flood control dams as opposed to DEC dams</li> <li>• Have to keep track of Delaware and Susquehanna river flows/height</li> <li>• DEC dams are not flood control</li> <li>• ACOE –Baltimore calls the shots</li> <li>• Must coordinate with upper Susquehanna River Basin Commission-regulations of water quality seem to be increasing</li> <li>• <del>Some communities have long standing buyout programs such as T of Union. Others are less participatory. Long track record of mitigation in Union. Flood problems since the 60s drove this.</del></li> <li>• All communities participate in NFIP-2 CRS communities. 2-3 more to come.</li> <li>• Highest risk communities in NFIP-those with more resources also.</li> </ul>	<ul style="list-style-type: none"> <li>• Flood walls? Accreditation of floodwalls/levees. – HMP scope includes a levee system review to position for certification.</li> <li>• Coordination between municipalities-data, projects.</li> <li>• <del>Endwell did not pursue flood walls but are pursuing buyout</del></li> <li>• <del>Conklin lost 8.5% population after last event (part is buyouts)</del></li> <li>• Limitations in developable area in flood impacted communities.</li> <li>• People parking vehicles on buyout properties.</li> <li>• County has OLD flood maps.</li> <li>• Public awareness of ongoing and complete flood projects as they perceive the muni's are not doing anything.</li> <li>• Patchwork left after partial buyouts</li> <li>• Sometime population is reactive with buyouts instead of coordinating ahead of time.</li> <li>• No teeth in evacuation orders</li> <li>• Inconsistent funding for river gages.</li> <li>• Aging infrastructure of water supply in Johnson City was a problem and impacted operation of a full-service hospital but since last plan the water facilities have been relocated at a site higher than BFE.</li> </ul>	<ul style="list-style-type: none"> <li>• Emphasis on dredging because in the public eye, if there is no dredging, nothing is happening.</li> <li>• No way to enforce best practices in floodplain. County has only an advisory capacity, need adoption of policies at local level. The City of Binghamton has Chapter 227 to advise using preliminary maps.</li> <li>• Socio-economic diversity in the floodplain with many without mobility to leave the area.</li> <li>• Relocation assistance for renters.</li> <li>• Resistance to buyouts and lost ratable</li> <li>• Funding for river gages is not a line item in the state budget-so there is a question every year as to who funds SRBC, ??-this is very frustrating.</li> <li>• Funding of 25% match-town pays some</li> <li>• Codes-</li> <li>• some code officials do not know how to work with homeowners with elevations.</li> <li>• understanding of flood damage prevention ordinances.</li> <li>• Insurance agencies and real estate agents do not understand FIRMs.</li> <li>• Many homes built prior to FIRMs and have no elevation certificates for insurance purposes.</li> <li>• In unmapped areas, flood insured do not get preferred rates after a claim.</li> </ul>	<ul style="list-style-type: none"> <li>• Leverage data management capabilities on the County level to support muni's.</li> <li>• Endwell is pursuing extending levee in Fairmont park</li> <li>• Proactive planning for buyout patchwork after buy-outs. Avoid gap tooth approach.</li> <li>• Provide guidance in creating pocket parks (this is being done by City of Binghamton). Also, guidance on green infrastructure or gardens.</li> <li>• Integrate project in the CIP</li> <li>• Mark boundary of buyout properties (surveyed and marked) to enable inspection and progress reporting to CRS as you need a photo of each parcel.</li> <li>• Use CDBG or land bank for buyouts as they do not have FEMA restrictions.</li> <li>• Utilize Binghamton U for flood studies and analyses. Center for Integrated Water Studies.</li> <li>• Inventory storm drain capacities. (Upper Court Street).</li> <li>• Better communication-radio communications</li> <li>• Joint information center for unified message for all communities</li> <li>• Get funding for river gages as a line item in state budget.</li> <li>• Be pro-active in buyouts for contiguous open space.</li> <li>• Include natural hazard risk in comprehensive plans-ID buyout areas in plan.</li> </ul>

## 2014 SWOO – Flood

Strengths	Weaknesses	Obstacles	Opportunities
<ul style="list-style-type: none"> <li>• Flood walls have been effective, and DEC maintains, last year they were overtopped</li> <li>• Conklin and Kirkwood-RLPs are driving CRS applications and buyouts-they do not have the resources without hiring a consultant. On hold after last flood. Endwell in the 90's there were buyouts. Now Union has a part-time consultant to manage the buyouts.</li> <li>• Flood walls for some communities.</li> <li>• Whitney point-wall high enough but not certified</li> <li>• Communication during 2011 event. Better than 2006.</li> <li>• NYALERT-huge in 2011 and effective and good push on evacuation</li> <li>• Pre-flood messaged prior to flooding via NYALERT</li> <li>• Also, to contact water operators to be prepared pre-storm and to help out neighboring communities</li> <li>• Push to join NYWARN for municipal water operators and restaurants and public facilities that house people.</li> <li>• Messages more timely in 2011 than 2006</li> <li>• Improved communication in county EOC regarding open routes to hospital etc.</li> <li>• Accurate inundation modeling developed after 2006 were valuable in predicting which areas would be flooded-good for evacuation. Resulted in better evacuations. NO rooftop rescues this time.</li> <li>• Developers of main need to provide Stormwater facilities...?</li> <li>• Raised room tax rates to fund programs</li> <li>• Generators for some wells (in?) –major water suppliers have back up generation</li> </ul>	<ul style="list-style-type: none"> <li>• Flooding of wells for public water system-mitigation efforts at well sites</li> <li>• Understanding of flood insurance by insurance agencies is very weak! Many questions from the public. If they Do not understand how do public get correct info?</li> <li>• Buyouts are perceived as a flood recovery program rather than pre-disaster program.</li> <li>• Pro-active funding</li> <li>• Staff resources.</li> <li>• Castle gardens in Vestal-vulnerable electrical sub-station-NYSEG</li> <li>• Westover <b>Substation</b> is vulnerable</li> <li>• Transformer in Robinson <b>Hill</b> substation-all electricity in region comes through here. Big vulnerability in grid. Working on getting a spare –also one in Elmira.</li> <li>• Public awareness of flood zones-not good as flood maps are being changed. There is a lot of confusion. FEMA needs to get new maps and then educate people.</li> <li>• People not affected by flooding did not understand water rations etc. because of flooding.</li> <li>• Can't enforce water conservation.</li> <li>• Businesses got the least amount of information</li> <li>• Retail pharmacies-medication supply is critical.</li> </ul>	<ul style="list-style-type: none"> <li>• allow budget of 25%-show the effect of loss of ratables.</li> <li>• Flood mitigation fund to cover 25%</li> <li>• Incentive for % of local match from CDBG</li> <li>• Storm water utility fees for mitigation funding</li> <li>• Development fees for sewerage?</li> <li>• Fund retention areas where creeks meet river?</li> <li>• ID revenue stream of funding for engineering solutions of local flooding/basins.</li> <li>• Flood protection – mitigation of well sites to maintain City water system-flood proofing, generators</li> <li>• Binghamton – Johnson city needs generator for sewerage plant.</li> <li>• Preliminary design stage for flood wall in joint sewerage treatment.in Johnson City-FEMA funding;</li> <li>• Workshops to improve understanding of flood insurance for agents and realtors and bankers on County level.</li> <li>• Bill Nech. To explain new NFIP regulations to flood task force.</li> <li>• Flood protection for basement of county office bldg.-IT is in the basement. Need floodwalls for county complex with floodwalls. - also, arena which is used as a shelter.</li> <li>• Vestal, Union, Kirkwood critical facility floodproofing, flood walls.</li> <li>• Johnson City water plant was inundated.</li> </ul>	

2014 SWOO – Flood			
Strengths	Weaknesses	Obstacles	Opportunities
<ul style="list-style-type: none"> <li>• At Rainy well –back-up generator and switches elevated</li> <li>• New regulations that mobile home parks must have back-up generation - county wide</li> <li>• Working with Lourdes to accept emergency water supply (from tanker trucks)</li> <li>• NYSEG works closely with communities</li> <li>• Code and code enforcement</li> </ul>	<ul style="list-style-type: none"> <li>• Code officials cover multiple towns with different ordinances so there is confusion.</li> <li>• Flood training is not required for code officials training.</li> <li>• <b>Change in NYALERT requires new registration on state website – some people are not registering due to account set-up. Multiple alerts for same event.</b></li> <li>• How do floods affect mental health and social services?</li> <li>• The programs are probably not well integrated or coordinated for vulnerable populations.</li> <li>• How do floods affect long term health of the community?</li> </ul>		<ul style="list-style-type: none"> <li>• Real Estate disclosure of hazard areas (state reg) no local reg.</li> <li>• Availability of code officer flood training/-need to run FEMA courses- should be part of required training otherwise town does not pay for this.</li> </ul>

2013 SWOO – Severe Storms			
Strengths	Weaknesses	Obstacles	Opportunities
<ul style="list-style-type: none"> <li>• <b>Have debris management plans, prioritizing roads, access to critical facilities. - work group task force county-wide for debris management</b></li> <li>• <b>NYSEG coordinates with emergency services after hazard events</b></li> </ul>	<ul style="list-style-type: none"> <li>• None identified in 2013</li> </ul>	<ul style="list-style-type: none"> <li>• None identified in 2013</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Work with NYSEG on identification of hazardous trees.</b></li> <li>• .</li> </ul>

## 2013 SWOO – Severe Winter Storms

Strengths	Weaknesses	Obstacles	Opportunities
<ul style="list-style-type: none"> <li>• Have debris management plans, prioritizing roads, access to critical facilities. -work group task force county-wide for debris management</li> <li>• City of Binghamton has tree planting guide. (see website shade tree commission, tree planting guide).</li> <li>• County and Binghamton University is certified Storm Ready.</li> <li>• Back-up power at Critical facilities.</li> <li>• Aggressive in installing back-up generators-911, county health dept, county library (and backup 911), transit fuel island for busses, health dept, public safety radio tower sites, NYSEG installing emergency communication towers, WSKG put in generator as they are part of county public info system as they are partially federally funded.</li> <li>• Video camera for live broadcasts to public to give info over public television, radio, and commercial tv/cable and got emergency back-up generator for their studio-in progress and will be used as a model for other communities.</li> <li>• Snow removal is good.</li> <li>• Weather prediction-storm warning is good. On a first name basis-so good communication with scenarios and worst cases before the storm. Understand exposure generally and</li> </ul>	<ul style="list-style-type: none"> <li>• Large scale power outages.</li> <li>• Ice.</li> <li>• More at risk with warmer winters.</li> <li>• Debris removal</li> <li>• Opening up streets.</li> <li>• Paralyzing travel for long periods of time</li> <li>• Accessibility of ways to get to hospital.</li> <li>• Pre-treating roadway can backfire.</li> </ul>	<ul style="list-style-type: none"> <li>• Depending on one pipeline for fuel supply if supply is interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>• Tree management programs.</li> <li>• 10-year cycle. Have gotten more aggressive. Outside firms to tree trim.</li> <li>• Encourage local ordinances for tree planting near lines, and Tree City USA.</li> <li>• Working on debris management plans, prioritizing roads, access to critical facilities. -work group task force county-wide for debris management.-This was completed.</li> </ul>

**2013 SWOO – Severe Winter Storms**

<b>Strengths</b>	<b>Weaknesses</b>	<b>Obstacles</b>	<b>Opportunities</b>
can use this. Help to predict flash floods.			

## 2013 SWOO – Extreme Temperature

Strengths	Weaknesses	Obstacles	Opportunities
<ul style="list-style-type: none"><li>• Project to get temperature sensor to high risk population to see what if-scenarios for extreme temps per public health.</li><li>• Understand measures to help public such as cooling stations. Have modeling to show what happens during prolonged heat events.</li><li>• Licensed facilities have back-up power (nursing homes, etc.)</li><li>• Lots of experience in sheltering on the county level.</li></ul>	<ul style="list-style-type: none"><li>• Incidences of violent crime.</li></ul>	<ul style="list-style-type: none"><li>• None identified in 2013</li></ul>	<ul style="list-style-type: none"><li>• None identified in 2013</li></ul>

**2013 SWOO - Drought**

<b>Strengths</b>	<b>Weaknesses</b>	<b>Obstacles</b>	<b>Opportunities</b>
<ul style="list-style-type: none"><li>• Interconnection with City of Binghamton.</li><li>• People use less water.</li><li>• Less commercial operations.</li><li>• Hospital recycles water.</li><li>• This results in more capacity.</li></ul>	<ul style="list-style-type: none"><li>• Water supply from river.</li><li>• Supply to mobile home parks.</li></ul>	<ul style="list-style-type: none"><li>• None identified in 2013</li></ul>	<ul style="list-style-type: none"><li>• Map water supply initiative.</li></ul>

## 2013 SWOO – Earthquake

Strengths	Weaknesses	Obstacles	Opportunities
<ul style="list-style-type: none"><li>• Retrofit justice building to meet new seismic codes.</li></ul>	<ul style="list-style-type: none"><li>• None identified in 2013</li></ul>	<ul style="list-style-type: none"><li>• None identified in 2013</li></ul>	<ul style="list-style-type: none"><li>• Training for post-disaster visual training.</li><li>• Vulnerability study of masonry buildings?</li></ul>



# Broome County All-Hazard Mitigation Plan Update Minutes of Meeting



Purpose of Meeting:	Steering Committee Meeting #3
Location of Meeting:	Town of Chenango Community Room
Date/Time of Meeting:	September 19, 2018; 10:00 a.m. – 12:30 p.m.

<b>Attendees:</b>	Beth Lucas, Broome County Planning Frank Evangelisti, Broome County Planning Stephanie Brewer, Broome County Planning Neil Haight, Broome County Emergency Services Nazar Logvis, Broome County Division of Engineering Daria Golazeski, Town of Union Code Enforcement Franco Incitti, City of Binghamton John Mastronardi, Municipalities of Conklin, Kirkwood, Binghamton (T), and Fenton	Juliet Berling, City of Binghamton Planning Ronald Lake, Municipalities of Dickinson, Windsor, and Port Dickinson Tom Costello, City of Binghamton Cynthia Bianco, Tetra Tech Heather Apgar, Tetra Tech
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**Agenda Summary:** To review the risk assessment results for the hazards of concern; finalize the mission statement, goals, and objectives; review SWOO results from SC meeting #2

Item No.	Description	Action By:
<b>1.</b>	<p><b>Project Status:</b> Tetra Tech reviewed the status of the planning progress noting that the risk assessment has been completed. The status of community participation as evidenced by the submittal of Letters of Intent to Participate (LOIP) as well as homework sheet was reviewed. As of 9/19/18, 11 communities have not provided a LOIP and 10 communities have not provided homework. In order to support full participation, the planning department will send out an email or letter to all non-responsive communities explaining the benefits of the planning process and requesting active participation. The project remains on schedule, with preparations for the FEMA/NYS DHSES mitigation strategy meeting (scheduled for October 17th) under way.</p> <p>Tetra Tech presented on the stakeholder outreach to date and requested that the Steering Committee work with the municipalities to get a link on each municipal website to the County’s HMP webpage. Additionally, Tetra Tech asked for a list of local meetings where the HMP was discussed.</p>	<p>Broome County Planning to send email or letter to non-responsive communities. Tetra Tech will make another round of calls to municipalities. NYS DHSES said they would assist with communities who have not been responsive. Broome County Planning to reach out to communities asking them to post about the HMP on their websites. Tetra Tech will distribute the survey results to the Steering Committee.</p>



# Broome County All-Hazard Mitigation Plan Update Minutes of Meeting



<b>2.</b>	<p><b>Finalize Goals and Objectives:</b> Tetra Tech distributed updated goals and objectives which incorporated the changes identified during the SC #2 meeting. The group accepted all changes; goals and objectives are finalized.</p>	
<b>3.</b>	<p><b>SWOO Summary:</b> The committee reviewed the outcome of the SWOO conducted during SC #2 meeting and provided additional strengths, weaknesses, obstacles and opportunities to the flood hazard.</p>	<p>Tetra Tech will update the SWOO with input received during meeting.</p>
<b>4.</b>	<p><b>Risk Assessment Overview:</b> Tetra Tech presented the results of the risk assessment that was conducted for the hazards of concern: drought, earthquake, extreme temperatures, flood, invasive species, severe storm, severe winter storm, and wildfire. This included losses and impacts to the county and municipalities (population, property, economy).</p> <ul style="list-style-type: none"> <li>• Drought – no comments</li> <li>• Earthquake – no comments</li> <li>• Extreme Temperatures – the Steering Committee felt that the impact to drinking water systems needs to be included. The losses listed in the plan don't necessarily include this. Need to get the number of failures of the water systems (related to extreme temperatures) in the county and incorporate into hazard profile.</li> <li>• Flood – Tetra Tech to add the recent August and September events into the previous events section of the profile. For the impact to population, it was suggested that the percent exposed to the SFHA be shown.</li> <li>• Invasive Species – The Steering Committee agreed to add Japanese Knotweed to the list of invasive plants as they are taking over streambanks which leads to erosion because of their shallow root systems.</li> <li>• Severe Storm – it was suggested that NYSEG be contacted to obtain a history of power outages due to severe storms.</li> <li>• Severe Winter Storm – need to add 'economic loss of businesses' to the impacts.</li> <li>• Wildfire – the County does not have detailed documentation on wildfire events that occurred in the county.</li> </ul>	<p>Tetra Tech to incorporate changes and suggestions into the hazard profiles. XXXX to reach out to water departments to get list of water system failures because of extreme temperate events. County Emergency Management will contact NYSEG for history of power outages.</p>
<b>5.</b>	<p><b>Ranking of Hazards:</b> Tetra Tech presented the methodology on how the ranking of each hazard was conducted. New for the update, capability and climate change were incorporated into the risk ranking equation and the Steering Committee agreed with the addition. The overall county ranking was presented to the group. The following adjustments need to be made:</p> <ul style="list-style-type: none"> <li>• Wildfire's overall ranking be changed to low.</li> </ul>	<p>Tetra Tech to update the overall ranking with the adjustments identified during meeting.</p>



# Broome County All-Hazard Mitigation Plan Update Minutes of Meeting



	<ul style="list-style-type: none"><li>• Drought's overall ranking be changed to medium.</li></ul>	
7.	<p><b>Additional Items:</b></p> <ul style="list-style-type: none"><li>▪ County Engineering is collecting information from the August and September events; Tetra Tech will reach out to each municipality asking them for their damages and Tetra Tech will provide that information to the County.</li><li>▪ To increase public input, County Planning has sent out postcards to residents. Planning will provide Tetra Tech with the dates they went out and copies of the postcard.</li><li>▪ County sent an email to LEPC, discussing the HMP process and requesting they complete the survey.</li><li>▪ Planning will send out an email to each municipality reminding them to post about the HMP update on their website with a link to the Planning website.</li><li>▪ Minutes of the 8/15/2018 meeting were approved.</li></ul>	Broome County Engineer, County Planning
8.	<p><b>Next Steps:</b> Next meeting will be the FEMA and NYS DHSES mitigation strategy presentation and is scheduled for 10/17/18 at 1:00 pm.</p>	
9.	<p><b>Adjournment:</b> The meeting was adjourned at 12:30 pm.</p>	



# BROOME COUNTY, NEW YORK MULTI-JURISDICTIONAL ALL-HAZARDS MITIGATION PLAN 2018 UPDATE



## Steering Committee Meeting #2 - Agenda

Meeting Date/Time: August 15, 2018 – 10:00am – 12:00pm

Location: Edwin L Crawford County Office Bldg., 5th Floor, 60 Hawley Street, Binghamton, NY

1. **Introductions**
2. **Project Status** – where we are in the process, public outreach, tracking time
3. **Update/Revise Mission Statement and Goals/Objectives**
4. **SWOO (Strengths, Weaknesses, Obstacles and Opportunities) related to limiting impact of Hazards of Concern**
5. **Next Steps**
6. **Adjournment**

### **Broome County Project Contact**

Beth Lucas, Senior Planner  
Broome County Planning Department  
60 Hawley St., Binghamton, NY 13902  
(607) 778-2375 | blucas@co.broome.ny.us

### **Tetra Tech Project Contacts**

Cynthia Addonizio-Bianco, CFM  
6 Century Drive, Parsippany, NJ 07054  
(973) 630-8044 | cynthia.bianco@tetrattech.com

Heather Apgar, CFM  
6 Century Drive, Parsippany, NJ 07054  
(973) 630-8046 | heather.apgar@tetrattech.com



**BROOME COUNTY ALL-HAZARD MITIGATION PLAN UPDATE**  
**Steering Committee Meeting #2**  
**MEETING DATE/TIME: August 15, 2018 10:00am – 12:00pm**  
**SIGN-IN SHEET**

Initial for Attendance	Name	Title	Agency/Municipality	Phone Number	E-mail
BAL	Beth Lucas	Senior Planner	Broome County Planning	(607) 778-2375	blucas@co.broome.ny.us
FE	Frank Evangelisti	Director	Broome County Planning	(607) 778-2114	fevangelisti@co.broome.ny.us
SB	Stephanie Brewer	Planner	Broome County Planning	(607) 778-2114	sbrewer@co.broome.ny.us
	Doug English	GIS Administrator	Broome County GIS Administrator	(607) 778-6505	denglish@co.broome.ny.us
	Neil Haight	Deputy Director	Broome County Emergency Services	(607) 778.2170	NHaight@co.broome.ny.us
AKL	Nazar Logvis	Engineer	Broome County Division of Engineering	(607) 778.2909	NLogvis@co.broome.ny.us
	Leslie Boulton	Deputy Commissioner of Engineering	Broome County Public Works Commissioner	(607) 778-2490	lboulton@co.broome.ny.us
	Haley McCrory	Public Information Officer	Broome County Health Department	(607) 778-2612	HMcCrory@co.broome.ny.us
	Daria Golazeski	Code Enforcement Officer	Town of Union Code Enforcement	(607) 786-2920	dgolazeski@townofunion.com
	Paul Nelson	Director	Town of Union Planning	(607) 786-2985	pnelson@townofunion.com
	Vernon Myers	Town Engineer	Town of Vestal	(607) 786-0980 ext 209	vmyers@vestalny.com
	Ray Standish Franco Incitti	City Engineer Senior Engineer	City of Binghamton Engineering	(607) 772-7007	ristandish@cityofbinghamton.com faincitti@cityofbinghamton.com





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# Planning Together for a Resilient Broome County

## *2018 Broome County Hazard Mitigation Plan*

Steering Committee Meeting  
August 15, 2018

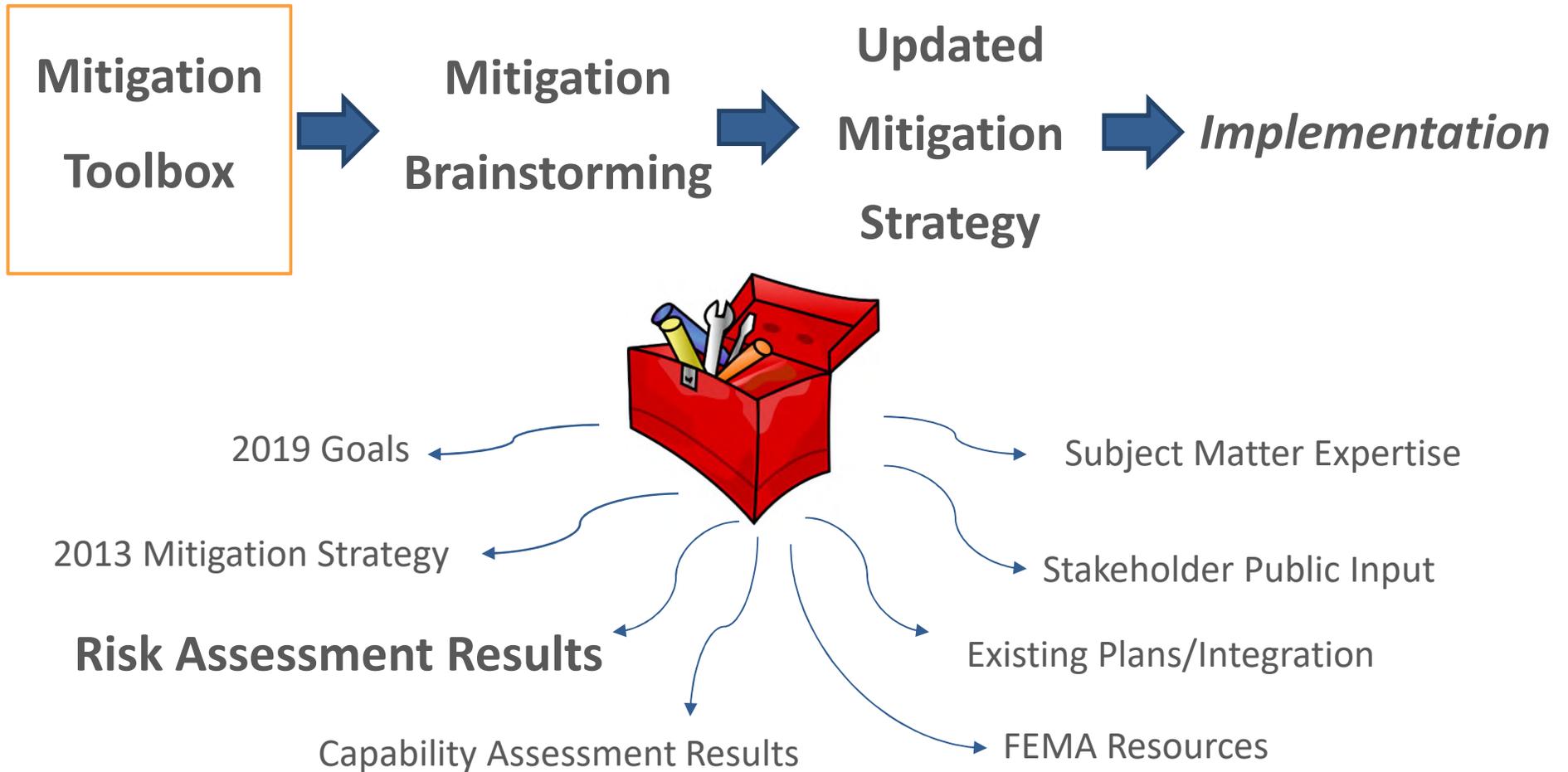


# Today's Topics

- **Introductions**
- **Project Status**
- **Hazards of Concern**
- **Mission Statement, Goals and Objectives**
- **SWOO**
- **Next Steps**

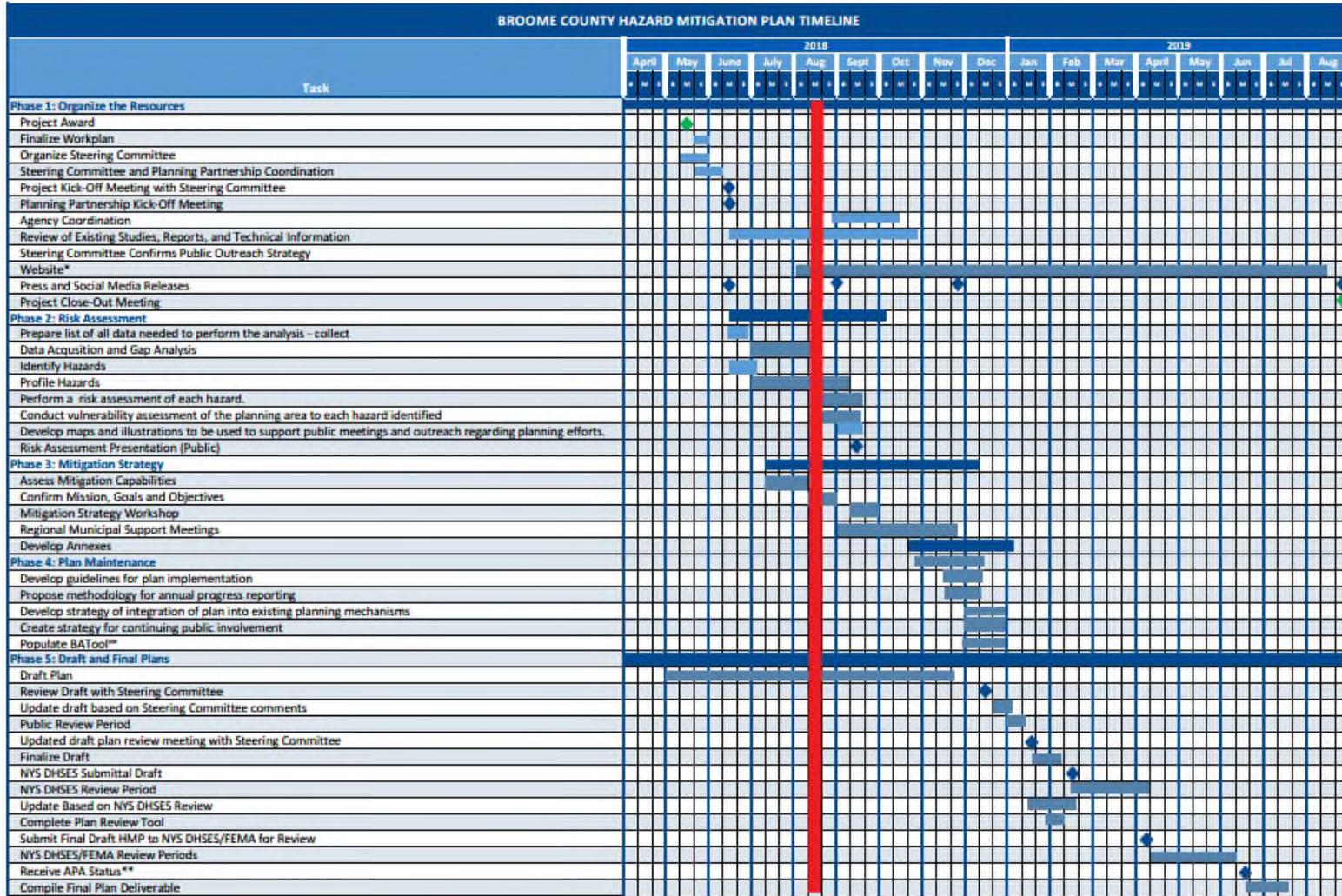


# This is where we are heading....





# Project Status



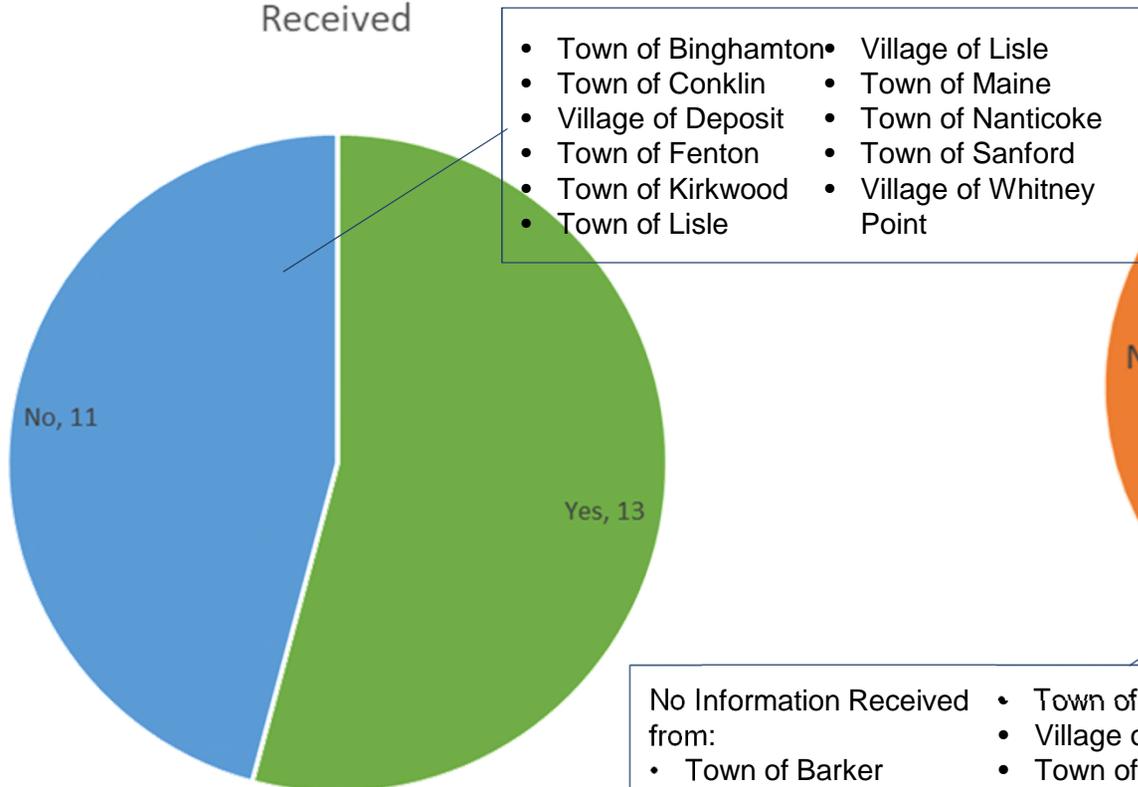
Notes:  
 \* Schedule assumes that website will continue to follow the final plan after process completion  
 \*\* Contingent on FEMA approval time frame



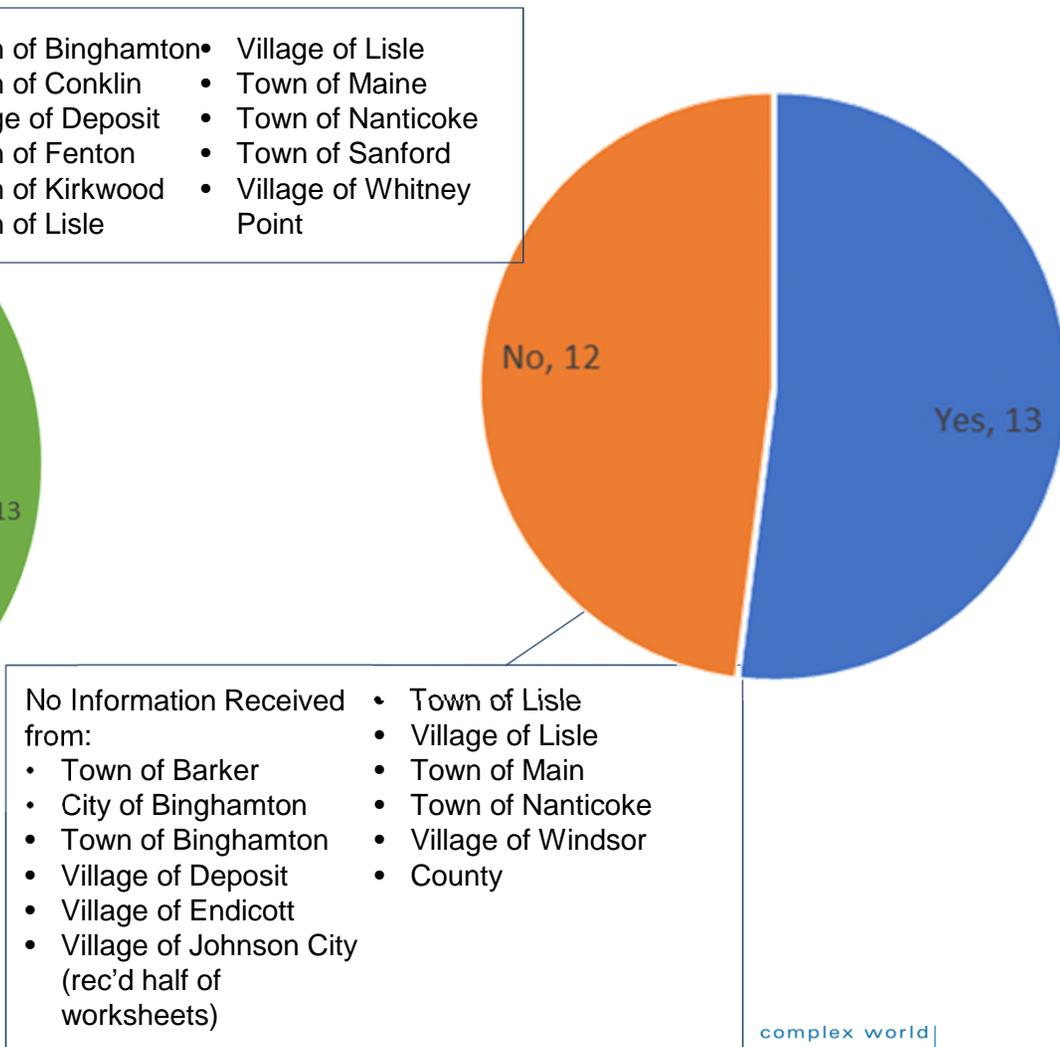
# Homework Worksheet Status

Letters of Intent to Participate

Received

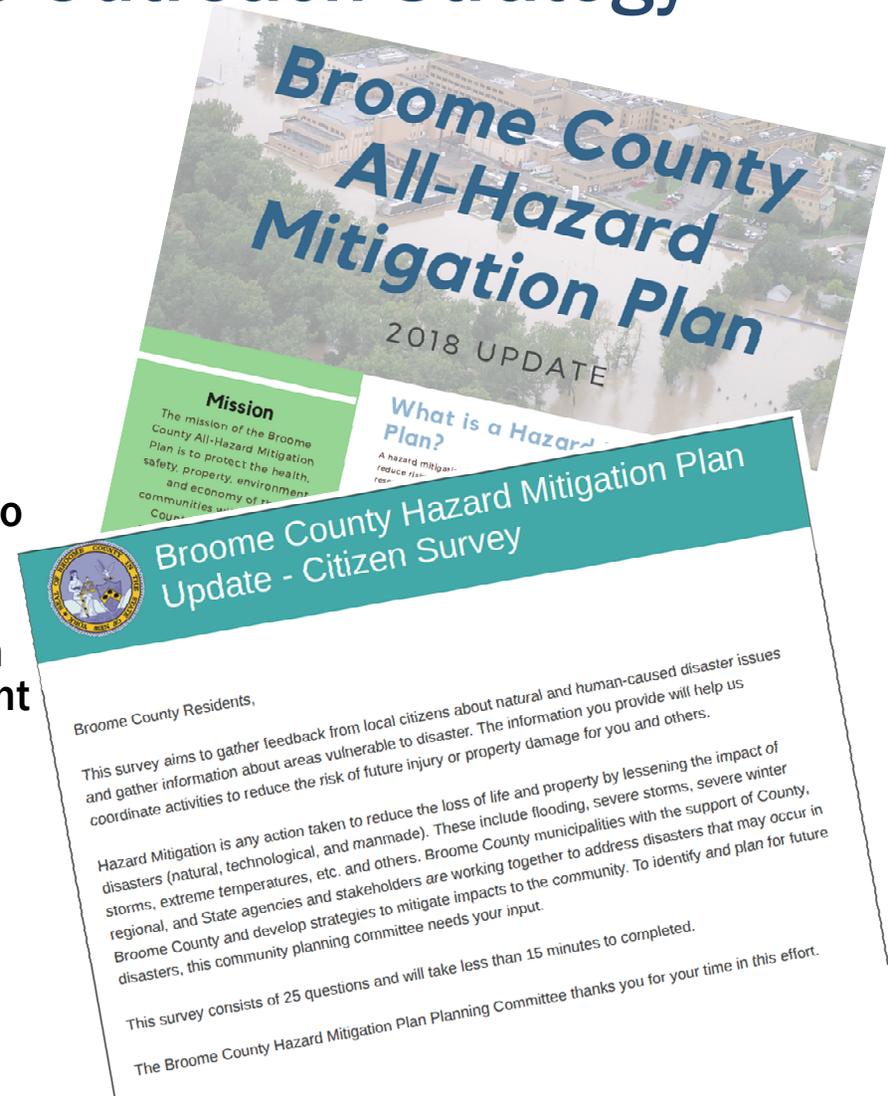


Municipal Worksheets Received



# Stakeholder and Public Outreach Strategy

- Surveys (citizen and stakeholder) and information flyer created
  - Next step – distribute survey links and flyers
  - By September 7<sup>th</sup> -
    - all links should be distributed to the appropriate people
    - all municipalities to have HMP project link and flyer posted on their website; press release sent to newspapers
- Outreach: Present key info on HMP process at local meetings



# Hazards of Concern (HOC)

- Drought
- Earthquake
- Extreme Temperatures
- Flood (riverine/flash flood, ice jam, and dam failure)
- Severe Storm (hail, wind, lightning, thunderstorms, tornadoes, hurricanes, and tropical storms)
- Severe Winter Storm (heavy snow, blizzards, sleet, freezing rain, ice storms, extreme cold, and Nor'Easters)

**BROWARD COUNTY HAZARD MITIGATION PLAN UPDATE**  
Worksheet #1 - Evaluation of Identified Hazards and Risk

Please work with your assigned planning team and complete the worksheet. Please email the completed worksheet to: [planning@broward.org](mailto:planning@broward.org) or call: (954) 356-2200.

**Identify the Hazard**

Name and Title and Contact Info of Individual Completing Worksheet:

Name: \_\_\_\_\_ Title: \_\_\_\_\_ Email Address: \_\_\_\_\_ Phone Number: \_\_\_\_\_

To provide a submission for our Hazard Mitigation planning process and to allow our attention within the impact of the hazard on your community, we request your input regarding the impact of natural hazards.

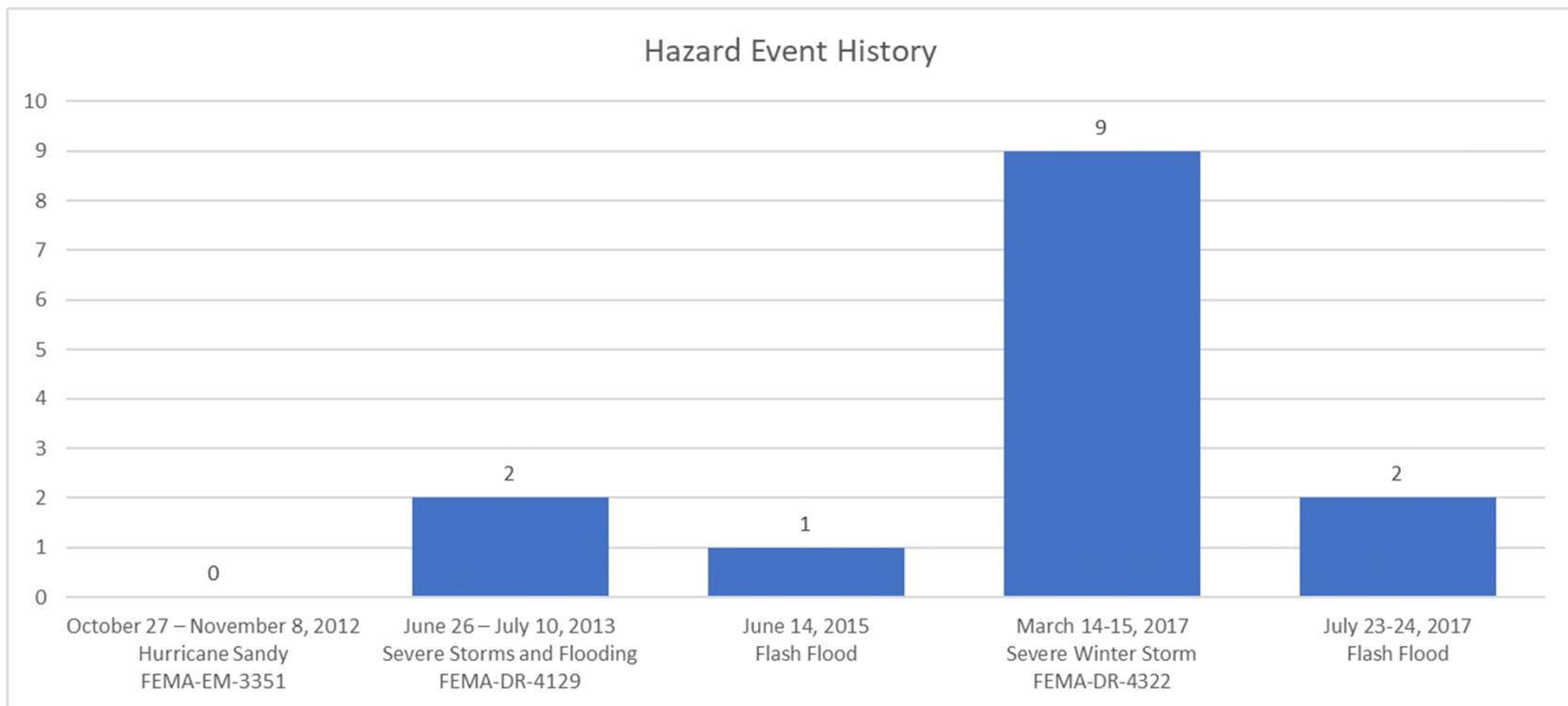
The factors of concern listed on the 2013 Broward County Hazard Mitigation plan are provided in the table below. Please check the box that applies to your hazard. If you have any questions, please contact the planning team at (954) 356-2200. Please provide a brief description of the hazard and its impact on your community in the "Additional Comments" column.

Hazard of Concern	How often does this hazard occur?	How likely is it to cause significant damage or loss of life?	Additional Comments
Severe Winter Storm	☐ Rarely	☐ Rarely	
Severe Storm	☐ Rarely	☐ Rarely	
Flood	☐ Rarely	☐ Rarely	
Earthquake	☐ Rarely	☐ Rarely	
Drought	☐ Rarely	☐ Rarely	
Extreme Temperatures	☐ Rarely	☐ Rarely	

Worksheet #1 - Evaluation of Identified Hazards and Risk  
Form 2013

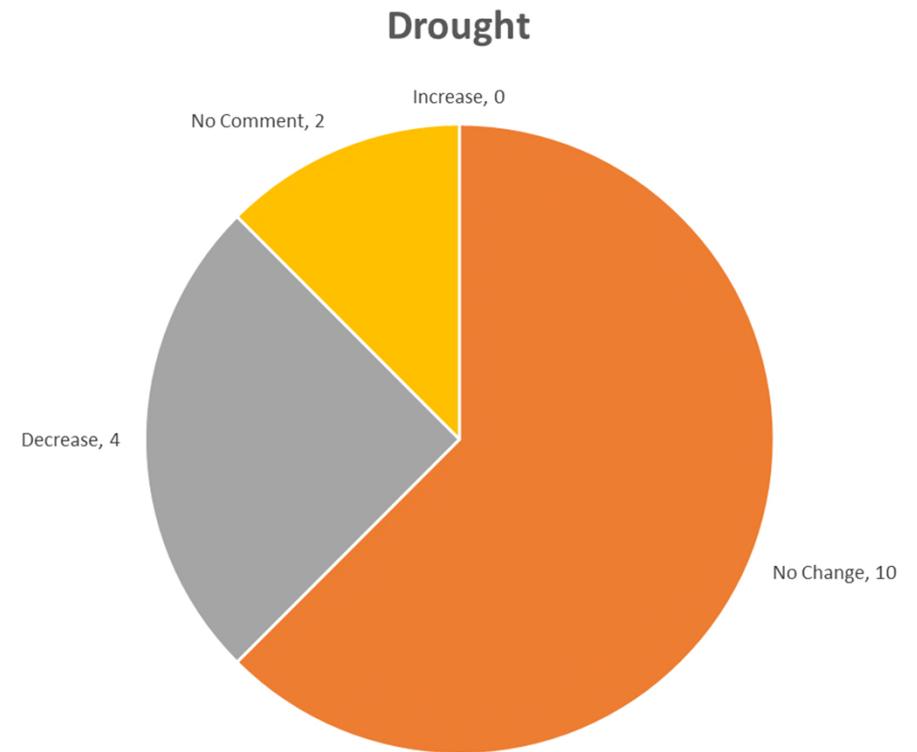
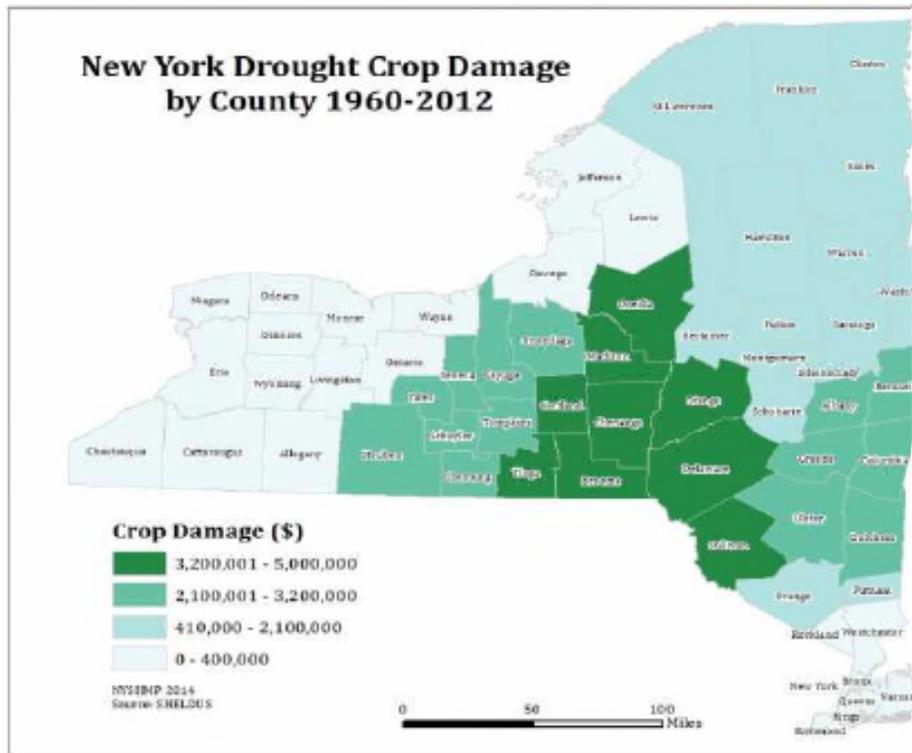
# History of Events

- The table below shows the number of municipalities (total of 16 out of 25 municipalities responded) that reported losses/damages as a result of major events.



# HOC Feedback (16 worksheets returned)

## Drought



\*No Presidential Declarations from 1954-present. 31 drought events recorded since 1895.

# Committee HOC Feedback - Earthquake

New York Historical Earthquakes  
1973-2012

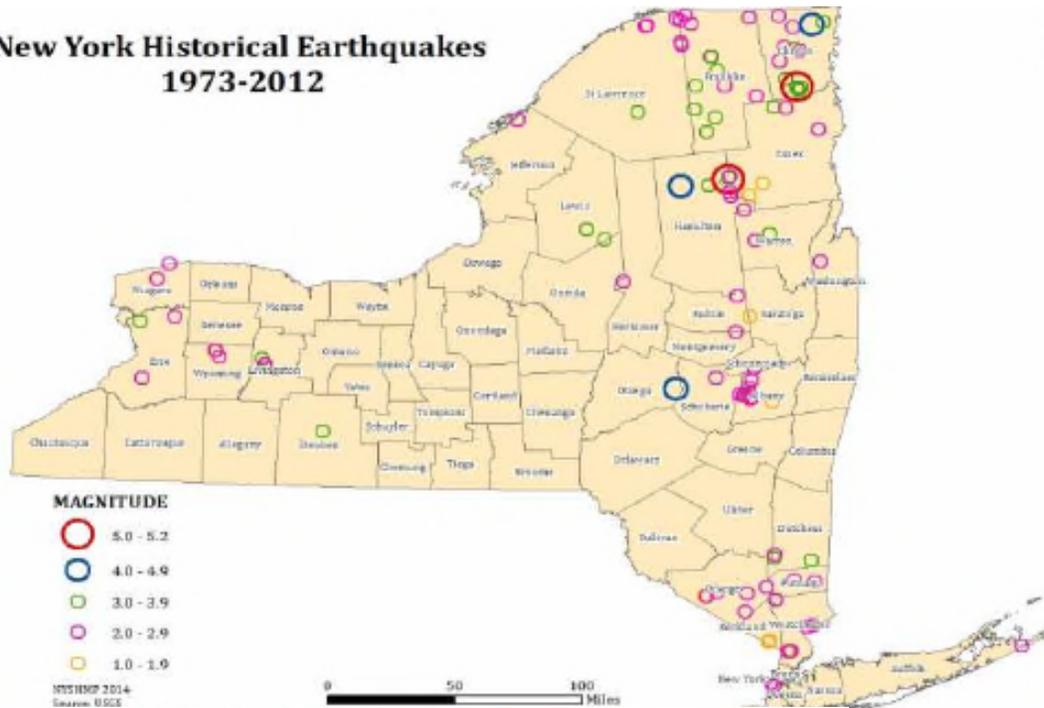
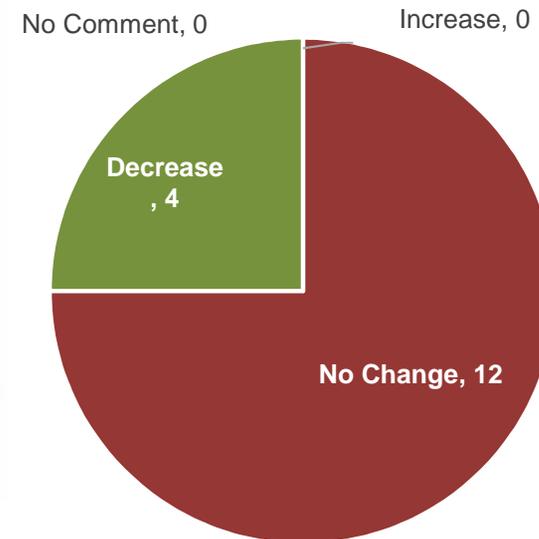


Table 3.7: Hazus-MH Earthquake Loss Estimation by County

County	Structural Damage	Non Structural Damage	Contents Damage	Inventory Loss	Relocation Loss	Capital Related Loss	Wage Loss	Rental Income Loss	Total Loss
Albany	\$171	\$501	\$165	\$4	\$128	\$58	\$83	\$76	\$1,186
Allegany	\$10	\$26	\$8	\$0	\$7	\$2	\$3	\$3	\$58
Bronx	\$582	\$2,475	\$840	\$9	\$303	\$105	\$139	\$265	\$4,718
Broome	\$45	\$122	\$35	\$1	\$33	\$13	\$18	\$18	\$285

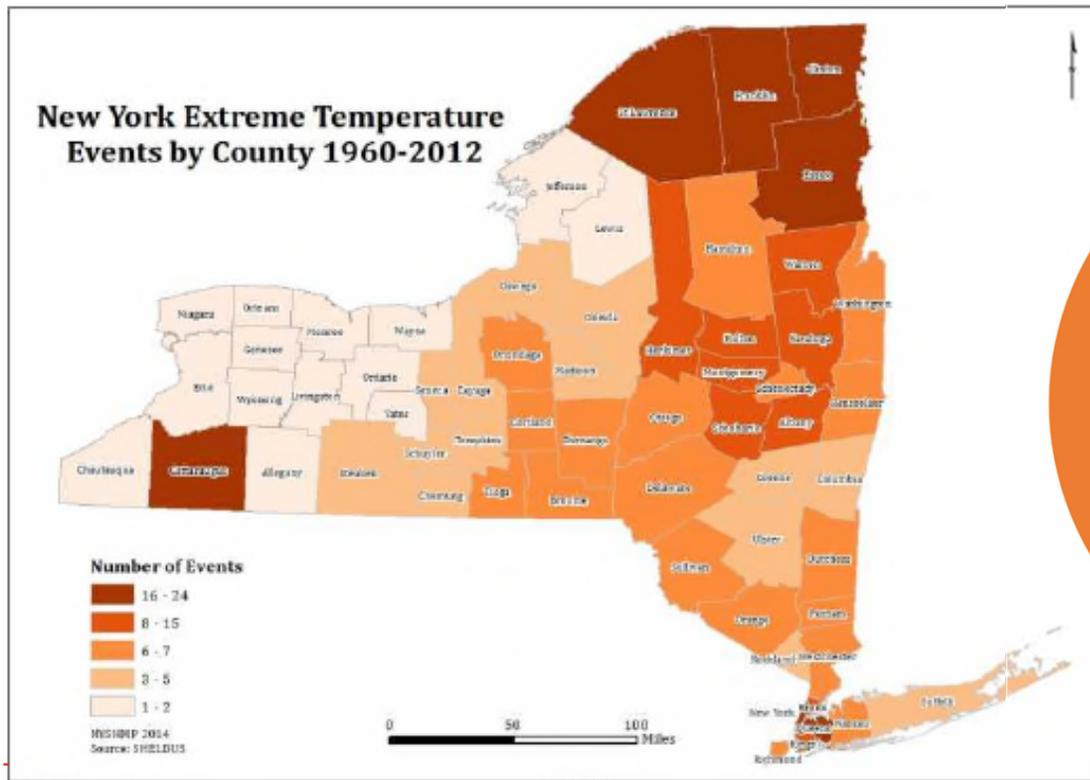
Source: Hazus-MH 2.1, Values are in thousands of dollars

## Earthquake

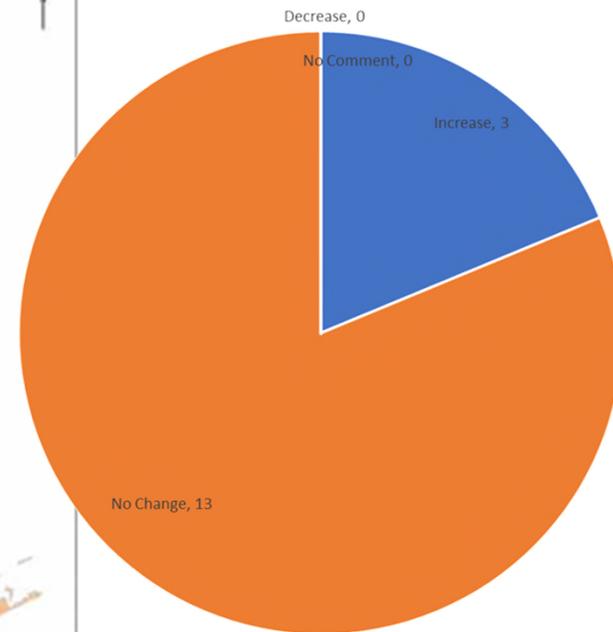


\*No Presidential Declarations. No earthquakes with epicenter in Broome from 1973-present.

# Committee HOC Feedback – Extreme Temperatures



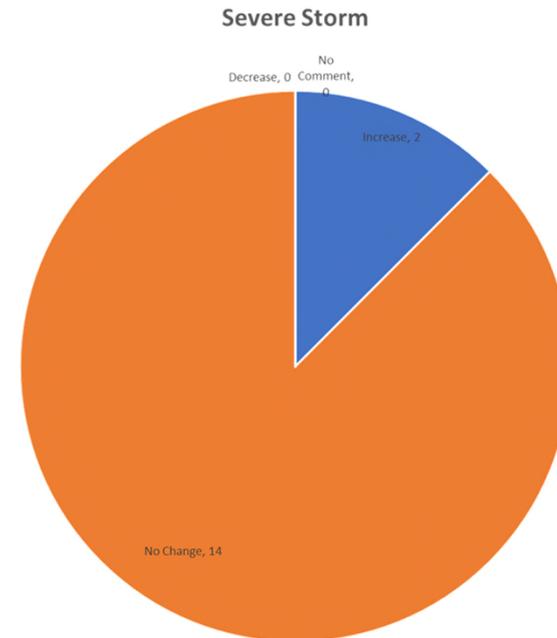
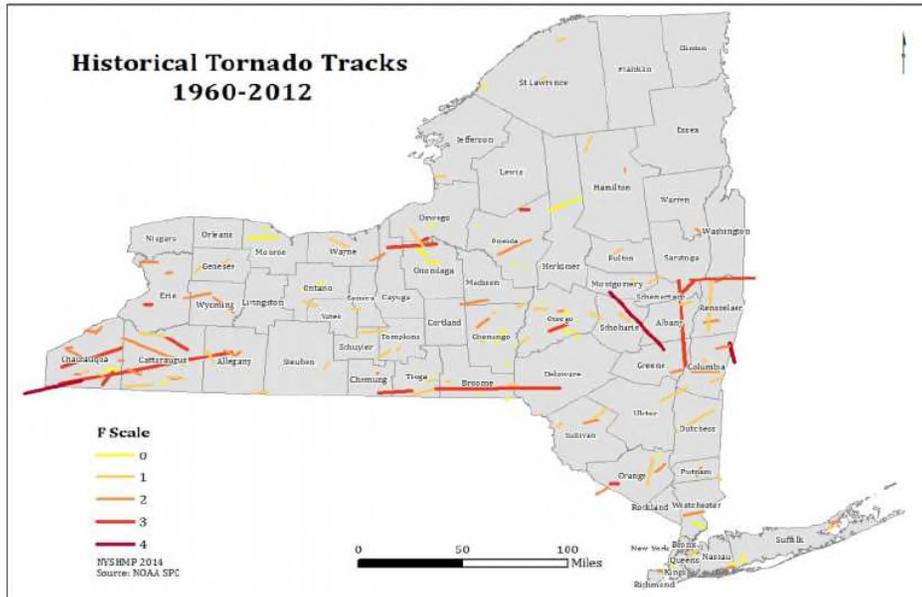
Extreme Temperatures



\*No Presidential Declarations. 20 events from 1950-2018 resulting in \$20K damage (NCEI)



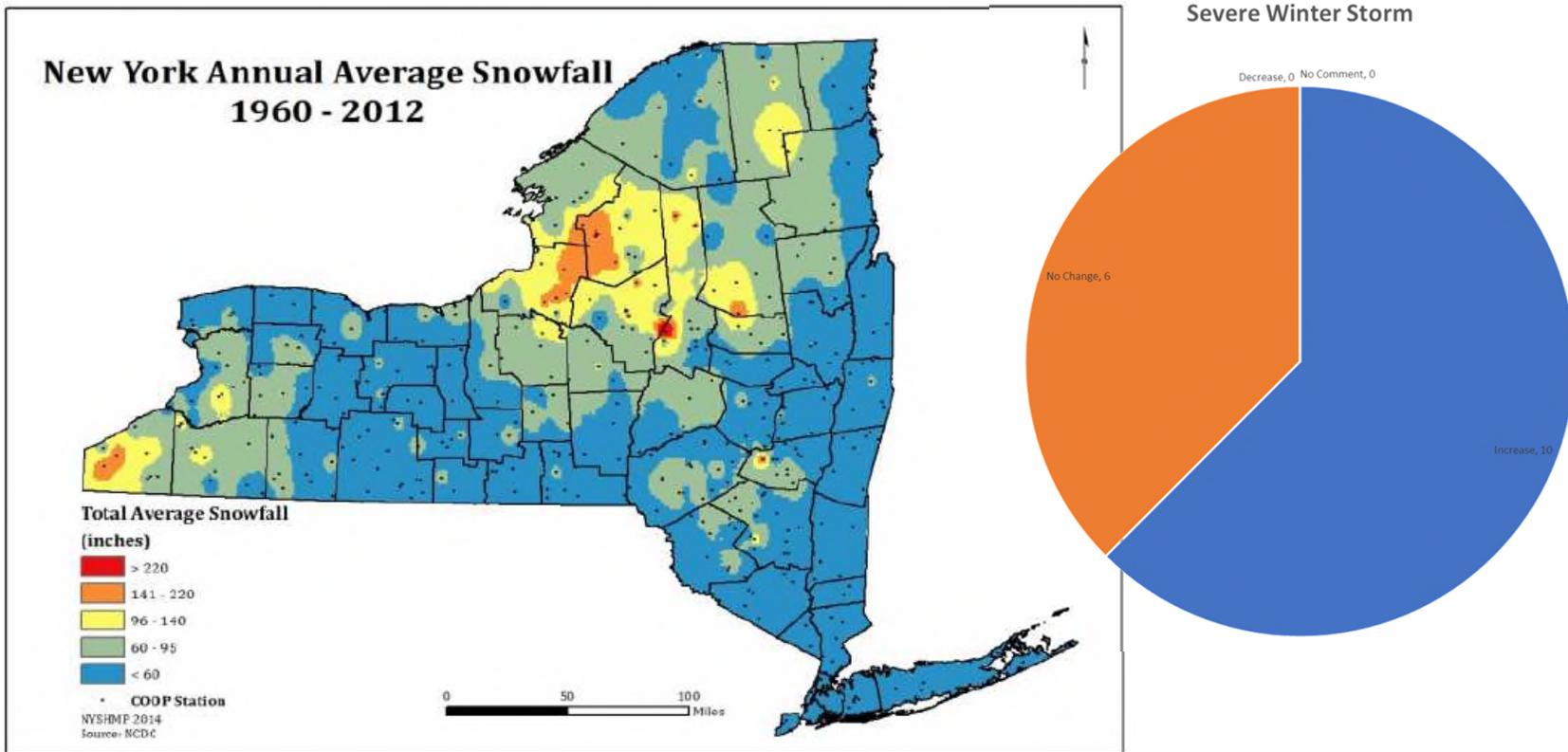
# Committee HOC Feedback – Severe Storm



County	Historical Record (1960-2012)							Recent Record (2010-2012)				
	Future Probability %	Recurrence Interval	No. of Events	Fatalities	Injuries	Property Damage	Crop Damage	No. of Events	Fatalities	Injuries	Property Damage	Crop Damage
Albany	306	0.33	159	1	24	\$7,075,672	\$250,966	2	0	0	\$32,000	\$0
Allegany	352	0.28	183	0	3	\$4,603,342	\$91,470	33	0	0	\$764,000	\$0
Bronx	138	0.72	72	4	17	\$1,551,247	\$308	16	1	8	\$675,111	\$0
Broome	485	0.21	252	0	25	\$4,814,655	\$19,416	50	0	0	\$525,000	\$0

11 Severe Storm/Hurricane/Tropical Storm Presidential Declarations and 17 events since last plan, 309 events since 1950 resulting in 20 injuries, \$7M in property damages and \$2K crop damages (NCEI)

# Committee HOC Feedback – Severe Winter Storm



\*4 Presidential Declarations and 79 events since 1950 resulting in \$1M in property damages (NCEI)



# Committee HOC Feedback

Additional concerns noted:

- Wildfire
- Hogweed



# Plan Mission, Goals and Objectives

- **Review the Mission Statement, Goals, and Objectives from the 2013 Plan – update as appropriate**
- **Incorporate resiliency into the Mission Statement, Goals, and Objectives**
- **How do we want to define resiliency?**
  - **Comprehensive Plan – “incorporating hazard mitigation concepts into decision making, instituting policies that protect property and public safety, and encouraging natural, non-structural solutions to reducing flood damages.”**



# Mission Statement

***Through partnerships and careful planning, identify and reduce the vulnerability to natural hazards in order to **become more resilient** and protect the general health, safety, welfare, quality of life, environment, and economy of the residents, businesses, institutions, and communities within Broome County.***

*Persistence and resilience only come from having been given the chance to work through difficult problems.*  
*Gever Tulley*



## Goals

- **According to CFR 201.6(c)(3)(i): “The hazard mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.”**
- **Input: risk assessment results, discussions, research, and input from amongst the committee, existing authorities, polices, programs, resources, stakeholders and the public.**



## **Compatibility with Other Planning Goals**

**Broome County goals should be compatible with the needs and goals expressed in other available community planning documents as well as the NYS HMP. These goals and objectives should be reasonably in-line with goals established in other related planning documents and mechanisms including:**

- 2014 New York State Hazard Mitigation Plan**
- 2013 Broome County Hazard Mitigation Plan**
- Broome County Comprehensive Plan**
- Other local comprehensive and emergency management plans**



# Proposed 2019 HMP Goals

- **Goal 1**    **Protect Life, Property and the Economy**
- **Goal 2**    **Increase Public Awareness**
- **Goal 3**    **Encourage Partnerships**
- **Goal 4**    **Provide for Enhanced Emergency Services**



# Goal 1 - Protect Life, Property and the Economy

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**Objective 1-1: Work with all levels of government to implement publicly led mitigation projects that will assist in protecting 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 help ensure that they employ the 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.**

**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.**

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## Goal 2 - Increase Public Awareness

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**Objective 2-1: Develop and implement additional education and outreach programs to increase public awareness of the risks associated with hazards and to educate the public on specific, individual preparedness activities. Specifically target residents, businesses, realtors, insurance agents, and mortgage lenders.**

**Objective 2-2: Provide information to government officials, school districts and non-profits on tools, partnership opportunities, funding resources, and current government initiatives to assist in implementing mitigation activities.**

**Objective 2-3: Implement mitigation activities that 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 to local emergency service providers, municipalities, the media and the public during and immediately following disaster and hazard events regarding emergency traffic routes, road closures, shelter locations, traffic restrictions, etc.**

**Objective 2-5: Increase awareness of residents and businesses of existing public warning systems.**

**Objective 2-6: Educate residents and businesses on the meaning of “State of Emergency” declarations.**



## Goal 3 - Encourage Partnerships

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**Objective 3-1: Strengthen inter-jurisdiction and inter-agency communication, coordination, and partnerships 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.**

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# Goal 4 - Provide for Enhanced Emergency Services

**Objective 4-1: Encourage the establishment of policies at the local level to help ensure the prioritization and implementation of mitigation strategies and/or projects designed to benefit essential facilities, services, and infrastructure.**

**Objective 4-2: Where appropriate, coordinate and integrate hazard mitigation activities with existing local emergency operations plans.**

**Objective 4-3: Identify the need for, and acquire, any special emergency services, training, and equipment to enhance response capabilities for specific hazards.**

**Objective 4-4: Review and improve, if necessary, emergency traffic routes; communicate such routes to the public and communities.**

**Objective 4-5: 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 4-6: Improve communications to residents and businesses during and after disasters.**

**Objective 4-7: Improve warnings prior to disasters.**

**Objective 4-8: Encourage NIMS training for all appropriate personnel including elected officials.**



# Strengths, Weaknesses, Obstacles, and Opportunities (SWOO)

*The purpose of the SWOO is to identify mitigation strategies and capabilities that will meet the goals and objectives of the plan update. It is also used to develop potential mitigation actions for the participating jurisdictions.*

- **Strengths – what we do well**
- **Weaknesses – what could we do better**
- **Obstacles – things that stand in the way, and either prevents you from doing something or something that need to be overcome**
- **Opportunities – used to develop mitigation strategies**

# 2019 SWOO Discussion (Flood)

2013 SWOO – Flood			
Strengths	Weaknesses	Obstacles	Opportunities
<p>County is aggressive in maintaining 19 watersheds-aggressive for decades</p> <p>Whitney point dam has been successful in reducing downstream flow-NYDEC and Army Corps (ACOE)</p> <p>Levee network there is also good</p> <p>Dam in Sidney is also good</p> <p>Coordination is good for the tools they have-good communication before releases-these are flood control dams as opposed to DEC dams</p> <p>Have to keep track of Delaware and Susquehanna river flows/height</p> <p>DEC dams are not flood control</p> <p>ACOE –Baltimore calls the shots</p> <p>Must coordinate with upper Susquehanna River Basin Commission-regulations of water quality seem to be increasing</p> <p>Some communities have long standing buyout programs such as T of Union. Others are less participatory. Long track record of mitigation in Union. Flood problems since the 60s drove this.</p>	<p>Flood walls?</p> <p>Endwell-did not pursue flood walls but are pursuing buyout</p> <p>Conklin lost 8.5% population after last event (part is buyouts)</p> <p>Patchwork left after partial buyouts</p> <p>Sometime population is reactive with buyouts instead of coordinating ahead of time.</p> <p>Sometime population is reactive with buyouts instead of coordinating ahead of time.</p> <p>No teeth in evacuation orders</p> <p>Inconsistent funding for river gages.</p> <p>Aging infrastructure of water supply in Union is problem and impacted operation of a full-service hospital</p> <p>Flooding of wells for public water system-mitigation efforts at well sites</p> <p>Understanding of flood insurance by insurance agencies is very weak! Many questions from the public. If they Do not understand how do public get correct info?</p> <p>Buyouts are perceived as a flood recovery program rather than pre-disaster program.</p> <p>Pro-active funding</p> <p>Staff resources.</p> <p>Castle gardens in Vestal-vulnerable electrical sub-station-NYSEG</p>	<p>Resistance to buyouts and lost ratable</p> <p>Funding for river gages is not a line item in the state budget-so there is a question every year as to who funds SRBC, ??-this is very frustrating.</p> <p>Funding of 25% match-town pays some</p> <p>Codes-</p> <ul style="list-style-type: none"> <li>• some code officials do not know how to work with homeowners with elevations.</li> <li>• understanding of flood damage prevention ordinances.</li> </ul>	<p>Better communication-radio communications</p> <p>Joint information center for unified message for all communities</p> <p>Get funding for river gages as a line item in state budget.</p> <p>Be pro-active in buyouts for contiguous open space.</p> <p>Include natural hazard risk in comprehensive plans-ID buyout areas in plan.</p> <p>allow budget of 25%-show the effect of loss of ratables.</p> <p>Flood mitigation fund to cover 25%</p> <p>Incentive for % of local match from CDBG</p> <p>Storm water utility fees for mitigation funding</p> <p>Development fees for sewerage?</p> <p>Fund retention areas where creeks meet river?</p> <p>ID revenue stream of funding for engineering solutions of local flooding/basins.</p> <p>Flood protection – mitigation of well sites to maintain City water system-flood proofing, generators</p>

# 2019 SWOO Discussion (Flood, continued)

2013 SWOO – Flood			
Strengths	Weaknesses	Obstacles	Opportunities
<ul style="list-style-type: none"> <li>All communities participate in NFIP-2 CRS communities. 2-3 more to come.</li> <li>Highest risk communities in NFIP-those with more resources also.</li> <li>Flood walls have been effective, and DEC maintains, last year they were overtopped</li> <li>Conklin and Kirkwood-RLPs are driving CRS applications and buyouts-they do not have the resources without hiring a consultant. On hold after last flood. Endwell in the 90's there were buyouts. Now Union has a part-time consultant to manage the buyouts.</li> <li>Flood walls for some communities.</li> <li>Whitney point-wall high enough but not certified</li> <li>Communication during 2011 event. Better than 2006.</li> <li>NYALERT-huge in 2011 and effective and good push on evacuation</li> <li>Pre-flood messaged prior to flooding via NYALERT</li> <li>Also, to contact water operators to be prepared pre-storm and to help out neighboring communities</li> </ul>	<ul style="list-style-type: none"> <li>Westover storage facility is vulnerable (Dee)-electrical</li> <li>Transformer in Robinsonville substation-all electricity in region comes through here. Big vulnerability in grid. Working on getting a spare –also one in Elmira.</li> <li>Public awareness of flood zones-not good as flood maps are being changed. There is a lot of confusion. FEMA needs to get new maps and then educate people.</li> <li>People not affected by flooding did not understand water rations etc. because of flooding.</li> <li>Can't enforce water conservation.</li> <li>Businesses got the least amount of information</li> <li>Retail pharmacies-medication supply is critical.</li> <li>Code officials cover multiple towns with different ordinances so there is confusion.</li> <li>Flood training is not required for code officials training.</li> </ul>		<ul style="list-style-type: none"> <li>Binghamton – Johnson city needs generator for sewerage plant.</li> <li>Preliminary design stage for flood wall in joint sewerage treatment.in Johnson City-FEMA funding;</li> <li>Workshops to improve understanding of flood insurance for agents and realtors and bankers on County level.</li> <li>Bill Nech. To explain new NFIP regulations to flood task force.</li> <li>Flood protection for basement of county office bldg.-IT is in the basement. Need floodwalls for county complex with floodwalls. - also, arena which is used as a shelter.</li> <li>Vestal, Union, Kirkwood critical facility floodproofing, flood walls.</li> <li>Johnson City water plant was inundated.</li> <li>Real Estate disclosure of hazard areas (state reg) no local reg.</li> <li>Availability of code officer flood training/-need to run FEMA courses-should be part of required training otherwise town does not pay for this.</li> </ul>



# 2019 SWOO Discussion (Flood, continued)

2013 SWOO – Flood			
Strengths	Weaknesses	Obstacles	Opportunities
<ul style="list-style-type: none"><li>• Push to join NYWARN for municipal water operators and restaurants and public facilities that house people.</li><li>• Messages more timely in 2011 than 2006</li><li>• Improved communication in county EOC regarding open routes to hospital etc.</li><li>• Accurate inundation modeling developed after 2006 were valuable in predicting which areas would be flooded-good for evacuation. Resulted in better evacuations. NO rooftop rescues this time.</li><li>• Developers of main need to provide Stormwater facilities...?</li><li>• Raised room tax rates to fund programs</li><li>• Generators for some wells (in?) –major water suppliers have back up generation</li><li>• At Rainy well –back-up generator and switches elevated</li><li>• New regulations that mobile home parks must have back-up generation - county wide</li><li>• Working with Lourdes to accept emergency water supply (from tanker trucks)</li><li>• NYSEG works closely with communities</li><li>• Code and code enforcement</li></ul>			



# 2019 SWOO Discussion (Severe Winter Storms)

2013 SWOO – Severe Winter Storms			
Strengths	Weaknesses	Obstacles	Opportunities
<ul style="list-style-type: none"> <li>• County and Binghamton University is certified Storm Ready.</li> <li>• Back-up power at Critical facilities.</li> <li>• Aggressive in installing back-up generators-911, county health dept, county library (and backup 911), transit fuel island for busses, health dept, public safety radio tower sites, NYSEG installing emergency communication towers, WSKG put in generator as they are part of county public info system as they are partially federally funded.</li> <li>• Video camera for live broadcasts to public to give info over public television, radio, and commercial tv/cable and got emergency back-up generator for their studio-in progress and will be used as a model for other communities.</li> <li>• Snow removal is good.</li> <li>• Weather prediction-storm warning is good. On a first name basis-so good communication with scenarios and worst cases before the storm. Understand exposure generally and can use this. Help to predict flash floods.</li> </ul>	<ul style="list-style-type: none"> <li>• Large scale power outages.</li> <li>• Ice.</li> <li>• More at risk with warmer winters.</li> <li>• Debris removal</li> <li>• Opening up streets.</li> <li>• Paralyzing travel for long periods of time</li> <li>• Accessibility of ways to get to hospital.</li> <li>• Pre-treating roadway can backfire.</li> </ul>	<ul style="list-style-type: none"> <li>• Depending on one pipeline for fuel supply if supply is interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>• Tree management programs.</li> <li>• 10-year cycle. Have gotten more aggressive. Outside firms to tree trim.</li> <li>• Encourage local ordinances for tree planting near lines, and Tree City USA.</li> <li>• Working on debris management plans, prioritizing roads, access to critical facilities. -work group task force county-wide for debris management.</li> </ul>



# 2019 SWOO Discussion (Severe Storms)

2013 SWOO – Severe Storms			
Strengths	Weaknesses	Obstacles	Opportunities
<ul style="list-style-type: none"><li>None identified in 2013</li></ul>			

# 2019 SWOO Discussion (Extreme Temperature)

2013 SWOO – Extreme Temperature			
Strengths	Weaknesses	Obstacles	Opportunities
<ul style="list-style-type: none"> <li>Project to get temperature sensor to high risk population to see what if-scenarios for extreme temps per public health.</li> <li>Understand measures to help public such as cooling stations. Have modeling to show what happens during prolonged heat events.</li> <li>Licensed facilities have back-up power (nursing homes, etc.)</li> <li>Lots of experience in sheltering on the county level.</li> </ul>	<ul style="list-style-type: none"> <li>How do floods affect mental health and social services?</li> <li>The programs are probably not well integrated or coordinated for vulnerable populations.</li> <li>How do floods affect long term health of the community?</li> <li>Incidences of violent crime.</li> </ul>	<ul style="list-style-type: none"> <li>None identified in 2013</li> </ul>	<ul style="list-style-type: none"> <li>None identified in 2013</li> </ul>



# 2019 SWOO Discussion (Drought)

## 2013 SWOO - Drought

Strengths	Weaknesses	Obstacles	Opportunities
<ul style="list-style-type: none"><li>• Interconnection with City of Binghamton.</li><li>• People use less water.</li><li>• Less commercial operations.</li><li>• Hospital recycles water.</li><li>• This results in more capacity.</li></ul>	<ul style="list-style-type: none"><li>• Water supply from river.</li><li>• Supply to mobile home parks.</li></ul>	<ul style="list-style-type: none"><li>• None identified in 2013</li></ul>	<ul style="list-style-type: none"><li>• Map water supply initiative.</li></ul>

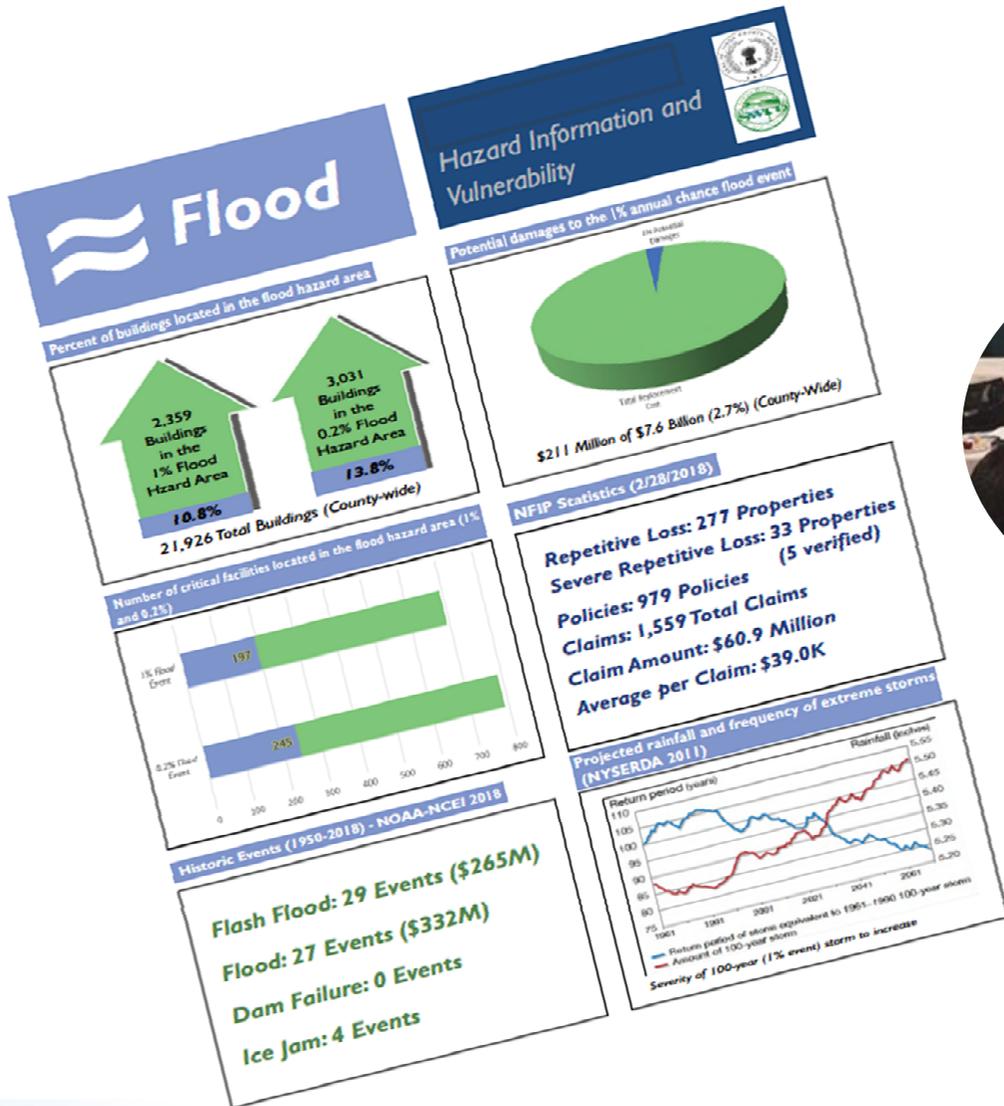


# 2019 SWOO Discussion (Earthquake)

2013 SWOO – Earthquake			
Strengths	Weaknesses	Obstacles	Opportunities
<ul style="list-style-type: none"><li>Retrofit justice building to meet new seismic codes.</li></ul>			<ul style="list-style-type: none"><li>Training for post-disaster visual training.</li><li>Vulnerability study of masonry buildings?</li></ul>

# What is Next?

## Review Risk and Vulnerability





# Project Schedule Review

- **June 2018**                      **Municipal Kick-Off Meeting**
- **June-August**                      **Data Collection**
- **July-August**                      **Update Hazard Profiles**
- **August-September**                      **Risk Assessment**
- **September 19, 2018**                      **Risk Results Presentation;  
Develop Problem Statements**
- **October 17, 2018**                      **Mitigation Strategy Workshop**
- **December 2018**                      **Review Draft Plan**
- **January 2019**                      **Submit to NYSDHSES**
- **February 2019**                      **Submit to FEMA**

# Any Questions?





Cynthia Addonizio-Bianco, Tetra Tech Inc.  
Heather Apgar, Tetra Tech Inc.





## Broome County 2018 Hazard Mitigation Plan Update Strengths, Weaknesses, Obstacles, and Opportunities Exercise

The purpose of the Strengths, Weaknesses, Obstacles, and Opportunities (SWOO) is to identify mitigation strategies and capabilities that will meet the goals and objectives for this Hazard Mitigation Plan, used to develop a catalog of potential mitigation actions for use by the jurisdictions as they develop their mitigation action plan.

- **Strengths:** What we do well; what we can capitalize on
- **Weaknesses:** What could we do better; what we need to strengthen
- **Obstacles:** Things that stand in our way, and either prevent us from doing something, or something that needs to be overcome. (e.g. regulatory, geographical, environmental, financial).
- The **Opportunities** developed from this process will serve as the basis for our catalog of potential mitigation alternatives. The alternatives will address our risks, meet our planning goals and objectives, and fall within our capabilities.

For the current plan, a total of six (6) natural hazards of concern were identified as significant hazards affecting the entire planning area, to be addressed at the County level in this plan:

- Drought
- Earthquake
- Extreme Temperature
- Flood (riverine, flash, ice jam, and dam failure)
- Severe Storm (wind, thunderstorm, hail, tornadoes, and hurricanes/tropical storms)
- Severe Winter Storm (heavy snow, blizzards, ice storms, and Nor'Easters)

Please use this survey to identify Strengths, Weaknesses, Obstacles, and Opportunities for each hazard. See below for an example of information we are looking to include. This example is an excerpt from the 2013 Broome County Flood SWOO.

Strengths	Weaknesses	Obstacles	Opportunities
<ul style="list-style-type: none"> <li>County is aggressive in maintaining 19 watersheds-aggressive for decades</li> <li>Whitney point dam has been successful in reducing downstream flow-NYDEC and Army Corps (ACOE)</li> <li>Levee network there is also good</li> <li>Dam in Sidney is also good</li> <li>Coordination is good for the tools they have-good communication before releases-these are flood control dams as opposed to DEC dams</li> <li>Have to keep track of Delaware and Susquehanna river flows/height</li> <li>DEC dams are not flood control</li> <li>ACOE –Baltimore calls the shots</li> <li>Must coordinate with upper Susquehanna River Basin Commission-regulations of water quality seem to be increasing</li> <li>Some communities have long standing buyout programs such as T of Union. Others are less participatory. Long track record of mitigation in Union. Flood problems since the 60s drove this.</li> <li>All communities participate in NFIP-2 CRS communities. 2-3 more to come.</li> </ul>	<ul style="list-style-type: none"> <li>Flood walls?</li> <li>Endwell-did not pursue flood walls but are pursuing buyout</li> <li>Conklin lost 8.5% population after last event (part is buyouts)</li> <li>Patchwork left after partial buyouts</li> <li>Sometime population is reactive with buyouts instead of coordinating ahead of time.</li> <li>Sometime population is reactive with buyouts instead of coordinating ahead of time.</li> <li>No teeth in evacuation orders</li> <li>Inconsistent funding for river gages.</li> <li>Aging infrastructure of water supply in Union is problem and impacted operation of a full-service hospital</li> <li>Flooding of wells for public water system-mitigation efforts at well sites</li> <li>Understanding of flood insurance by insurance agencies is very weak! Many questions from the public. If they Do not understand how do public get correct info?</li> </ul>	<ul style="list-style-type: none"> <li>Resistance to buyouts and lost ratable</li> <li>Funding for river gages is not a line item in the state budget-so there is a question every year as to who funds SRBC, ??-this is very frustrating.</li> <li>Funding of 25% match-town pays some</li> <li>Codes-</li> <li>some code officials do not know how to work with homeowners with elevations.</li> <li>understanding of flood damage prevention ordinances.</li> </ul>	<ul style="list-style-type: none"> <li>Better communication-radio communications</li> <li>Joint information center for unified message for all communities</li> <li>Get funding for river gages as a line item in state budget.</li> <li>Be pro-active in buyouts for contiguous open space.</li> <li>Include natural hazard risk in comprehensive plans-ID buyout areas in plan.</li> <li>allow budget of 25%-show the effect of loss of ratables.</li> <li>Flood mitigation fund to cover 25%</li> <li>Incentive for % of local match from CDBG</li> <li>Storm water utility fees for mitigation funding</li> <li>Development fees for sewerage?</li> <li>Fund retention areas where creeks meet river?</li> <li>ID revenue stream of funding for engineering solutions of local flooding/basins.</li> </ul>

## Drought

Please identify any strengths, weaknesses, obstacles, or opportunities the county and municipalities have in response to the drought hazard.

### 1. Drought Strengths

*what we do well; what we can capitalize on*

### 2. Drought Weaknesses

*what could we do better; what we need to strengthen*

### 3. Drought Obstacles

*things that stand in our way, and either prevent us from doing something, or something that needs to be overcome (e.g. regulatory, geographical, environmental, financial)*

#### 4. Drought Opportunities

*opportunities developed from this process will serve as the basis for our catalog of potential mitigation alternatives. The alternatives will address our risks, meet our planning goals and objectives, and fall within our capabilities.*

### **Earthquake**

Please identify any strengths, weaknesses, obstacles, or opportunities the county and municipalities have in response to the earthquake hazard.

#### 5. Earthquake Strengths

*what we do well; what we can capitalize on*

#### 6. Earthquake Weaknesses

*what could we do better; what we need to strengthen*

#### 7. Earthquake Obstacles

*things that stand in our way, and either prevent us from doing something, or something that needs to be overcome (e.g. regulatory, geographical, environmental, financial)*

#### 8. Earthquake Opportunities

*opportunities developed from this process will serve as the basis for our catalog of potential mitigation alternatives. The alternatives will address our risks, meet our planning goals and objectives, and fall within our capabilities.*

### **Extreme Temperature**

Please identify any strengths, weaknesses, obstacles, or opportunities the county and municipalities have in response to the extreme temperature hazard.

## 9. Extreme Temperature Strengths

*what we do well; what we can capitalize on*

## 10. Extreme Temperature Weaknesses

*what could we do better; what we need to strengthen*

## 11. Extreme Temperature Obstacles

*things that stand in our way, and either prevent us from doing something, or something that needs to be overcome (e.g. regulatory, geographical, environmental, financial)*

## 12. Extreme Temperature Opportunities

*opportunities developed from this process will serve as the basis for our catalog of potential mitigation alternatives. The alternatives will address our risks, meet our planning goals and objectives, and fall within our capabilities.*

## **Flood**

*(riverine, flash, ice jam, and dam failure)*

Please identify any strengths, weaknesses, obstacles, or opportunities the county and municipalities have in response to the flood hazard.

## 13. Flood Strengths

*what we do well; what we can capitalize on*

## 14. Flood Weaknesses

*what could we do better; what we need to strengthen*

## 15. Flood Obstacles

*things that stand in our way, and either prevent us from doing something, or something that needs to be overcome (e.g. regulatory, geographical, environmental, financial)*

## 16. Flood Opportunities

*opportunities developed from this process will serve as the basis for our catalog of potential mitigation alternatives. The alternatives will address our risks, meet our planning goals and objectives, and fall within our capabilities.*

## Severe Storm

*(wind, lightning, thunderstorm, hail, tornado, and hurricane/tropical storm)*

Please identify any strengths, weaknesses, obstacles, or opportunities the county and municipalities have in response to the severe storm hazard.

## 17. Severe Storm Strengths

*what we do well; what we can capitalize on*

## 18. Severe Storm Weaknesses

*what could we do better; what we need to strengthen*

## 19. Severe Storm Obstacles

*things that stand in our way, and either prevent us from doing something, or something that needs to be overcome (e.g. regulatory, geographical, environmental, financial)*

## 20. Severe Storm Opportunities

*opportunities developed from this process will serve as the basis for our catalog of potential mitigation alternatives. The alternatives will address our risks, meet our planning goals and objectives, and fall within our capabilities.*

## Severe Winter Storm

*(heavy snow, blizzards, ice storms, and Nor'Easters)*

Please identify any strengths, weaknesses, obstacles, or opportunities the county and municipalities have in response to the severe winter storm hazard.

## 21. Severe Winter Storm Strengths

*what we do well; what we can capitalize on*

## 22. Severe Winter Storm Weaknesses

*what could we do better; what we need to strengthen*

## 23. Severe Winter Storm Obstacles

*things that stand in our way, and either prevent us from doing something, or something that needs to be overcome (e.g. regulatory, geographical, environmental, financial)*

**24. Severe Winter Storm Opportunities**

*things that stand in our way, and either prevent us from doing something, or something that needs to be overcome (e.g. regulatory, geographical, environmental, financial)*



## Broome County 2018 Hazard Mitigation Plan Update Strengths, Weaknesses, Obstacles, and Opportunities Exercise

### Contact Information

**25. Please provide your contact information.**

Name

Agency/Department/Organiz  
ation

Email Address

Phone Number



### Mission Statement

Per FEMA guidance (386-1), a mission statement or guiding principle describes the overall duty and purpose of the planning process and serves to identify the principle message of the plan. It focuses or constrains the range of goals and objectives identified. This is not a goal because it does not describe outcomes. Broome County's mission statement is broad in scope and provides a direction for the Plan.

The mission of the Broome County Multi-Jurisdictional Hazard Mitigation Plan is:

*Through partnerships and careful planning, identify and reduce the vulnerability to natural hazards in order to **increase resiliency to those hazards** and **to protect the general health, safety, welfare, quality of life, environment, and economy of the residents, businesses, institutions, and communities within Broome County.***

### Goals and Objectives

According to CFR 201.6(c)(3)(i): "The hazard mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards." The mitigation goals have been developed based on the risk assessment results, discussions, research, and input from amongst the committee, existing authorities, polices, programs, resources, stakeholders and the public.

For the purposes of this plan, goals and objectives are defined as follows:

**Goals** are general guidelines that explain what is to be achieved. They are usually broad, long-term, policy-type statements and represent global visions. Goals help define the benefits that the plan is trying to achieve. The success of the plan, once implemented, should be measured by the degree to which its goals have been met (that is, by the actual benefits in terms of hazard mitigation).

Broome County goals should be compatible with the needs and goals expressed in other available community planning documents as well as the NYS HMP. These goals and objectives should be reasonably in-line with goals established in other related planning documents and mechanisms including:

- 2014 New York State Hazard Mitigation Plan [These goals are provided in the pages following the table of Broome goals below]
- 2013 Broome County Hazard Mitigation Plan
- Broome County Comprehensive Plan
- Other local comprehensive and emergency management plans

**Objectives** are short-term aims which, when combined, form a strategy or course of action to meet a goal. Unlike goals, objectives are specific and measurable.

During the 2018 plan update process, the Steering Committee reviewed the goals and objectives established in the 2013 HMP. These goals and objectives were reviewed in consideration of the hazard events and losses since the 2013 plan, the updated hazard profiles and vulnerability assessment, the goals and objectives established in the New York State 2014 HMP, County and local risk management plans, as well as direct input on how the County and municipalities need to move forward to best manage their hazard risk.



2013 Goals and Objectives	2018 Goals and Objectives	Notes
<b>Goal 1: Protect Life, Property, and Economy</b>		No change.
Objective 1-1: Work with all levels of government to implement publicly led mitigation projects that will assist in protecting lives and property by making homes, businesses, infrastructure, and critical facilities more resistant to hazards.	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.	No change.
Objective 1-2: Educate and encourage private property owners to take preventive mitigation actions in areas that are especially vulnerable to hazards.	Objective 1-2: Educate and encourage private property owners to take preventive mitigation actions in areas that are especially vulnerable to hazards.	No change.
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 1-3: Better characterize flood hazard events by conducting additional hazard studies, improved flood hazard mapping and creating flood and dam inundation models.	No change.
Objective 1-4: Review existing local laws and ordinances, building codes, safety inspection procedures, and applicable rules to help ensure that they employ the best practices for the protection of buildings and environmental resources.	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.	No change.
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 1-5: Ensure that public and private facilities and infrastructure meet established building codes and rigorously enforce the codes to address any identified deficiencies.	No change.
Objective 1-6: Encourage homeowners, renters, and businesses to purchase insurance coverage for damages caused by hazards.	Objective 1-6: Encourage homeowners, renters, and businesses to purchase insurance coverage for damages caused by hazards.	No change.
Objective 1-7: Fully integrate the recommendations of this plan into existing local and county laws, plans, ordinances, natural resource management activities and programs.	Objective 1-7: Fully integrate the recommendations of this plan into existing local and county laws, plans, ordinances, natural resource management activities and programs <b>to encourage resilient and sustainable efforts throughout the county.</b>	Modified based on NYS HMP objective 1.1
Objective 1-8: Implement mitigation activities that encourage environmental stewardship and protection of the environment.	Objective 1-8: Implement mitigation activities that encourage environmental stewardship and protection of the environment.	No change.
Objective 1-9: Minimize new development within hazard prone areas.	Objective 1-9: Minimize new development within hazard prone areas.	No change.
Objective 1-10: Incorporate hazard mitigation planning into post disaster recovery projects and operations.	Objective 1-10: Incorporate hazard mitigation planning into post disaster recovery projects and operations.	No change.
Objective 1-11: Mitigate impacts of natural hazards to businesses, communities and local economies.	Objective 1-11: Mitigate impacts of natural hazards to businesses, communities and local economies.	No change.



2013 Goals and Objectives	2018 Goals and Objectives	Notes
<b>Goal 2: Increase Public Awareness</b>	<b>Goal 2: Increase Public Awareness and Preparedness</b>	Increased scope of goal.
Objective 2-1: Develop and implement additional education and outreach programs to increase public awareness of the risks associated with hazards and to educate the public on specific, individual preparedness activities. Specifically target residents, businesses, realtors, insurance agents, and mortgage lenders.	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.	No change.
Objective 2-2: Provide information to government officials, school districts and non-profits on tools, partnership opportunities, funding resources, and current government initiatives to assist in implementing mitigation activities.	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.	Adjusted wording.
Objective 2-3: Implement mitigation activities that enhance the technological capabilities of the jurisdictions and agencies in the County to better profile and assess exposure of hazards.	Objective 2-3: Enhance the technological capabilities of the jurisdictions and agencies in the County to better profile and assess exposure of hazards.	No change.
Objective 2-4: Provide comprehensive information online to local emergency service providers, municipalities, the media and the public during and immediately following disaster and hazard events regarding emergency traffic routes, road closures, shelter locations, traffic restrictions, etc.	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	Adjusted wording.
Objective 2-5: Increase awareness of residents and businesses of existing public warning systems.	Objective 2-5: Increase public awareness of existing warning systems	Adjusted wording.
Objective 2-6: Educate residents and businesses on the meaning of “State of Emergency” declarations.	Objective 2-6: Establish consistent message for “State of Emergency” declarations and educate the public on the meaning of those declarations.	Reworded to address potential confusion as to what declarations mean and to ensure that declaration terminology is defined and consistent.
<b>Goal 3: Encourage Partnerships</b>		No change.
Objective 3-1: Strengthen inter-jurisdiction and inter-agency communication, coordination, and partnerships to foster hazard mitigation strategies and/or projects designed to benefit multiple jurisdictions.	Objective 3-1: Strengthen inter-jurisdiction and inter-agency communication, coordination, and partnerships to <b>inform agencies of local project priorities and to</b> foster hazard mitigation strategies and/or projects designed to benefit multiple jurisdictions.	Adjusted wording.
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 3-2: Identify and implement ways to engage public agencies with individual citizens, non-profit organizations, business, and industry to implement mitigation activities more effectively.	No change.



2013 Goals and Objectives	2018 Goals and Objectives	Notes
Objective 3-3: Encourage shared services in acquiring maintaining and providing emergency services and equipment and planning and executing mitigation projects.	Objective 3-3: Encourage shared services in acquiring maintaining and providing emergency services and equipment and planning and executing mitigation projects.	No change.
	<b>Objective 3-4: Implement tools to enhance capability to collect, analyze and share data amongst partners.</b>	New objective.
<b>Goal 4: Provide for Enhanced Emergency Services</b>		No change.
Objective 4-1: Encourage the establishment of policies at the local level to help ensure the prioritization and implementation of mitigation strategies and/or projects designed to benefit essential facilities, services, and infrastructure.		Relocated to support Goal 5.
Objective 4-2: Where appropriate, coordinate and integrate hazard mitigation activities with existing local emergency operations plans.	Objective 4-1: Where appropriate, coordinate and integrate hazard mitigation activities with existing local emergency operations plans.	No change in content. Renumbered.
Objective 4-3: Identify the need for, and acquire, any special emergency services, training, and equipment to enhance response capabilities for specific hazards.	Objective 4-2: Identify the need for, and acquire, any special emergency services, training, and equipment to enhance response capabilities for specific hazards.	No change in content. Renumbered.
Objective 4-4: Review and improve, if necessary, emergency traffic routes; communicate such routes to the public and communities.	Objective 4-3: Review and improve, if necessary, emergency traffic routes; communicate such routes to the public and communities.	No change in content. Renumbered.
Objective 4-5: 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 4-4: Ensure continuity of governmental operations, emergency services, and essential facilities at the County and local level during and immediately after disaster and hazard events.	No change in content. Renumbered.
Objective 4-6: Improve communications to residents and businesses during and after disasters.	Objective 4-5: Improve communications to residents and businesses during and after disasters.	No change in content. Renumbered.
Objective 4-7: Improve warnings prior to disasters.	Objective 4-6: Improve warnings prior to disasters.	No change in content. Renumbered.
Objective 4-8: Encourage NIMS training for all appropriate personnel including elected officials.	Objective 4-7: Encourage NIMS training for all appropriate personnel including elected officials.	No change in content. Renumbered.
	<b>Goal 5: Improve the resilience and strength of the built environment and communities to reduce impacts of natural hazard events.</b>	Adapted from NYS 2100 Commission and NY Rising Community Reconstruction Program.
	<b>Objective 5-1: Improve or protect vital infrastructure and critical facilities to reduce the disruption of activities after a natural hazard event.</b>	New objective.
	<b>Objective 5-2: Promote sustainable land development practices.</b>	New objective.



2013 Goals and Objectives	2018 Goals and Objectives	Notes
	Objective 5-3: Decrease the potential local economic loss and maintain local and government business continuity after a natural hazard event.	New objective.
	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.	Relocated from Goal 4 and adjusted wording.
	Objective 5-6: Encourage the establishment of policies that reflect the best available information regarding current and future hazard risk.	Added to address proactive floodplain and hazard management based on best available data.
	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.	New objective to cover actions such as a dashboard on the County website for real time information during events (using flood gauge data and flood stage data), real time road closure information or other smart cities tools such as microgrids and real-time infrastructure monitoring..



### 2013 NYS HMP Goals

The goals and objectives were revised to more closely align the mitigation strategy to mitigation activities, and reflect lessons learned from three major disasters since 2011. The goals and objectives were also assessed to correlate with 56 Local Hazard Mitigation Plans (LHMPs) to ensure consistency with the State Hazard Mitigation Plan (SHMP).

The goals presented in this plan are framed around five broad mitigation categories, which also serve as the foundation for defining the objectives and mitigation actions and activities:

- **Prevention:** Government administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and storm water management regulations.
- **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.
- **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, levees, floodwalls, seawalls, retaining walls, and safe rooms.

During the 2014 SHMP update process, the SHMP Team, through discussion of the history of the Vision Statement, determined that the Vision Statement again needed revision to reflect the major impacts from multiple hazard events between 2011 and 2014. The resulting modification of the vision statement, goals, objectives, and activities was based on numerous factors that have occurred since 2011 and as part of the 2014 SHMP update process, including:

- Reassessment of hazard vulnerabilities and losses based on updated data, reports, and information
- Significant impacts from Hurricanes Irene and Sandy, Tropical Storm Lee, and repetitive flood events
- Availability of federal post-disaster funding resulting from the multiple disasters that increased mitigation opportunities
- Redefining mitigation actions to focus on mitigation activities related to prevention, property protection, public education and awareness, natural resource protection, and structural projects.
- Refocusing on natural hazards that have impacted, or have the potential to impact, New York State. Information about human-caused, technological, or biological hazards can be found in Volume 2 of the Comprehensive Emergency Management Plan (CEMP)

In addition, the Vision Statement was influenced by multiple reports, studies, and plans that have been implemented since 2011, such as:

- New York State 2100 Commission – tasked with finding ways to improve the resilience and strength of the State’s infrastructure in the face of natural disasters and other emergencies.
- New York Rising Community Reconstruction Program – established to facilitate community redevelopment planning and the resilience of communities, and provide additional rebuilding and



revitalization assistance to communities severely damaged by Hurricanes Sandy and Irene and Tropical Storm Lee.

**2014 NYS HMP Vision Statement**

New York State will continually aim to reduce deaths, injuries, and economic losses stemming from natural hazards, and to lead by example in fostering community resilience and protecting the environment in the face of future natural events to improve the lives of the people of the State.



# Broome County All-Hazard Mitigation Plan Update Minutes of Meeting



Purpose of Meeting:	Steering Committee Meeting #2
Location of Meeting:	Broome County Office Building, Binghamton, NY
Date/Time of Meeting:	August 30, 2018; 10:00 a.m. – 11:00 p.m.

**Attendees:** Beth Lucas, Broome County Planning  
 Frank Evangelisti, Broome County Planning  
 Stephanie Brewer, Broome County Planning  
 Nazar Logvis, Broome County Division of Engineering  
 Daria Golazeski, Town of Union Code Enforcement  
 Juliet Berling, City of Binghamton Planning  
 Cynthia Bianco, Tetra Tech

**Agenda Summary:** To review Hazard Mitigation Plan status, review and update hazards on concern, review and update the plan mission statement, goals and objectives, to confirm the hazards of concern for the plan and to adjust the SWOO to reflect current conditions.

Item No.	Description	Action By:
1.	<b>Project Status:</b> Tetra Tech reviewed the status of the planning progress noting that the critical facility inventory has been reviewed and is ready to be used in the risk assessment analysis. The status of community participation as evidenced by the submittal of Letters of Intent to Participate (LOIP) as well as homework sheet was reviewed. 11 communities have not provided a LOIP) and 10 communities have not provided homework. In order to support full participation the planning department will send out an email to all non-responsive communities explaining the benefits of the planning process asdn requesting active participation. The project remains on schedule, with preparations for the public risk assessment meeting (scheduled for September 19th) under way.	Broome County Planning to send email to non-responsive communities.
2.	<b>Critical Facility Inventory:</b> The City of Binghamton provided additional edits which led to a discussion on additional categories of facilities to be considered in the analysis. The City provided input on Tier 2 facilities. Additional facilities to be considered are animal shelters and zoos. Tetra Tech will adjust the critical facility inventory as appropriate and provide the risk assessment results based on committee input regarding hazards of concern.	Tt to update critical facility inventory prior to risk analysis. City of Binghamton to provide updated information/feedback.
3.	<b>Stakeholder Outreach:</b> The County has updated the mitigation page on its website to provide information of the current planning process. It has distributed agency surveys and those to neighboring counties. In order to increase public engagement, the County intends to send postcards to floodprone residents to inform of the planning process and request input via	Broome County Planning will prepare postcard outreach. Tt to review municipal websites to document



# Broome County All-Hazard Mitigation Plan Update Minutes of Meeting



	<p>the citizen survey. In addition, the County distributed the link to the mitigation web page and stakeholder surveys to participating communities to enable posting of information on each municipal website. Tt to review websites to document if the links are posted.</p>	<p>HMP outreach.</p>
<p><b>4.</b></p>	<p><b>Update of plan Mission Statement, Goals and Objectives:</b> Tetra Tech and the working group reviewed the current mission statement, goals and objectives and provided suggested recommendations for the plan update. The committee reviewed the information and agreed to make adjustments to include the concept of resiliency and to align with the 2014 NYS Hazard Mitigation Plan Goals and Objectives: The mission statement was revised to include appropriate wording, the concept of resilience and sustainability was included in Objective 1-7; Preparedness was included in Goal 2; Objectives in Goal 3 were expanded to include implementation of tools to enhance capabilities to share data amongst partners; Goal 5 and associated objectives were added to include specific focus on building resilience for the built environment to natural hazards.</p>	<p>Revised Goals and Objectives document to be distributed to the Steering Committee for final review and approval.</p>
<p><b>5.</b></p>	<p><b>Hazards of Concern:</b> The committee reviewed the history and impact of the hazards of concern impacting the County, including the hazards included in the current plan as well as feedback from the committee on the impact of hazards over the course of the plan performance period as well as additional hazards to consider. The committee agreed to include hazards in the updated plan as follows:</p> <ul style="list-style-type: none"> <li>▪ Drought-there is a high reliance on river water for the City of Binghamton which has had issues with scarcity of water in the 90's.</li> <li>▪ Earthquake-History of this hazard as per the current plan and 2014 NYS HMP was reviewed as well as recent record of events. It was determined that although this is a low hazard of concern, this will be included in the plan.</li> <li>▪ Extreme temperatures: Impacts for both extreme high and low temperatures are a concern for the planning area.</li> <li>▪ Flood-the Flood hazard continues to present issues due to the location of built environment with respect to source and location of flooding.</li> <li>▪ Severe Storm-The committee agreed to continue to include this hazard in the plan due to the frequency and severity of impacts.</li> <li>▪ Wildfire-The committee would like to review the history and impacts of wildfire as there have been recent incidents of brush fires in the County. County Planning to request documentation of wildfires from County Emergency Services.</li> <li>▪ Severe Winter Storms- The committee agreed to continue to include</li> </ul>	<p>Broome County Planning to contact Broome County Emergency Services for wildfire documentation. City of Binghamton will contact Tree City Commission and NYSEG for information to support the invasives hazard.</p>



# Broome County All-Hazard Mitigation Plan Update Minutes of Meeting



	<p>this hazard in the plan due to the frequency and severity of impacts.</p> <ul style="list-style-type: none"> <li>▪ Invasive Species-The committee would like to include invasive species as a hazard to include invasive plants such as hogweed and kudzu as well as invasive insects such as the emerald ash borer and the hemlock woolly adelgid as impacts can result in life safety issues. Available resources to quantify the hazard and impacts include NYDEC invasive mapping online, City of Binghamton 'TreeKeeper' database, NYSEG invasive management policies.</li> </ul>	
<b>6</b>	<p><b>SWOO (Strengths, Weaknesses, Obstacles and Opportunities):</b> The committee reviewed the outcome of the 2013 SWOO to provide updated input and identify opportunities for mitigation. Updates are indicated in the updated SWOO document.</p>	<p>Broome County will prepare posters for the upcoming Planning Partnership meeting as another opportunity for input on the SWOO</p>
<b>7.</b>	<p><b>Additional Items:</b></p> <ul style="list-style-type: none"> <li>▪ Flood information has been collected to quantify the impacts of the 8/15/18 storm event and will be provided as information to be included in the HMP update by Broome County engineering, as available.</li> <li>▪ Potential project: County to develop GIS layer of bridge/culvert locations to support municipalities with inventory and mitigation of these assets.</li> <li>▪ Past mitigation action: The senior facility has installed door dams to reduce flood damages.</li> <li>▪ Integration action: Agricultural plans to integrate HMP to identify hazard areas.</li> <li>▪ Minutes of the 6/12/2018 meeting were approved.</li> </ul>	<p>Broome County Engineer</p>
<b>8.</b>	<p><b>Next Steps:</b> Next steering committee meeting is scheduled for 9/19/18 at 10:00 am followed by a full planning committee meeting at 1:00 pm to review the risk assessment results.</p>	
<b>9.</b>	<p><b>Adjournment:</b> The meeting was adjourned at 1:00 pm.</p>	



## **BROOME COUNTY, NEW YORK ALL-HAZARD MITIGATION PLAN 2018 UPDATE**



Risk Assessment Meeting with Planning Partnership - Agenda

Meeting Date / Time: September 19, 2018 at 1:00PM – 4:00PM

Location: Community Room at Chenango Town Hall – 1529 State Route 12, Binghamton, NY

- 1. Opening Remarks**
- 2. Project Status**
- 3. Risk Assessment Overview**
- 4. Risk Ranking**
- 5. SWOO Input (Strengths, Weaknesses, Obstacles and Opportunities) related to limiting impact of Hazards of Concern**
- 6. Breakout Groups - Development of Hazard Problem Statements by Community**
- 7. Next Steps**
- 8. Adjournment**

### **Broome County Project Contact**

Beth A. Lucas, Senior Planner  
Broome County Planning Department  
60 Hawley St, PO Box 1766, Binghamton, NY 13902  
607-778-2375 | [BLucas@co.broome.ny.us](mailto:BLucas@co.broome.ny.us)

### **Tetra Tech Project Contacts**

Cynthia Addonizio-Bianco, CFM  
6 Century Drive, Parsippany, NJ 07054  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM  
6 Century Drive, Parsippany, NJ 07054  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



**BROOME COUNTY ALL-HAZARD MITIGATION PLAN UPDATE**  
**Planning Partnership Risk Assessment Meeting**  
**MEETING DATE/TIME: September 19, 2018 1:00 p.m. – 4:00 p.m.**  
**SIGN-IN SHEET**



Name	Title	Agency/Municipality	Phone Number	E-mail
Ron Lake	Eng	Unionville, Suffolk Port Adm, Oriskany	607-343-8937	ronlake@tsesny.com
Kent Rapp	Engineering Aide	Village of Endicott	607-757-2425	engineer@endicottny.com
Franc Evangelidis	Director	RC Planning	607-778-2414	franc@rcplanning.com
Stephanie Brewer	Planner	RC Planning	607-778-3390	sbrewer@rcplanning.com
Debbie Colezestly	Deputy Adm. Director	Muir	607-786-8928	debbie@muir.com
Mike Downie	Highway Supv	Town of Bingham	609-4323	td@townofbingham.com
Don Nead	Consultant Engineer w/ Town	Town of Binghamton	607-725-2752	dnead@clarkpatrick.com
Vernon Myers	Town Engineer	Town of Vestal	607-786-0980	myers@vestalny.com
MAZIE K LOGAN	ENGINEER	BROOME COUNTY	607-778-2457	mlogan@broome.ny.us
SONY MASTRANTONIO	Town Engineer	Central, Ithaca, etc	607-724-2400	smast@centralny.gov
Joy Kosmaric	Navy Secretary	Town of Chenango	607-648-4809	joy.kosmaric@townofchenango.com
Francis A. Inicchi	Assistant City Engineer	City of Binghamton	607-772-7007	francis@cityofbinghamton.com
Alex Vison	Town Engineer	ITHACA NY	607-760-6145	alex@townofithaca.com
NICK DRASIS	Town of Binghamton		607-772-0357	

Cynthia Bianco Proj Man Tetra Tech @ Juliet Brining w/ & Biny  
 Heather Appas Haz. Mt. Spec. Tetra Tech  
 Kevin Clapp via Skype NYS DRASES  
 Page 1  
 City of Binghamton, Con





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## Planning Together for a Resilient Broome County

### 2018 Broome County Hazard Mitigation Plan

Planning Partnership Meeting – Risk Assessment Presentation  
September 19, 2018



## Today's Topics

- Introductions
- Project Status
- Risk Assessment Overview
- Risk Ranking
- SWOO Overview
- Breakout Groups
  - Development of Hazard Problem Statements by Community
- Next Steps



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## Project Schedule Review

- June 2018 Municipal Kick-Off Meeting
- June-August Data Collection
- July-August Update Hazard Profiles
- August-September Risk Assessment
- September 19, 2018 Risk Results Presentation;  
Develop Problem Statements
- October 17, 2018 Mitigation Strategy Workshop
- December 2018 Review Draft Plan
- January 2019 Submit to NYSDHSES
- February 2019 Submit to FEMA

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## Stakeholder Engagement

- ✓ County Website
- ✓ County Event Calendar
- ✓ Stakeholder surveys
- ✓ Citizen Survey
- ✓ Brochure
- ✓ Press Release
- ✓ Neighboring Counties
- ✓ Municipal Websites?
- ✓ Local Meetings?



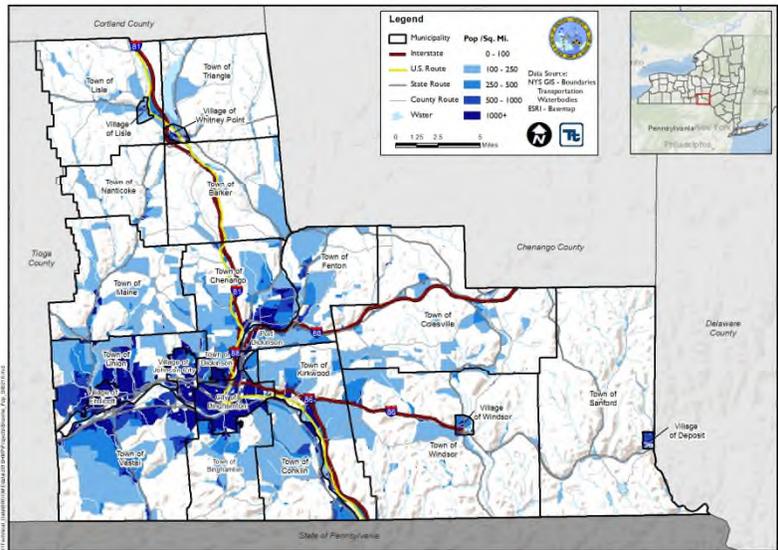
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# Homework Status

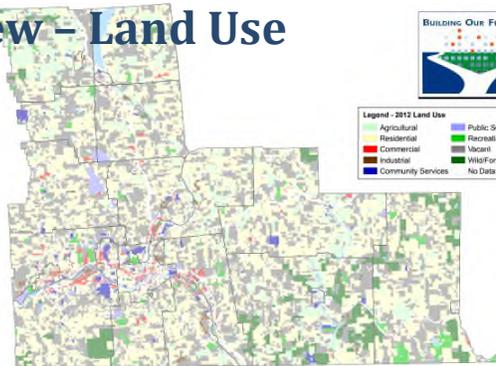
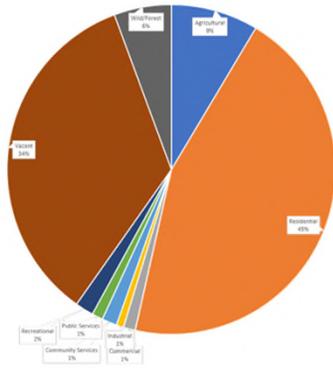
No input from Towns of Lisle, Maine, Nanticoke, and Village of Lisle. No data sheets from V Windsor

Jurisdiction	LOIP	Worksheet 1 - Events and Losses	Worksheet 2 - Capability Assessment	Worksheet 3 - NFIP FPA	Worksheet 4 - Post Action Progress	Worksheet 5 - Plan Integration	Worksheet 6 - New Development	Worksheet 7 - Shelters
Broome County	X	X	X	N/A	X	X	X	waiting for ARC
Barker (T)	X			X				
Binghamton (C)	X	X	X		X	X	X	
Binghamton (T)		X	X					X
Chenango (T)	X	X		X		X	X	X
Colesville (T)	X	X	X			X	X	X
Conklin (T)		X	X			X	X	X
Deposit (V)								
Dickinson (T)	X	X	X	X		X	X	X
Endicott (V)	X	X						
Fenton (T)		X	X	X		X	X	X
Johnson City (V)	X	X	X	X			X	
Kirkwood (T)		X	X			X	X	X
Lisle (T)								
Lisle (V)								
Maine (T)								
Nanticoke (T)								
Port Dickinson (V)	X	X	X			X	X	X
Sanford (T)		X	X			X	X	X
Triangle (T)	X	X	X			X	X	X
Union (T)	X	X	X	X		X	X	X
Vestal (T)	X	X	X			X	X	X
Whitney Point (V)	X	X	X	X		X	X	X
Windsor (T)	X	X	X			X	X	X
Windsor (V)	X							

# County Overview - Population



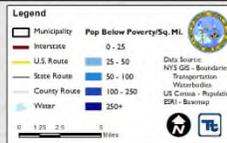
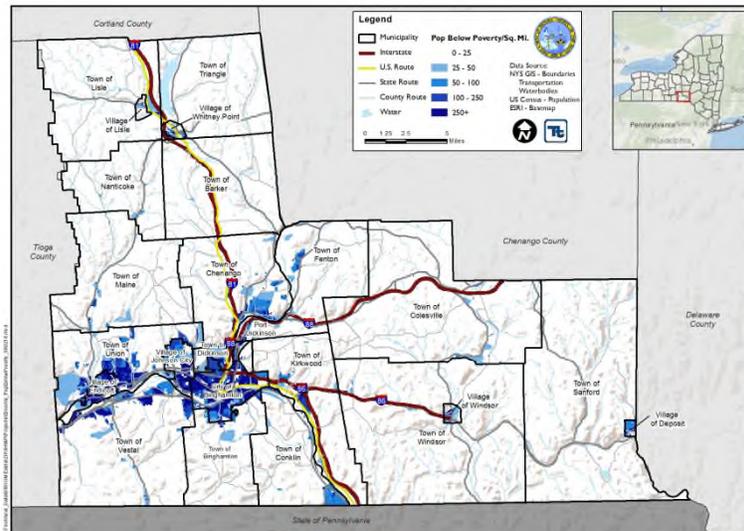
# County Overview – Land Use



Land Use Category	Acres	Total % Land
Agricultural	36,580	9%
Residential	191,411	45%
Commercial	4,991	1%
Industrial	3,073	1%
Community Services	6,265	1%
Public Services	4,631	1%
Recreational	7,682	2%
Vacant	147,191	35%
Wild/Forest	24,007	6%

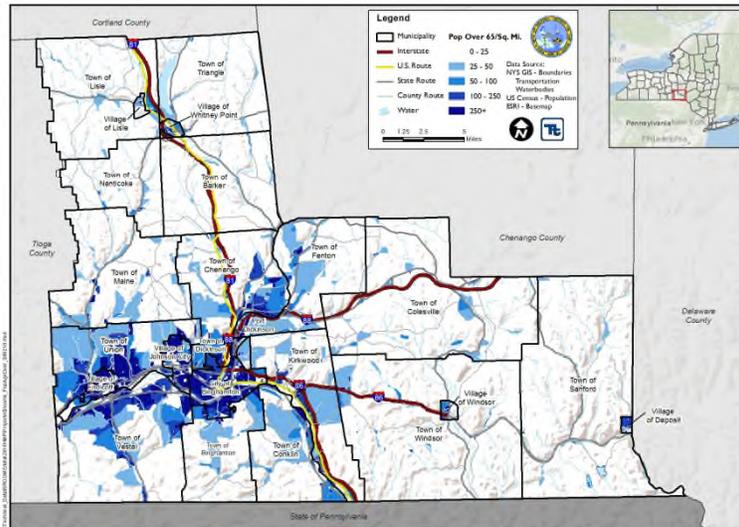
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# County Overview – Vulnerable Populations Low-Income



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## County Overview – Vulnerable Populations Residents 65+



## Hazards of Concern

### 2018 Hazard Mitigation Plan Update – Hazards of Concern

Drought

Earthquake

Extreme Temperatures

Flood – riverine/flash, ice jam, and dam failure

Invasive Species – giant hogweed, kudzu, emerald ash borer, and hemlock woolly adelgid

Severe Storm – hail, wind, thunderstorms, tornadoes, hurricanes, and tropical storms

Severe Winter Storm – heavy snow, blizzards, sleet, freezing rain, ice storms, and Nor'Easters

Wildfire\*

\*Under consideration

# Drought

## ➤ USDA Disaster Designation History (2012 to 2017) for Broome County

Date of Event	Event Type	USDA Designation Number
June 2012	Drought, Excessive Heat	S3427
June 2012	Drought	S3441
April 2016	Drought	S4062
July 2016	Drought	S4031
August 2016	Drought	S4023



### 2012 Census of Agriculture for Broome County

- Number of Farms = 563
- Land in Farms = over 79,000 acres (~18% of the county's total land)
- Generate \$30.7 million in sales each year and over \$100 million in business investments
- Droughts lead to crops drying and farmers losing money



### Water Supply and Quality

- Drought conditions can lead to water supply shortages
- Both ground water and surface water supplies are impacted

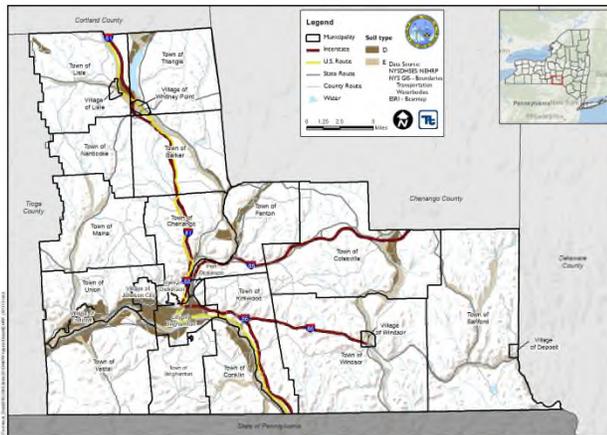


### Recreation

- Lower water levels can restrict boating and water sports
- Stress to ecosystem can impact fishing

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# Earthquake



### Overall County Impacts

- 97,890 people living in Class D and E Soils
- 52,010 buildings located in Class D and E Soils
- Total damages:
  - 250-year event - \$28.4 million
  - 1,000-year event - \$241.8 million

- Population most susceptible to the impacts of earthquakes are those living in areas of National Earthquake Hazards Reduction Program (NEHRP) Class D and E soils. These types of soils can amplify ground shaking.

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Broome County

## Extreme Temperatures

Name	Begin	End	Max (°F)	Max Date	Min (°F)	Min Date	Avg Max (°F)	Avg Min (°F)
300691 - Binghamton	1893	1968	103	7/9/1936	-28	1/17/1893	50	30.5
300687 - Binghamton	1951	2003	98	7/16/1988	-20	1/15/1957	46.1	29.4
302030 - Deposit	1962	2003	98	7/15/1995	-31	1/21/1994	49.3	27.5
302627 - Endicott	1985	2003	101	7/17/1988	-26	1/21/1994	50.1	27.9
308831 - Vestal	1968	1977	92	6/28/1969	-14	1/23/1976	47	27.7
308833 - Vestal	1977	1985	95	7/21/1980	-17	2/11/1979	46.8	27.7

Between 2012 and 2018, Broome County was included in five USDA declarations involving extreme temperatures.

- S3249 – March 2012 – Frosts and freezes
- S3427 – June 2012 – Drought, excessive heat
- S3746 – February 2014 – Freeze
- S4023 – August 2016 – Drought, heat, excessive heat
- S4031 – September 2016 – Drought, heat, excessive heat

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1950-2018

## Extreme Temperatures

Health Hazard	Symptoms
Sunburn	Redness and pain. In severe cases: swelling of skin, blisters, fevers, and headaches
Dehydration	Excessive thirst, dry lips and slightly dry mucous membranes
Heat Cramps	Painful spasms, usually in muscles of legs and abdomen, and possible heavy sweating
Heat Exhaustion	Heavy sweating; weakness; cold, pale and clammy skin; weak pulse; possible fainting and vomiting
Heat Stroke	High body temperature (104°F or higher), hot and dry skin, rapid and strong pulse, and possible coma

Extreme Temperature Events 1950-2018

Hazard Type	Number of Occurrences Between 1950 and 2018	Total Fatalities	Total Injuries	Total Property Damage (\$)	Total Crop Damage (\$)
Cold/Wind Chill	13	0	0	\$20K	\$0
Excessive Heat	2	0	0	\$0	\$0
Extreme Cold/Wind Chill	2	0	0	\$0	\$0
Heat	3	0	0	\$0	\$0
<b>TOTAL</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>\$20K</b>	<b>\$0</b>

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# Flood

## ➤ History of flood events

- 11 FEMA Flood Disaster Declarations since 1954

Date(s) of Incident	Incident Type	FEMA Disaster Type and Number
July 22, 1970	Heavy Rains and Flooding	DR-290
October 2, 1975	Storms, Rains, Landslides and Flooding	DR-487
July 21, 1976	Severe Storms and Flooding	DR-515
January 19-30, 1996	Severe Storms and Flooding	DR-1095
May-June 2004	Severe Storms and Flooding	DR-1534
August-September 2004	Severe Storms and Flooding	DR-1564
April 2-4, 2005	Severe Storms and Flooding	DR-1589
June-July 2006	Severe Storms and Flooding	DR-1650
November 16-17, 2006	Severe Storms and Flooding	DR-1670
April-May 2011	Severe Storms, Flooding, Tornadoes, and Straight-Line Winds	DR-1993
June-July 2013	Severe Storms and Flooding	DR-4129

- 31 flood events between 2012 and May 2018 (FEMA and NOAA-NCEI)

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## Flood History (1950-May 2018)

Hazard Type	Number of Occurrences between 1950 and May 2018	Total Fatalities	Total Injuries	Total Property Damage (\$)	Total Crop Damage (\$)
Flash Flood	89	7	3	\$328.2 million	None reported
Flood	61	None reported	None reported	\$479.7 million	None reported
Dam Failure	0	None reported	None reported	None reported	None reported
Ice Jam	17	None reported	None reported	None reported	None reported
<b>TOTAL</b>	<b>167</b>	<b>7</b>	<b>3</b>	<b>\$807.9 million</b>	<b>None reported</b>

Sources: NOAA-NCEI 2018; USACE 2018; NPDP 2018  
 Notes: The numbers shown here are as reported to NOAA, USACE and NPDP. It may not contain all events that occurred in Broome County.

The most recent flooding event occurred in mid-August 2018 with Conklin and Vestal among the hardest-hit communities. A state of emergency was declared for the county. Flood warnings were issued, multiple road closures, and evacuations occurred.



- ✓ 11 FEMA declarations – 2 since 2011
- ✓ Over 150 flood-related events as reported by NOAA-NCEI
- ✓ August 2018 event most recent

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## Estimated Exposure for Flood

### ➤ Estimated Exposure (Life, Health and Safety)

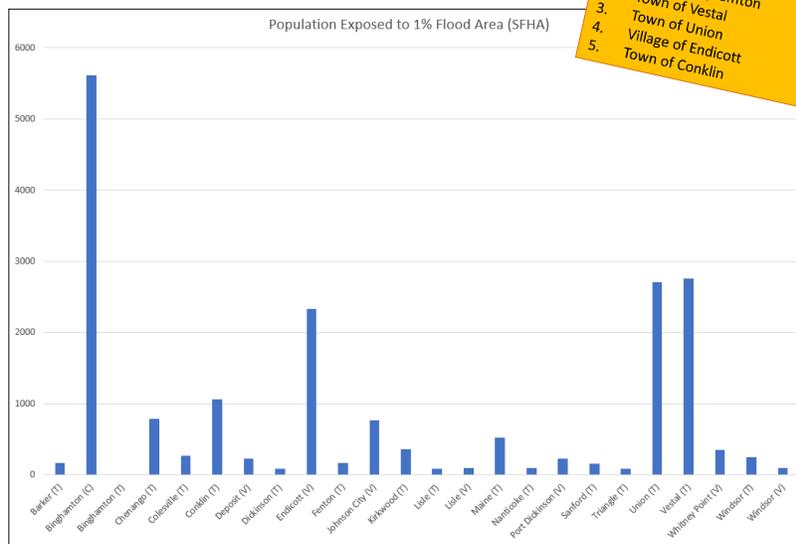
- 19,261 people (9.6% of the total population) in the 1% annual chance floodplain
- 25,804 people (12.9% of the total population) in the 0.2 annual chance floodplain (2010 Census)
- City of Binghamton has the highest number of people located in a floodplain, followed by the Town of Vestal and the Town of Union.
- Estimated 18,629 households could be displaced during a 1% annual chance flood
- Estimated 1,402 persons seeking shelter during a 1% annual chance flood

### ➤ Economic and Social Loss/Impact

- 7,586 buildings exposed to 1% annual chance flood
- Over \$17 billion in exposed property in 1% annual chance flood
- Over \$4 billion in estimated losses to general building stock (1% flood)

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## Impact on Population

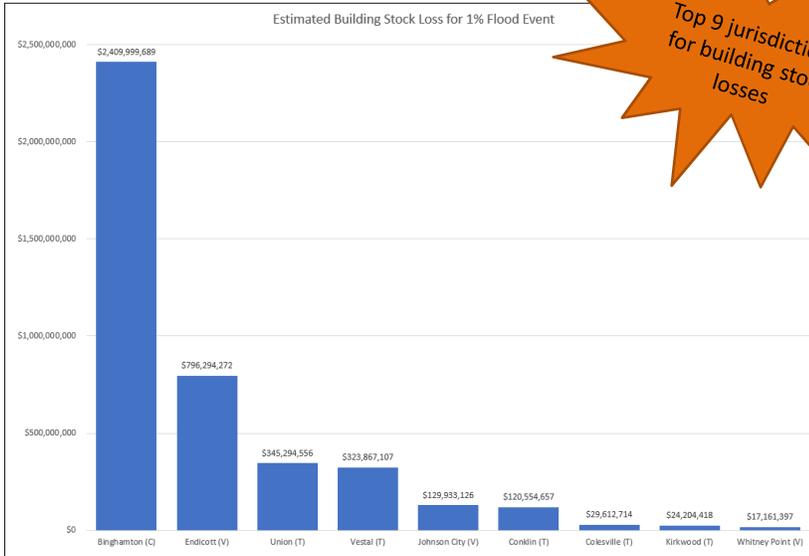


Top 5 communities with population exposed to SFHA:

1. City of Binghamton
2. Town of Vestal
3. Town of Union
4. Village of Endicott
5. Town of Conklin

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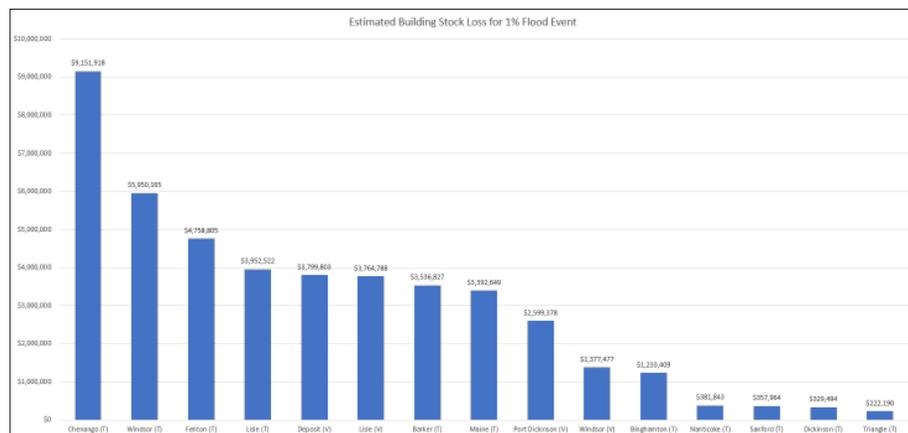
## Impact on Building Stock



Top 9 jurisdictions for building stock losses

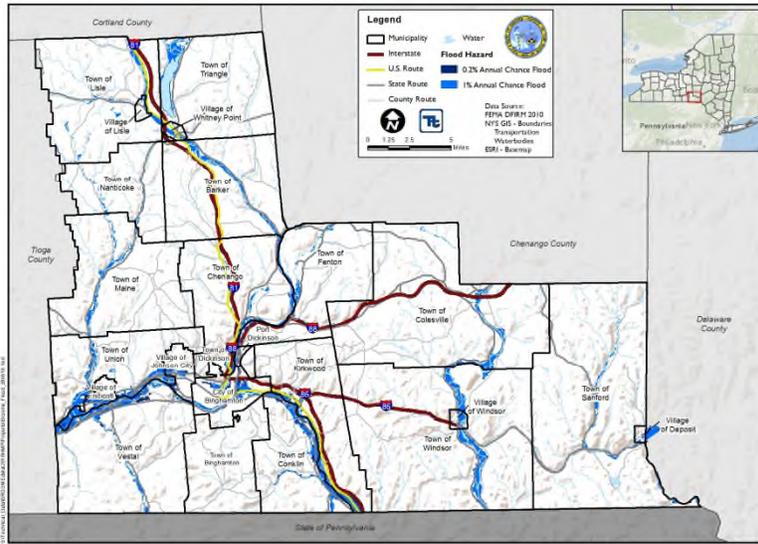
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## Impact on Building Stock



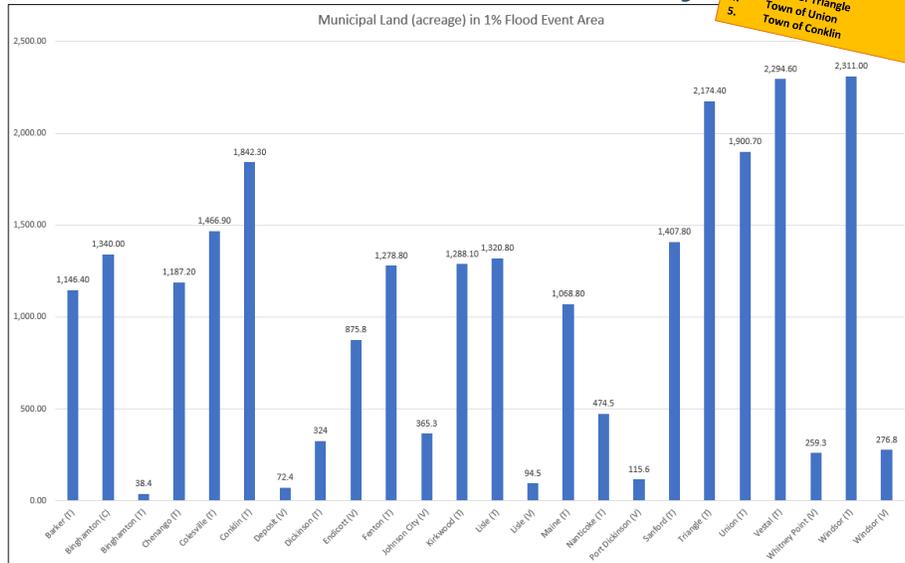
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# Flood Areas in Broome County



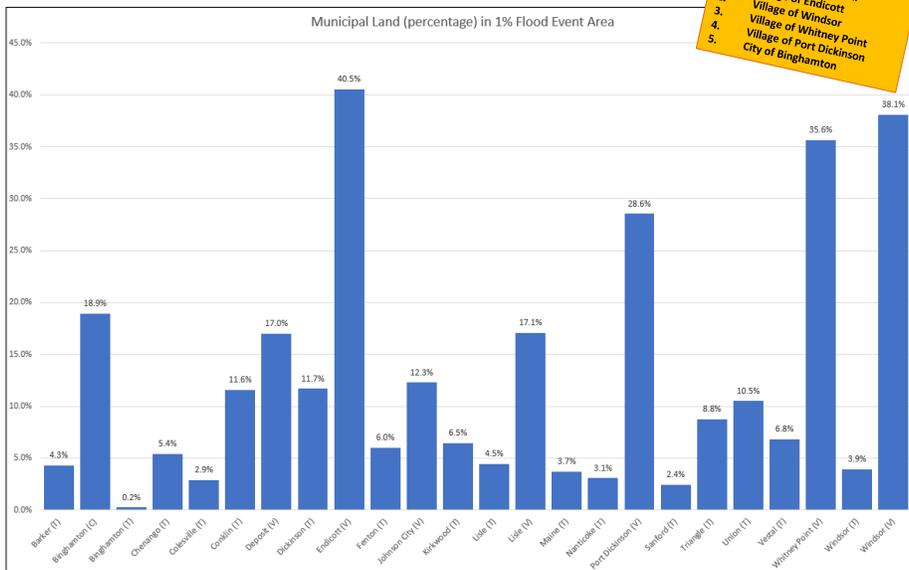
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# Flood Areas in Broome County



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## Flood Areas in Broome County



## NFIP Statistics

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties	#SRL Properties
Barker (T)	9	17	\$83,242	0	0
Binghamton (C)	399	299	\$16,591,799	42	0
Binghamton (T)	8	6	\$148,564	1	0
Chenango (T)	111	81	\$1,977,608	9	0
Colesville (T)	49	69	\$1,608,140	13	0
Conklin (T)	285	741	\$35,956,107	137	8
Deposit (V)	94	38	\$1,185,236	16	0
Dickinson (T)	32	42	\$1,077,186	6	0
Endicott (V)	93	76	\$3,724,023	8	0
Fenton (T)	38	37	\$318,937	6	0
Johnson City (V)	289	185	\$13,954,272	28	0
Kirkwood (T)	62	205	\$7,914,451	36	1
Lisle (T)	9	4	\$17,449	1	0
Lisle (V)	1	1	\$7,958	0	0
Maine (T)	32	21	\$702,004	1	0
Nanticoke (T)	9	4	\$64,181	1	0
Port Dickinson (V)	28	21	\$445,259	0	0
Sanford (T)	34	22	\$256,442	3	0
Triangle (T)	0	1	\$3,427	0	0
Union (T)	388	578	\$24,241,637	87	1
Vestal (T)	518	476	\$24,072,693	73	1
Whitney Point (V)	4	0	\$0	1	0
Windsor (T)	23	57	\$1,371,857	7	0
Windsor (V)	15	10	\$112,819	2	0
<b>TOTAL</b>	<b>2,530</b>	<b>2,991</b>	<b>\$135,835,292</b>	<b>478</b>	<b>11</b>

### Countywide Stats

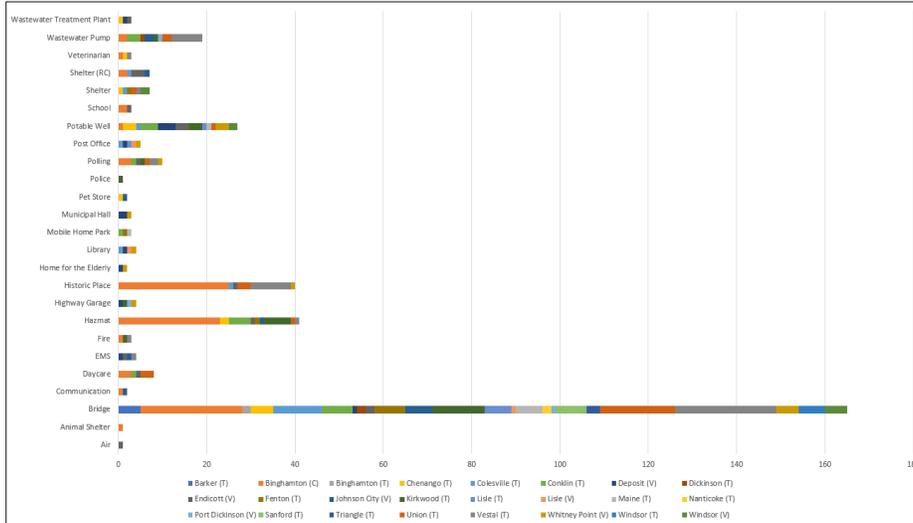
- Policies: 2,530
- Claims: 2,991
- Total Losses: \$135.8 million

Town of Conklin has the largest number of RL and SRL properties



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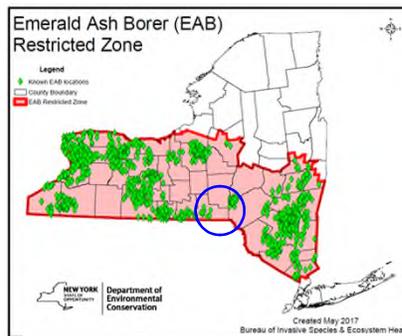
# Critical Facilities in the Floodplain



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# Invasive Species

- Invasive Plants
  - Giant Hogweed
  - Kudzu
- Invasive Animals/Insects
  - Emerald Ash Borer
  - Hemlock Woolly Adelgid



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# Severe Storm

Hazard Type	Number of Events Between 1950 and 2018	Total Fatalities	Total Injuries	Total Property Damages (\$)	Total Crop Damage (\$)
Funnel Cloud	2	0	0	\$0	\$0
Hail	192	0	0	\$332,000	\$0
Heavy Rain	20	0	0	\$2,000	\$0
High Wind	14	0	0	\$652,340	\$0
Hurricane	0	0	0	\$0	\$0
Lightning	15	0	1	\$88,000	\$0
Strong Wind	3	0	0	\$11,000	\$0
Thunderstorm Wind	337	0	6	\$1,816,000	\$2,000
Tornado	9	0	18	\$4,092,000	\$0
Tropical Depression	0	0	0	\$0	\$0
Tropical Storm*	2	0	0	\$0	\$0
<b>TOTAL</b>	<b>594</b>	<b>0</b>	<b>25</b>	<b>\$6,993,340</b>	<b>\$2,000</b>

Sources: NOAA-NCEI 2018; NHC 2018  
 Notes: The numbers shown here are as reported to NOAA and NHC. It may not contain all events that occurred in Broome County.



## History

- 16 federally declared severe storm events since 1954
  - Three declarations since 2011 – DR-4031 (Tropical Storm Lee), EM-3351 (Hurricane Sandy), and DR-4129 (Severe Storms and Flooding)
- 594 severe storm events between January 1, 1950 and May 31, 2018
- 104 reported severe storm events between 2012 and May 31, 2018

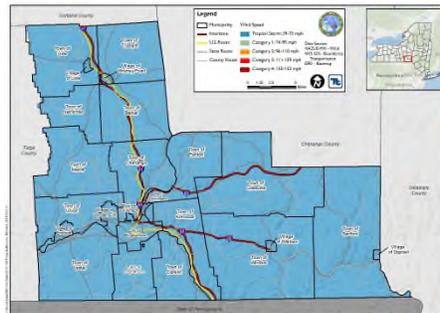
## Vulnerability Assessment Results

- \$6.9 Million Property Damages from events (1950 -2018)
- Annualized Losses
  - \$89,705 (Hazus 4.2)

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# Severe Storm

- Estimated 100-year mean return period (MRP) event losses:
  - Wind speeds below 39 mph
  - No damages or debris estimated
- Estimated 500-year MRP event losses:
  - Wind speeds between 54 and 60 mph (Tropical Storm)
  - \$5.2 million (structure only) in building damages
  - Over 15,000 tons of tree debris
    - 15,811 cubic yards of eligible tree debris



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## Severe Winter Storm

- 14 winter storm events 2012 – May 31, 2018
- 4 FEMA winter-related disaster declarations since 1954
  - EM-3107 – Severe Blizzard – March 1993
  - EM-3173 – Snowstorm – January 2003
  - EM-3184 – Snow – February 2003
  - DR-4322 – Severe Winter Storm – March 2017
- Exposure
  - Entire County is vulnerable to severe winter storms
  - Over \$199 billion in structural value
  - Impacts
    - Vulnerable populations
    - Damage to roofs and building frames
    - Power outages
    - Cost of snow/ice removal
    - Damage to roadways and infrastructure



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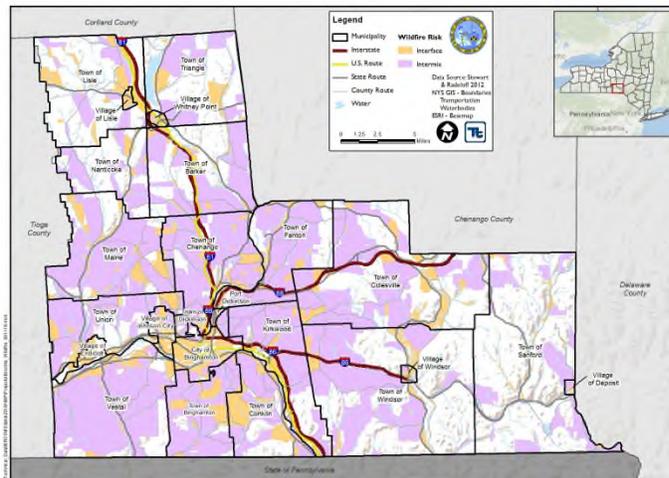
## Wildfire

### History

- Between 2003 and 2017, 10 wildfires of over 10 acres were reported to NYSDEC Forest Rangers

### Vulnerability

- Over 165,000 residents live in wildfire risk areas
- Over \$143 billion in buildings exposed
- 1,399 critical facilities located in wildfire risk areas



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## Public and Agency Feedback

- 145 people in total took the citizen survey.
- Most of the respondents have lived in the area 20 or more years, own their place of residence, and most have a single family detached home.
- Hazards that most have experienced: Severe Winter Storm, Street/Property Flooding, Severe Storm (wind, lightning, hail), and Basement Flooding
- Hazards most concerned with: Climate Change, Street/Property Flooding, and Streambank Erosion
- There were a wide variety of preparedness actions that people have taken.
- Most respondents received their information concerning a disaster from the TV news, internet, and social media.
- Most do not have a home in the floodplain or own flood insurance (property hasn't flooded or located on high ground)
- Only 2 respondents noted having issues getting homeowners/renters insurance due to being in a flood zone.

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## Areas of Concern – Public Feedback

- Received 86 responses identifying floodprone areas throughout Broome County. A few include:
  - Nanticoke Ave. and Oak Hill under railroad bridges
  - Stillwater Road in Corbettsville
  - NYS Route 7A from Montrose Drive to Stillwater Road in Corbettsville
  - Westover, Castle Gardens, Old Vestal Road in the area of 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> Streets, Riverside Drive near Lourdes Hospital, Brown and Olive Streets in Johnson City, and Harry L Drive near Heritage Country Club
  - Vestal Center
  - Areas by Patterson, Brixius Creeks, Watson Blvd. Oakdale Road, Pine Street, 17C some area in West Corners
  - Pierce Hill near African Road
  - Endwell near Main Street and Shady Drive

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## Types of Projects - Public Feedback

- Respondents voted on a wide range of mitigation projects. Enhancing stream maintenance and retrofitting infrastructure were the most voted. Several respondents identifying installing a bridge between Endwell and Vestal to provide safer routes.
- Over 70% of respondents feel that their municipality is not doing enough for flood prevention and mitigation. 50 of those respondents provided feedback as to why they feel this way.
- Most respondents would be willing to undergo buyouts, relocation or elevation. Costs/funding were the major influencing issues identified.
- Respondents had mitigated their properties in the past through various projects, including: installing drainage system due to groundwater flooding; building addition above high water mark; installing sump pump; improving gutters and drainage; installing stronger windows; and roof replacements.
- Grant funding was the number one incentive identified to spend money on home mitigation projects.
- Possible mitigation projects identified:
  - Removing debris, islands and trees from creeks
  - Building bridge from Vestal to Endwell, connecting to the highway
  - Acquire homes in the floodplain
  - Better outreach and education to public
  - Stream maintenance
  - Dredge the river

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### Academia Feedback

- Three responses, all indicating their institutions have been impacted by natural hazard events
- Two of the respondents indicated they provide sheltering services, neither are ARC designated
- All do not think the utility infrastructure is sufficiently disaster-resistant
- None identified suggestions for projects or programs

### Business & Commerce Feedback

- Two responses, all indicating their businesses have been impacted by natural hazard events
- Neither respondent believes their facilities are disaster resistant, nor do they think the transportation infrastructure are properly designed to withstand closures or damages
- All do not think the utility infrastructure is sufficiently disaster-resistant
- Identified projects or programs include: dredge the river and streams

### Hospitals & Health Care Feedback

- Four responses, with three indicating their facilities have been impacted by natural hazard events
- Some believe the critical facilities in the County are disaster resistant.
- Some believe the transportation infrastructure is properly designed to withstand closures and damages
- Majority believe that local public education and awareness programs are effective

### Emergency Services Feedback

- Three responses - two police and one HAZMAT
- Some believe the critical facilities in the County are disaster resistant.
- Some believe the transportation infrastructure is properly designed to withstand closures and damages
- Some believe that local public education and awareness programs are effective
- Two respondents identified projects they have implemented to reduce their department's vulnerability to hazards

Please note that this is a brief summary of responses and does not include all feedback.

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## Ranking of Hazards

*What is your mitigation priority to reduce the impacts of natural hazards?*

**Ranking** = [(Population Impact + Property Impact + Economy Impact) x 30% + Capability x 30% + Climate Impact x10%] + Probability of Occurrence x 30%

### Hazard Probability of Occurrence

Rating	Probability	Definition
0	Unlikely	Hazard event is not likely to occur or Hazard event is unlikely to occur with less than a 1% annual chance probability
1	Rare	Hazard event has between 1 and 10% annual probability
2	Occasional	Hazard event has between 10 and 100% annual probability
3	Frequent	Hazard event has 100% annual probability; may occur multiple times per year

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## Ranking of Hazards

*What is your mitigation priority to reduce the impacts of natural hazards?*

Category	Weighting Factor	Low Impact (1)	Medium Impact (2)	High Impact (3)
Population	3	<14% of developed land area is exposed to a hazard due to its extent and location	15% to 29% of your developed land area is exposed to a hazard due to its extent and location	30% or more of your developed land area is exposed to a hazard due to its extent and location
Property	2	Property exposure is 14% or less of the total replacement cost for your community	Property exposure is 15% to 29% of the total replacement cost for your community	Property exposure is 30% or more of the total replacement cost for your community
Economy	1	Loss estimate is 9% or less of the total replacement cost for your community	Loss estimate is 10% to 19% of the total replacement cost for your community	Loss estimate is 20% or more of the total replacement cost for your community

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## Ranking of Hazards (continued)

What is your mitigation priority to reduce the impacts of natural hazards?

Category	Weighting Factor	Low Impact (1)	Medium Impact (2)	High Impact (3)
Capability	2	Weak/outdated/inconsistent plans, policies, codes/ordinances in place; no redundancies; limited to no deployable resources; limited capabilities to respond; long recovery	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	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	1	No local data is available; modeling projects are uncertain on whether there is increased future risk; confidence level is low (inconclusive evidence)	Studies and modeling projections indicate a potential for exacerbated conditions due to climate change; confidence level is medium to high (suggestive to moderate evidence)	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)

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## Countywide Risk Ranking

HAZARD	RISK ASSESSMENT CATEGORY														RELATIVE RISK FACTOR
	PROBABILITY		IMPACT							ADAPTIVE CAPACITY		CHANGING FUTURE CONDITIONS			
	Numeric Value	Score	Population		Built Environment		Economy		Total	Numeric Value	Score	Numeric Value	Score		
			Numeric Value	Score	Numeric Value	Score	Numeric Value	Score							
Earthquake	1	0.3	1	3	2	4	1	1	2.4	2	0.6	2	0.2	3.5	
Extreme Temperature	2	0.6	2	6	2	4	2	2	3.6	2	0.6	2	0.2	5	
Flood	3	0.9	2	6	2	4	2	2	3.6	1	0.3	3	0.3	5.1	
Invasive Species	3	0.9	1	3	0	0	2	2	1.5	1	0.3	2	0.2	2.9	
Severe Storm	3	0.9	2	6	2	4	1	1	3.3	2	0.6	2	0.2	5	
Severe Winter Storm	3	0.9	2	6	2	4	1	1	3.3	1	0.3	1	0.1	4.6	
Wildfire	1	0.3	2	6	3	6	1	1	3.9	1	0.3	2	0.2	4.7	

Low	<4
Medium	4-5
High	>=5.1

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## Strengths and Weaknesses Obstacles and Opportunities Update

- *What are the Strengths, Weaknesses, Obstacles and Opportunities in Addressing Flood, Severe Storm, Severe Winter Storm, Extreme Temperatures, Earthquake, Invasive Species, Wildfire and Drought Events?*



## What is Next? Problem Statements to Support Updated Mitigation Strategy

- Update Worksheet #4 – due to Tetra Tech by October 12<sup>th</sup>.
  - We will walk through how to update
- Mitigation Brainstorming– each municipality will fill this out
  - Identify the following: hazard, problem areas/challenges/questions/ideas, location of problem, lead agency to fix the problem, and potential solutions to address this problem.
- **Focus on your problems**
- Quality, not quantity
- Provide details to support the issues and to help define solutions
- **Need to provide to Beth Lucas on or before 10/3/2018.**
- We will provide this information to NYSDHSES to prepare for our next meeting on October 17th

# Updating Worksheet #4

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (If project status is complete)	Next Steps 1. Project to be included in 2018 HMP or Discontinue 2. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
12	Identify and address obstructions to surface water drainage	Flood		FEMA / NYSOEM County and Municipal DPW	Choose an item.	Evidence of Success Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.
13	Monitor condition and maintain repair of town roads and road banks in high flood hazard areas -- Road Improvements	Flood		County and Municipal DPW	Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.
14	Replace pipes to prevent further undermining of roads affected by flood hazard at Dings Hollow Road (2-4), Clerson Road (1), Conklin Hill Road (4), Pease Hill Road (2)	Flood		NYSDOT, County and Municipal DPW	Choose an item.	Cost Level of Protection Damages Avoided; Evidence of Success	1. Choose an item. 2. 3.

Identified during the 2013 HMP

Provide a description of the problem

Provide status – in progress, ongoing, no progress, or complete

If complete, provide the cost of the project, the level of protection, and any damages avoided and/or how it fixes the problem

1. Indicate whether or not the municipality will include this in the 2018 Update  
 2. If including, revise/reword project description – be specific  
 3. If discontinuing, tell us why (no longer relevant, town does not have authority for this project, project complete, etc.)

# Mitigation Brainstorming

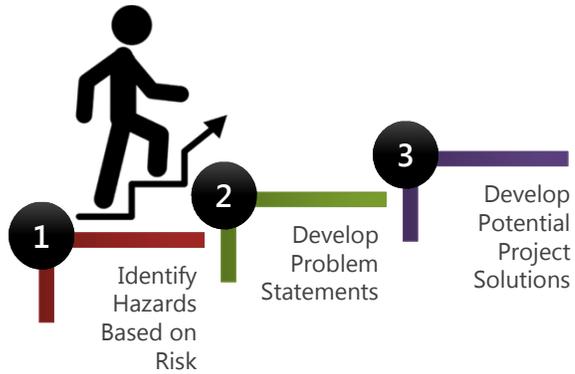
## Mitigation Brainstorming



Name: \_\_\_\_\_ Jurisdiction: \_\_\_\_\_

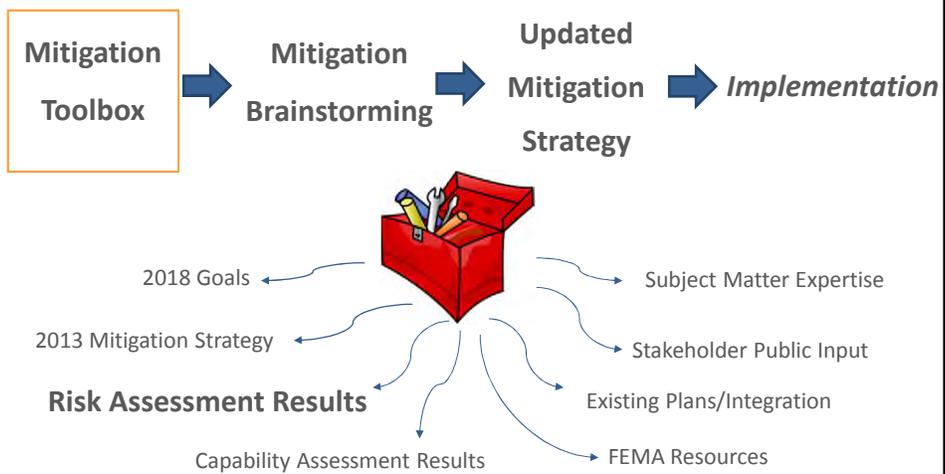
Hazard	Problem Areas/ Challenges/Questions/Ideas	Location	Lead Agency	Potential Solutions

## Breakout Session



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## This is where we are heading....



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## Any Questions?



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THANK YOU

**Broome County Project Contact**  
Beth A. Lucas, Senior Planner  
Broome County Planning Department  
60 Hawley St, PO Box 1766, Binghamton, NY 13902  
607-778-2375 | [BLucas@co.broome.ny.us](mailto:BLucas@co.broome.ny.us)

**Tetra Tech Project Contacts**  
Cynthia Addonizio-Bianco, CFM  
6 Century Drive, Parsippany, NJ 07054  
(973) 630-8044 | [cynthia.bianco@tetratech.com](mailto:cynthia.bianco@tetratech.com)

Heather Apgar, CFM  
6 Century Drive, Parsippany, NJ 07054  
(973) 630-8046 | [heatherapgar@tetratech.com](mailto:heatherapgar@tetratech.com)

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# Broome County All-Hazard Mitigation Plan Update Minutes of Meeting



Purpose of Meeting:	Broome County Risk Assessment Presentation
Location of Meeting:	Town of Chenango Community Room
Date/Time of Meeting:	September 19, 2018; 1:00 pm – 3:00 pm

<b>Attendees:</b> Beth Lucas, Broome County Planning Frank Evangelisti, Broome County Planning Stephanie Brewer, Broome County Planning Nazar Logvis, Broome County Division of Engineering Daria Golazeski, Town of Union Code Enforcement Mike Donahue, Town of Binghamton Dan Nead, Town of Binghamton Vernon Myers, Town of Vestal Joy Kasmarcik, Town of Chenango Franco Incitti, City of Binghamton	John Mastronardi, Municipalities of Conklin, Kirkwood, Binghamton (T), and Fenton Nick Pappas, Town of Binghamton Juliet Berling, City of Binghamton Planning Ronald Lake, Municipalities of Dickinson, Windsor, and Port Dickinson Alex Urda, Town of Chenango Cynthia Bianco, Tetra Tech Heather Apgar, Tetra Tech Kevin Clapp, NYSDHSES (via phone)
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**Agenda Summary:** To review the risk assessment results for the hazards of concern; discuss the risk ranking process; identify problem statements for issues in each community

Item No.	Description	Action By:
<b>1.</b>	<p><b>Project Status:</b> Tetra Tech reviewed the status of the planning progress noting that the risk assessment has been completed. The status of community participation as evidenced by the submittal of Letters of Intent to Participate (LOIP) as well as homework sheet was reviewed. As of 9/19/18, 11 communities have not provided a LOIP and 10 communities have not provided homework.</p> <p>Tetra Tech presented on the stakeholder outreach to date and requested that the municipalities provide a link on their website to the County’s HMP webpage. Additionally, Tetra Tech asked for a list of local meetings where the HMP was discussed.</p>	<p>Tetra Tech will make another round of calls to municipalities.</p> <p>Tetra Tech will distribute the survey results to the communities.</p> <p>Municipalities to post link to County HMP website on their individual webpages.</p>
<b>4.</b>	<p><b>Risk Assessment Overview:</b> Tetra Tech presented the results of the risk assessment that was conducted for the hazards of concern: drought, earthquake, extreme temperatures, flood, invasive species, severe storm, severe winter storm, and wildfire. This included losses and impacts to the county and municipalities (population, property, economy).</p> <ul style="list-style-type: none"> <li>• Drought – no comments</li> <li>• Earthquake – no comments</li> <li>• Extreme Temperatures – the group felt that the impact to drinking water systems needs to be included. The losses listed in the plan don’t necessarily include this. Need to get the number of failures of</li> </ul>	<p>Tetra Tech to incorporate changes and suggestions into the hazard profiles.</p> <p>XXXX to reach out to water departments to get list of water system failures because of extreme temperate events.</p>



# Broome County All-Hazard Mitigation Plan Update Minutes of Meeting



	<p>the water systems (related to extreme temperatures) in the county and incorporate into hazard profile.</p> <ul style="list-style-type: none"> <li>● Flood – Tetra Tech to add the recent August and September events into the previous events section of the profile. For the impact to population, it was suggested that the percent exposed to the SFHA be shown. <ul style="list-style-type: none"> <li>○ Tetra Tech asked that each municipality document damages, losses, photographs, and where shelters were opened during flood events.</li> <li>○ Each municipality needs to document where their residents would go if they were displaced due to floods. This will be presented in each municipal annex. The municipalities will need to identify any issues with those areas (no sewer, no water, etc.).</li> <li>○ Each municipality needs to document where they could open shelters in the event of an emergency. This will be presented in each municipal annex. The municipalities will need to identify any issues with those facilities (not outfitted to be a shelter, no shower facilities, etc.).</li> <li>○ Critical Facilities – Tetra Tech stated that all critical facilities located in the floodplain need to have an action on how that facility will be protected to the 500-year event or worst-case scenario. NYS DHSES stated that not all critical facilities listed in the flood profile are considered critical facilities as per FEMA and NYS DHSES. They also stated that any facility that is required to operate 24/7 should have an action.</li> </ul> </li> <li>● Invasive Species – The Steering Committee agreed to add Japanese Knotweed to the list of invasive plants as they are taking over streambanks which leads to erosion because of their shallow root systems.</li> <li>● Severe Storm – it was suggested that NYSEG be contacted to obtain a history of power outages due to severe storms.</li> <li>● Severe Winter Storm – need to add ‘economic loss of businesses’ to the impacts.</li> <li>● Wildfire – the County does not have detailed documentation on wildfire events that occurred in the county.</li> </ul>	<p>County Emergency Management will contact NYSEG for history of power outages.</p>
<p><b>5.</b></p>	<p><b>Ranking of Hazards:</b> Tetra Tech presented the methodology on how the ranking of each hazard was conducted. New for the update, capability and climate change were incorporated into the risk ranking equation. The overall</p>	<p>Tetra Tech to incorporate the risk rankings into each</p>



# Broome County All-Hazard Mitigation Plan Update Minutes of Meeting



	County ranking was presented to the municipalities. Each municipality was asked to rank the hazards for their community to understand the major concerns on a municipal basis. This will be incorporated in their annex.	annex.
6.	<b>SWOO:</b> Tetra Tech invited the municipalities to add additional strengths, weaknesses, obstacles, and opportunities to the large posters in the front of the room. Any additional items will be added to the final SWOO list.	
7.	<b>Mitigation Strategy Update and Brainstorming:</b> Tetra Tech handed out the previous actions each community identified during the 2013 planning process and asked each community to update the table accordingly. Tetra Tech will send an electronic format to representatives of each community for their input. Next, each community was asked to develop problem statements and potential solutions for problems identified in their municipality. Tetra Tech will compile into an electronic version and send to each community. The problem statements are due to Beth Lucas on or before October 3 <sup>rd</sup> . They will be sent to NYS DHSES to support productive discussions and development of action worksheets during the upcoming mitigation action workshop.	Tetra Tech to send WS #4 and mitigation brainstorming worksheets to municipalities. Municipalities to complete WS #4 and send to Tetra Tech by October 12 <sup>th</sup> and mitigation brainstorming by October 3 <sup>rd</sup> and send to Beth Lucas.
7.	<b>Additional Items:</b> <ul style="list-style-type: none"> <li>▪ Tetra Tech will reach out to each municipality to gather information on damages from the August and September 2018 events. This information will be provided to the County.</li> </ul>	Tetra Tech
8.	<b>Next Steps:</b> Next meeting will be the FEMA and NYS DHSES mitigation strategy presentation and is scheduled for 10/17/18 at 1:00 pm.	
9.	<b>Adjournment:</b> The meeting was adjourned at 3:00 pm.	



# BROOME COUNTY HAZARD MITIGATION PLAN UPDATE

## Local Support Meetings

Date: October 17 & 18, 2018 Location: Chenango Town Hall Sign-In Sheet



Date / Time	Name	Title	Agency/Municipality	Phone Number	E-mail
9am 10/17	Stephen Raftery	CEO	Town of Dickson	723 940	Staff@TownofDickson.com
9am 10/17	Jim Gilligan	Sup	V of WATKINS/PAIN	237 1169	wpdpw@FRONTIER.NET
9:45am 10/17	GERALD MACKAY	MAYOR	V of LISLE	607-2-3763	JMMACKAY@YAHOO.COM
10:30 10/17	Chad A. Moran	CEO	Town of Kirkwood	607 775-4313	chad@TownofKirkwood.org
11:15 10/17	CHARLES MANABOE	SUPERVISOR	TOWN OF TRINACRE	607-265-3304	TRINACRE@TRINACRENY.COM
11:15 10/17	Bradley May	ENGINEER	Town of Colesville	607 603 1795	colesville@colesville.net
9 10/18	Jim Dedrick	CEO	Town of Barker	607 766-7385	barker@barker.com
9 10/18	BOB BENNETT	DIRECTOR OF PUBLIC SERVICES	VILLAGE OF JC	607-797-3031	judops@villageofjc.com
9 10/18	ALEX UROA	Town Engineer	(T) Chenango	607 760 6545	ALEX@UROROBINSBURGH.COM
9:45 10/18	ANTHONY BATES	Union Manager	Village of Endicott	607-757-5337	voetreasures@endicottny.com
9:45 10/18	Joseph Griswold	Fire Chief	Village of Endicott	607-757-2463	kgri5wo1k@607.Broome.NY.US
9:45 10/18	Kent Repp	Engineering Aid	Village of Endicott	607-757-2445	engineer@endicottny.com
9:45 10/18	NICK PAPPAS	Code	T. of PING	607-772-0557	
9:45 10-18	ROBERT ROLSTON	HWY DEPT. SUPER.	TOWN OF BINGHAMTON	607 669-4523	
10:30 10-18	RON LAKE	ENGR	T. of BINGHAMTON	607-343-8937	ronbert@bestny.net.com
10-18	Deira Galazcski	PPW	Town of Union	607-786-2921	deira@townofunion.com
10-18	LOUIS CATARDO	CPW	TUMON	607 786 2952	LOUIS@TOWNOFUNION.COM
10/18	FRANCO N. D'NECCHI	Engineer	City of Binghamton	607-772-7007	franco@cityofbinghamton.com
	Cynthia Bianco		Tetra Tech		
	Heather Apper		Tetra Tech		



## **BROOME COUNTY, NEW YORK ALL-HAZARD MITIGATION PLAN 2018 UPDATE**



Planning Partnership Mitigation Strategy Workshop - Agenda

Meeting Date / Time: October 17, 2018 at 1:00PM – 4:00PM

Location: Community Room at Chenango Town Hall – 1529 State Route 12, Binghamton, NY

- 1. Background and Introductions**
- 2. Project Status**
- 3. Overview – Developing Mitigation Strategies**
- 4. Breakout Working Groups to Develop Mitigation Strategies**
  - a. Review, Refine, Revise Problem Statements**
  - b. Consider Options**
  - c. Select Best Choice – write down the specific action selected**
  - d. Review Action Worksheet – complete as much as practical today**
  - e. Discuss Opportunities for Integrating mitigation into daily operations**
- 5. Next Steps**
- 6. Adjournment**

### **Broome County Project Contact**

Beth A. Lucas, Senior Planner  
Broome County Planning Department  
60 Hawley St, PO Box 1766, Binghamton, NY 13902  
607-778-2375 | [BLucas@co.broome.ny.us](mailto:BLucas@co.broome.ny.us)

### **Tetra Tech Project Contacts**

Cynthia Addonizio-Bianco, CFM  
6 Century Drive, Parsippany, NJ 07054  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

Heather Apgar, CFM  
6 Century Drive, Parsippany, NJ 07054  
(973) 630-8046 | [heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com)



**BROOME COUNTY ALL-HAZARD MITIGATION PLAN UPDATE**  
 Planning Partnership Mitigation Strategy Meeting  
 MEETING DATE/TIME: October 17, 2018 1:00 p.m. – 4:00 p.m.  
 SIGN-IN SHEET



Name	Title	Agency/Municipality	Phone Number	E-mail
Daria Golazeski	DCPW Coder & Admin	Union	607-786-2920	dgolazeski@unionnyc.org
Thomas F. Costello	Dir. Bldg Const/Code	City of Binghamton	607-343-9600	tfcostello@cityofbinghamton.com
Stephanie Brewer	Planner	Broome County	607-778-2390	sbrewer@co.broome.ny.us
Frank Evangelisti	Dir. of Planner	Broome City	607 778 2414	fevangelisti@co.broome.ny.us
RON LAKE	Engr	110 DICKINSON RD TO SANFORD 110 WINDSOR W/O FOOT PAVILION	607-343-8937	ronbert18@stny.rr.com
Charles Hendrix	PPW TRAVELER	Village of Port Dickinson	607-722-2534	handing926@ad.com
Kent Rapp	Engineering Aide	Village of Endicott	607-757-2425	engineer@endicottny.com
JUN MASTROARDI	ENGINEER	(T) CONKLIN, FENION, MARKWOOD	607-724-2400	jmas@ronardi.griffithsengineering.com
Beth Lucas	Senior Planner	Broome Co.	607-778-2375	blucas@co.broome.ny.us
Chipp McElwee	Exec Director	Broome SWCD	607-724-9268 ext 5	cmcelwee@broomeswcd.ny.us
Nick Vascello	Code Enforcement	Town of Conklin	(607) 775-3456	NVascello@TownofConklin.com
Ariel E Brown	Code Enforcement	Town of Windson	(607) 655-3118	Windsoncode@EchoesNE
Barbara Spalding	Code Planner	PTSS	(518) 292-2290	barbara.spalding@chises.ny.gov
Brettford McAvoy	Enforcement Officer	Town of Colesville	0070431725	colew@pentanet.net @Echoes.net



**BROOME COUNTY ALL-HAZARD MITIGATION PLAN UPDATE**  
 Planning Partnership Mitigation Strategy Meeting  
 MEETING DATE/TIME: October 17, 2018 1:00 p.m. – 4:00 p.m.  
 SIGN-IN SHEET



Name	Title	Agency/Municipality	Phone Number	E-mail
DAVID MACKLEY	Hwy Syst	Town of Barker	607-692-3990	TOSHIAW@STNY.RR.COM
Robert C. Murphy	Dir. of Econ Dev	City of Binghamton	607-772-7161	rcm@cityofbinghamton.com
FRANCIS A. INCE	Asst. City Engineer	City of Binghamton	607-772-7007	france@cityofbinghamton.com
Juliet Bertling	Director Planning	City of Binghamton	607-772-7028	jb@cityofbinghamton.com
Daniel Nead	Consultant	Town of Binghamton	607-725-2752	dnead@clarkpatrick.com
NICK PAROIA	Code	Town of Bing.	607-772-0357 #12	CodeEnforcement@TownofBinghamton.com
VERNON MYERS	TOWN ENGINEER	TOWN OF VESTAL	607-786-0980	vmyers@vestal-ny.com
Joy Kosmaric	Highway Secretary	Town of Chenango	607-648-4809 ext 300	highway@townofchenango.com
Charlie Montagne	SUPERVISOR TOWN OF TRIMBLE	TOWN OF TRIMBLE	607-692-4332	trimg@supervisor@townoftrimble.com
NAZAR K LOCVIS	BROOMS-ENGINEER	BROOME	607-770-2457	nlogvis@co.broome.ny.us
Cynthia Biano	Consultant	Tetra Tech	973-630-8044	cynthia.biano@tetratech.com
Heather Aggar	Consultant	Tetra Tech	973-630-8046	heather.aggar@tetratech.com



**BROOME COUNTY HAZARD MITIGATION PLAN UPDATE**

**Local Support Meetings**

**Date: October 17 & 18, 2018 Location: Chenango Town Hall Sign-In Sheet**



Date / Time	Name	Title	Agency/Municipality	Phone Number	E-mail
9am 10/17	Stephen Raftery	CEO	Town of Dickson	723 940	Staff@TownofDickson.com
9am 10/17	Jim Gilligan	Sup	V of WATNEY/PAIN	237 1169	wpdpw@FRONTIER.NET
9:45am 10/17	GERALD MACKAY	MAYOR	V of LISLE	607-2-3763	JMMACKAY@YAHOO.COM
10:30 10/17	Chad A. Moran	CEO	Town of Kirkwood	607 775-4313	chad@TownofKirkwood.org
11:15 10/17	CHARLES MANABOE	SUPERVISOR	TOWN OF TRINACRE	607-265-3304	TRINACRE@TRINACREVTNY.COM
11:15 10/17	Bradley May	ENGINEER	Town of Colesville	607 603 1795	colesville@colesville.net
9 10/18	Jim Dedrick	CEO	Town of Barker	607 766-7785	barker@barkerstaj.ny.gov
9 10/18	BOB BENNETT	DIRECTOR OF PUBLIC SERVICES	VILLAGE OF JC	607-797-3031	judops@villageofjc.com
9 10/18	ALEX UROA	Town Engineer	(T) Chenango	607 760 6545	ALEXUROA@CHENANGO.NY.GOV
9:45 10/18	ANTHONY BATES	Union Manager	Village of Endicott	607-757-5337	voetreasures@endicottny.com
9:45 10/18	Joseph Griswold	Fire Chief	Village of Endicott	607-757-2463	kgri5wo1k@607.Browne.NY.US
9:45 10/18	Kent Repp	Engineering Aid	Village of Endicott	607-757-2445	engineer@endicottny.com
9:45 10/18	NICK PAPPAS	Code	T. of PING	607-772-0357	
9:45 10-18	ROBERT ROLSTON	HWY DEPT. SUPER.	TOWN OF BINGHAMTON	607 669-4523	
10:30 10-18	RON LAKE	ENGR	T. of BINGHAMTON	607-343-8937	ronbert@bestny.net.com
10-18	Deira Galazcski	PPW	Town of Union	607-786-2921	deira@townofunion.com
10-18	LOUIS CATARDO	CPW	TUMON	607 786 2952	LCATARDO@TOWNOFUNION.COM
10/18	FRANCO N. D'NECCHI	Engineer	City of Binghamton	607-772-7007	franco@cityofbinghamton.com
	Cynthia Bianco		Tetra Tech		
	Heather Apper		Tetra Tech		



**BROOME COUNTY, NEW YORK  
ALL-HAZARD MITIGATION PLAN 2018 UPDATE  
Worksheet #8 – Mitigation Action Worksheet**



Please complete responses below and send electronic Word version by November 16, 2018 to:  
Heather Apgar  
Phone: 973-630-8046 E-mail: heather.apgar@tetrattech.com

Please complete the following two tables per action/project, in their entirety, in accordance with NYS DHSES HMP standards and using the guidance beginning on page 3.

Name of Jurisdiction: \_\_\_\_\_  
Name and Title Completing Worksheet: \_\_\_\_\_

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



**BROOME COUNTY, NEW YORK  
ALL-HAZARD MITIGATION PLAN 2018 UPDATE  
Worksheet #8 – Mitigation Action Worksheet**



Name of Jurisdiction: \_\_\_\_\_

Name and Title Completing Worksheet: \_\_\_\_\_

Action Worksheet		
Project Name:		
Project Number:		
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety		
Property Protection		
Cost-Effectiveness		
Technical		
Political		
Legal		
Fiscal		
Environmental		
Social		
Administrative		
Multi-Hazard		
Timeline		
Agency Champion		
Other Community Objectives		
<b>Total</b>		
<b>Priority (High/Med/Low)</b>		



**BROOME COUNTY, NEW YORK  
ALL-HAZARD MITIGATION PLAN 2018 UPDATE  
Worksheet #8 – Mitigation Action Worksheet**



**Guidance to Complete the Mitigation Action Worksheet**

The following provides additional guidance on how to complete the Mitigation Action Worksheet. Please note that NYS DHSES requires a minimum of TWO proposed mitigation activities. If you have any questions, please contact: Heather Apgar ([heather.apgar@tetrattech.com](mailto:heather.apgar@tetrattech.com) or 973-630-8046) at Tetra Tech

**Action Worksheet**

**Project Name:** Each action must have a unique project number referenced here and in the Action Tables.

**Project Number:** Each action must have a unique project name referenced here and in the Action Tables.

**Assessing the Risk and Vulnerability**

**Hazard(s) of Concern:** Please identify the hazard(s) being addressed with this action.

**Description of the Problem:** Provide a detailed narrative of the problem. Describe the natural hazard you wish to mitigate, its impacts to the jurisdiction, past damages and loss of service, etc. Include the street address of the property/project location (if applicable), adjacent streets, and easily identified landmarks such as water bodies and well-known structures, and end with a brief description of existing conditions (topography, terrain, hydrology) of the site.

**Action/Project Intended for Implementation**

**Description of the Solution:** Provide a detailed narrative of the solution. Describe the physical area (project limits) to be affected, both by direct work and by the project's effects; how the action would address the existing conditions previously identified; proposed construction methods, including any excavation and earth-moving activities; where you are in the development process (e.g., are studies and/or drawings complete), etc., the extent of any analyses or studies performed (attach any reports or studies).

**Critical Facility:** Please indicate whether or not the identified project is related to a critical facility in your community.

**Level of Protection:** Please identify the level of protection the proposed project will provide. For example, 100-year (1%) flood.

**Useful Life:** Identify the number of years the project will provide protection against the hazard.

**Estimated Cost:** Identify all estimate costs associated with implementation.

Where actual project costs have been reasonably estimated:

Low < \$10,000    Medium \$10,000 to \$100,000    High > \$100,000

**Estimated Benefits:** Identify the benefits that implementation of this project will provide. If dollar amounts are known, include them. If dollar amounts are unknown or are unquantifiable, describe the losses that will be avoided.

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





**BROOME COUNTY, NEW YORK**  
**ALL-HAZARD MITIGATION PLAN 2018 UPDATE**  
**Worksheet #8 – Mitigation Action Worksheet**



- Low < \$10,000
- Medium \$10,000 to \$100,000
- High > \$100,000
- Where numerical project benefits cannot reasonably be established at this time:
  - Low - Long-term benefits of the project are difficult to quantify in the short term.
  - Medium - Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
  - High - Project will have an immediate impact on the reduction of risk exposure to life and property.

**Mitigation Action Type:**

- Local Plans and Regulations (LPR) – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP) - 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. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP) – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP) – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

**Goals:**

Goal 1: Protect Life, Property, and Economy

Goal 2: Increase Public Awareness and Preparedness

Goal 3: Encourage Partnerships

Goal 4: Provide for Enhanced Emergency Services

## Plan for Implementation

**Prioritization:** Please enter High/Medium/Low. Refer to the prioritization exercise and table.

**Estimated Time Required for Project Implementation:** Provide the estimated time required to complete the project from start to end.

**Responsible Organization:** Identify the name of a department or agency responsible for implementation, not the jurisdiction.

**Desired Timeline for Implementation:** Identify the desired start time for this project. For example, within six months.

**Potential Funding Source(s):** Multiple sources of potential funding should be listed when appropriate.

**Local Planning Mechanism to be Used in Implementation (if any):** Consider the use of local planning mechanisms that will be used to implement the project.





**BROOME COUNTY, NEW YORK**  
**ALL-HAZARD MITIGATION PLAN 2018 UPDATE**  
**Worksheet #8 – Mitigation Action Worksheet**



### Evaluation of Potential Actions/Projects

**Actions/Projects Considered:** Please consider three different options to mitigate the problem identified. One alternative is always to accept the current level or risk (tolerate the vulnerability/problem) by deciding to take no action at this time. If you choose to take no action, please complete the worksheet up to and including this section and this will be noted in the Plan.

Please include the name of the action considered and a brief reason as to why the action was not selected. The reasoning documents the consideration of these alternatives.

### Reporting on Progress (for plan maintenance)

**Date of Status Report:** This section should be completed during plan maintenance/evaluation.

**Report of Progress:** Describe what progress, if any, has been made on this project. If it has been determined the jurisdiction no longer wishes to pursue implementation, state that here and indicate why.

**Update Evaluation of the Problem and/or Solution:** Provide an updated description of the problem and solution, and what has happened since initial consideration/development.

Actions which are not complete may be dropped with a rational provided (e.g., project deemed unfeasible...). Other incomplete actions should clearly be indicated as continuing; indicate percent complete, and identify any hurdles/obstacles/reasons for change in schedule. Even actions that have had no progress to date can be identified as continuing. For any action that is not yet complete and will continue, always consider modifying the action to promote implementation.

*Please note this report on progress should be done, at minimum, each year prior to the annual Planning Committee update outlined in the plan maintenance procedures in Section 7 (Plan Maintenance).*



**BROOME COUNTY, NEW YORK**  
**ALL-HAZARD MITIGATION PLAN 2018 UPDATE**  
**Worksheet #8 – Mitigation Action Worksheet**



## Guidance to Complete the Prioritization Table

Complete this table to help evaluate and prioritize each mitigation action being considered by your municipality. Please use these 14 criteria to assist in evaluating and prioritizing new mitigation actions identified. Specifically, for each new mitigation action, assign a numeric rank (-1, 0, or 1) for each of the 14 evaluation criteria in the provided table, defined as follows:

- 1 = Highly effective or feasible
- 0 = Neutral
- -1 = Ineffective or not feasible

Use the numerical results of this exercise to help prioritize your actions as “Low”, “Medium” or “High” priority. Your municipality may recognize other factors or considerations that affect your overall prioritization; these should be identified in narrative in the Priority field of the worksheet. The 14 evaluation/prioritization criteria are:

1. Life Safety – How effective will the action be at protecting lives and preventing injuries?
2. Property Protection – How significant will the action be at eliminating or reducing damage to structures and infrastructure?
3. Cost-Effectiveness – Are the costs to implement the project or initiative commensurate with the benefits achieved?
4. Technical – Is the mitigation action technically feasible? Is it a long-term solution? Eliminate actions that, from a technical standpoint, will not meet the goals.
5. Political – Is there overall public support for the mitigation action? Is there the political will to support it?
6. Legal – Does the jurisdiction have the authority to implement the action?
7. Fiscal - Can the project 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?
8. Environmental – What are the potential environmental impacts of the action? Will it comply with environmental regulations?
9. Social – Will the proposed action adversely affect one segment of the population? Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower income people?
10. Administrative – Does the jurisdiction have the personnel and administrative capabilities to implement the action and maintain it or will outside help be necessary?
11. Multi-hazard – Does the action reduce the risk to multiple hazards?
12. Timeline - Can the action be completed in less than 5 years (within our planning horizon)?



**BROOME COUNTY, NEW YORK  
ALL-HAZARD MITIGATION PLAN 2018 UPDATE  
Worksheet #8 – Mitigation Action Worksheet**



13. Local Champion – Is there a strong advocate for the action or project among the jurisdiction’s staff, governing body, or committees that will support the action’s implementation?
  
14. Other Local Objectives – Does the action advance other local objectives, such as capital improvements, economic development, environmental quality, or open space preservation? Does it support the policies of other plans and programs?



## **BROOME COUNTY, NEW YORK ALL-HAZARD MITIGATION PLAN 2019 UPDATE**



Draft Plan Review Meeting with Planning Partnership - Agenda

Meeting Date / Time: February 5, 2019 at 1:00PM – 4:00PM

Location: Community Room at Chenango Town Hall – 1529 State Route 12, Binghamton, NY

- 1. Opening Remarks**
- 2. Draft Plan Review**
  - a. What is new?**
  - b. Section by Section Content Review**
  - c. Information Gaps to Address to Finalize Plan**
- 3. Next Steps**
- 4. Questions**
- 5. Adjournment**

### **Broome County Project Contact**

Beth A. Lucas, Senior Planner  
Broome County Planning Department  
60 Hawley St, PO Box 1766, Binghamton, NY 13902  
607-778-2375 | BLucas@co.broome.ny.us

### **Tetra Tech Project Contacts**

Cynthia Addonizio-Bianco, CFM  
6 Century Drive, Parsippany, NJ 07054  
(973) 630-8044 | cynthia.bianco@tetrattech.com

Heather Apgar, CFM  
6 Century Drive, Parsippany, NJ 07054  
(973) 630-8046 | heather.apgar@tetrattech.com



BROOME COUNTY ALL-HAZARD MITIGATION PLAN UPDATE

Draft Plan Review Meeting

MEETING DATE/TIME: February 5, 2019 1:00 p.m. - 3:00 p.m.

SIGN-IN SHEET



Name	Title	Agency/Municipality	Phone Number	E-mail
RON LAKE	P.E.	DICKINSON/WINDSOR PORT DICKINSON	607-343-8937	ronbert18@stny.net.com
Robert Berling	Planning Director	Village of Brighton	(607) 772-7078	lmberting@cityofbrighton.com
Liss Delphin	Shumaker	C.O.P. of Barker	607-7988081	l.delphin@shumaker.com
DAVID MYERSEY	Hippling Supp	Town of BARKER	607-692-3990	Tobshimw@STNY.PE.COM
Kent Raff	Engineering Aide	Village of Endicott	607-757-2425	engineer@endicottny.com
Tim Dedrick	CEO	Town of Barber	607-261-7385	barbercode@stny.com
JOHN MARONARO	P.E.	COMPLINT TOWN OF FENTON, KIRKWOOD	607-724-2400	
Stephanie Brewer	Planner	Broome County		
Frank Evangelisti	Director	Broome County		
BETH LULLAS	Senior Planner	Broome County	607-778-2375	blucas@co.broome.ny.us
NICIC PARRAS	CEO	Town of Bing.	772-0357	Code Enforcement@TownofBing.com
Vernon Myers	Town Engineer	Town of VESTA	786-0980	vmyerse@vestalny.com
Lincoln Ellis	T. of Vesta (CEO)	T of Vesta	786-0980	lellis@vestalny.com



BROOME COUNTY ALL-HAZARD MITIGATION PLAN UPDATE

Draft Plan Review Meeting

MEETING DATE/TIME: February 5, 2019 1:00 p.m. - 3:00 p.m.

SIGN-IN SHEET

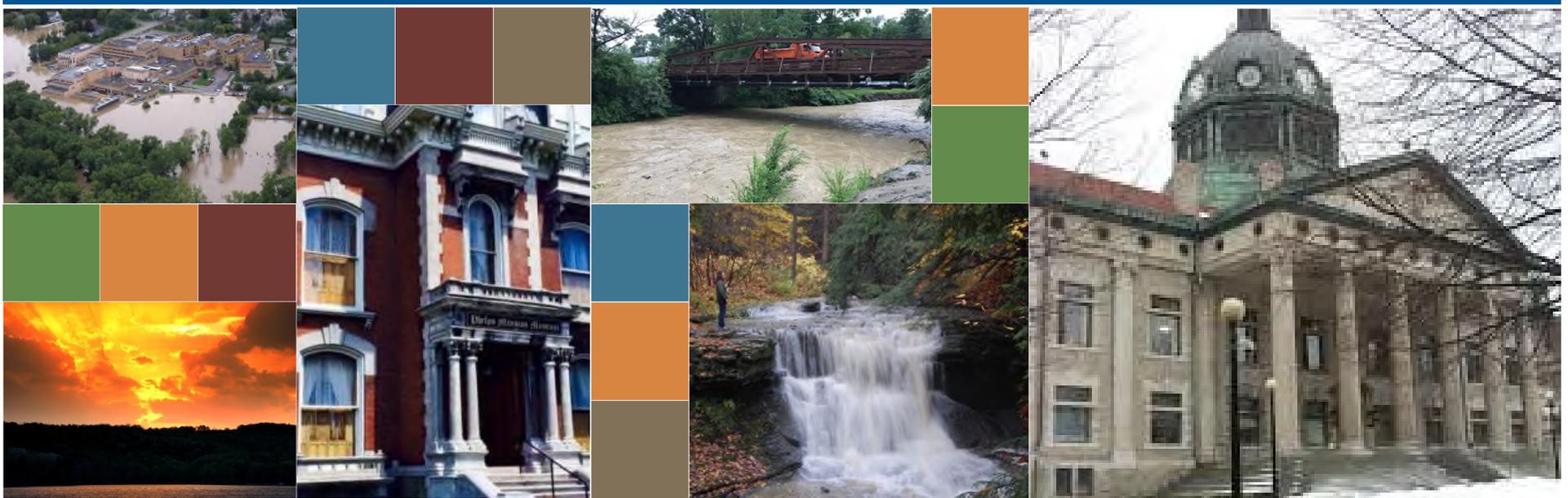


Name	Title	Agency/Municipality	Phone Number	E-mail
BOB BENNETT	Dir of Public Services	V of SC	607-797-3631	jcdaps@villageofsc.com
Dee Goferetti	Deputy Chief of Fire	Town of Union	607-786-2920	dgoferetti@townofunion.com
David E. Brown	Code Enforcement	Town of Windson	607-655-3118	Windsoncode@echoes.net
Franco A. Jucal	Assistant City Engineer	City of Binghamton	607-772-7007	faincitticityofbinghamton.co
Charles Morrissette	Town Engineer	T of TRIANGLES	607-765-3304	triangle.supervisor@stuxor.ca
Daniel Need	Town Engineer	T of Binghamton	607 725 2752	dneed@cplteam.com
Heather Apgar	Haz. Mit. Planner	TF	973-630-8046	
Cynthia Bianco - conf. call	Proj. Mgr.	TF		
Kenn Clapp - conf. call		NYS DHSES		



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# Broome County Hazard Mitigation Plan Update Draft Public Draft Plan Review Meeting



Tuesday, February 5, 2019

# Agenda

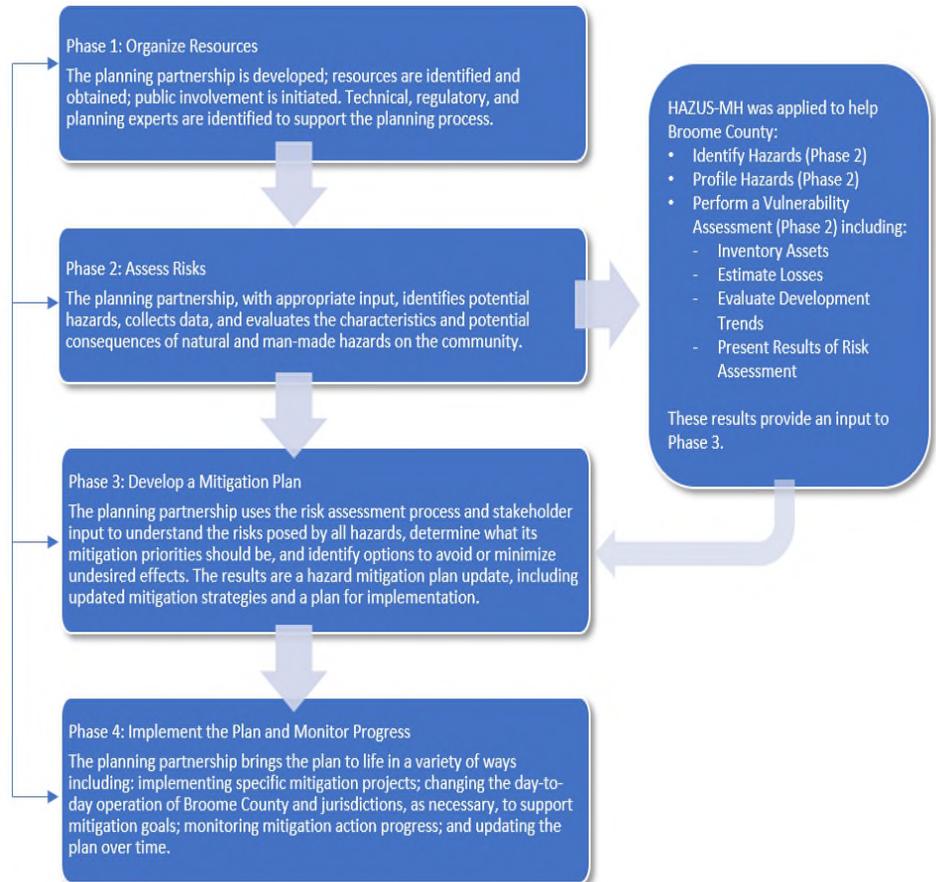
- Welcome
- Draft Plan Review
  - What is new?
  - Section-by-section content overview
  - Information gaps to address and finalize plan
  - Next steps
- Questions

# What is new in the 2019 Update?

- Updated critical facility inventory
- More concise hazard profiles
- Risk assessment and supplementary info appendix
- Levee needs assessment conducted
- Updated municipal annex content
  - More detailed information on hazard event damages
  - Community dashboard
  - Less, more detailed mitigation actions
  - Mitigation action worksheets
  - Temporary housing and evacuation routes
  - Annex sign-off sheets to document participation

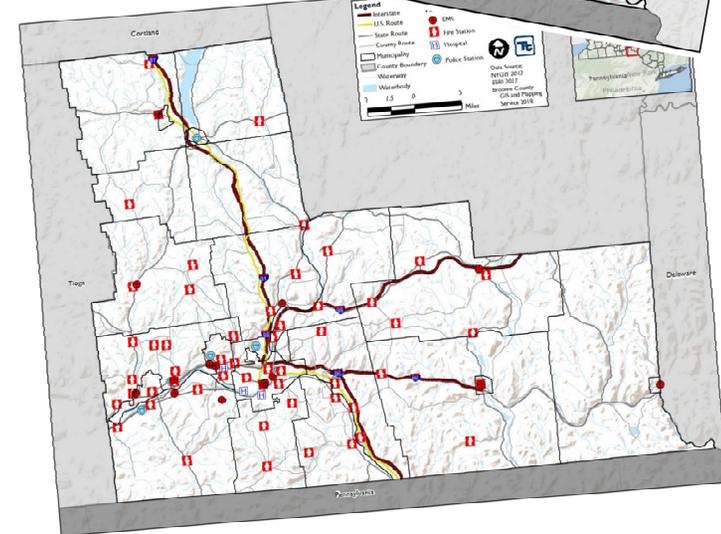
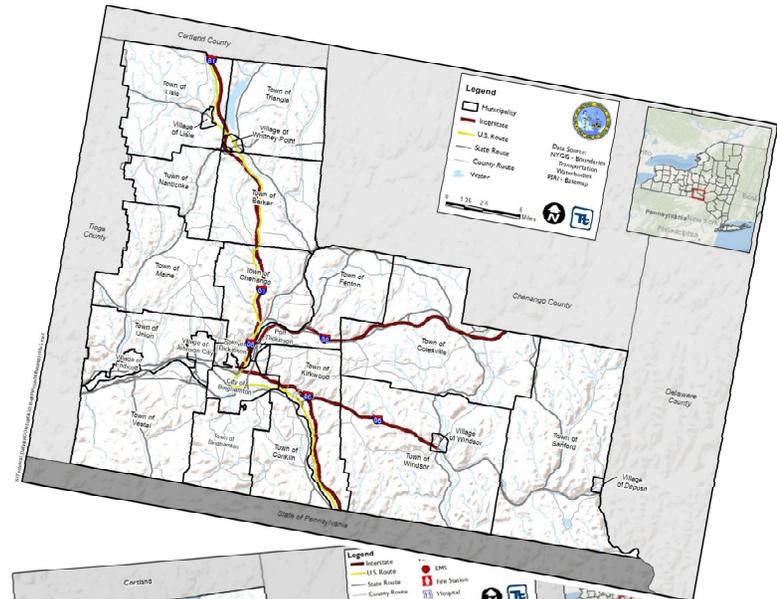
# Draft Plan Review – Section Contents

- Section 1 – Introduction
  - Mitigation planning
  - Participating jurisdictions
  - Overview
- Section 2 – Plan Adoption
  - Adoption process
- Section 3 – Planning Process
  - Participants
  - Activities
  - Ongoing process



# Draft Plan Review – Section Contents

- Section 4 – County Profile
  - History
  - Physical setting
  - Population and demographics
  - General building stock
  - Land use and population trends
  - Critical facilities
- Section 5 – Risk Assessment
  - Hazards of concern
  - Hazard ranking
  - Hazard profiles



# Hazards of Concern

- Drought
- Earthquake
- Extreme Temperature
- Flood
- Invasive Species
- Severe Storm
- Severe Winter Storm
- Wildfire

# Draft Plan Review – Section Contents

- Section 6 – Mitigation Strategies
  - Past accomplishments
  - Goals and objectives
  - Capability assessment
    - Plans, programs, resources available
    - Administrative and technical capabilities
    - Fiscal capabilities
  - Mitigation strategy development and update
    - Action identification
    - Evaluation and prioritization
    - Benefit/cost review

## 2019 Goals

Goal 1 – Protection life, property, and economy

Goal 2 – Increase public awareness and preparedness

Goal 3 – Encourage partnerships

Goal 4 – Provide for enhanced emergency services

Goal 5 - Improve the resilience and strength of the built environment and communities to reduce impacts of natural hazard events.

# Draft Plan Review – Section Contents

- Section 7 – Plan Maintenance
  - HMP Coordinator
  - Ongoing Planning Committee
  - Monitoring
  - Continuous evaluation and progress reports
  - Updating
  - Integration of hazard mitigation with existing and future programs
  - Continued public involvement

# Draft Plan Review – Section Contents

- Section 8 – Planning Partnership
  - Participating jurisdictions
  - Introduce jurisdictional annexes
- Section 9 – Annexes
  - Point of Contact
  - Municipal Profile
  - Risk Assessment
  - NFIP
  - Critical Facilities
  - Capabilities
  - Status of Past Mitigation Actions
  - Current Mitigation Actions
  - Future Needs

**SECTION 9.1: BROOME COUNTY**



<b>Project Name:</b>		<b>Action Worksheet</b>	
Glenwood Road Bridge Replacement			
<b>Project Number:</b>		Broome County-3	
<b>Hazard(s) of Concern:</b>		<b>Risk / Vulnerability</b>	
Flood, Severe Storm			
<b>Description of the Problem:</b>		Glenwood Road at Glenwood Road Bridge in the Town of Vestal is regularly subject to flash flooding because of its proximity to Choconut Creek and hydraulic restriction at the bridge. Nearby home and business owners are often restricted when the roadway becomes flooded. Glenwood and other roads are often closed for several days, which affects the ability of emergency personnel to reach nearby residents. County-owned and -operated Glenwood Road bridge over Choconut Creek is situated between Underwood Road and Highway 26. The bridge, a major route serving those who live and work west of Highway 26, is and has been subject to repeated erosion and flood damage. The community considers bridge replacement to be a priority mitigation action.	
<b>Description of the Solution:</b>		<b>Action or Project Intended for Implementation</b>	
Increase the hydraulic capacity of the bridge by raising the roadway and extending the span. Page four of this worksheet illustrates how traffic would be rerouted while the project is underway.			
<b>Is this project related to a Critical Facility?</b>			
<i>(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)</i>			
		Yes	No
		XX	
<b>Level of Protection:</b>	100-year storm, the project would include 2' of freeboard	<b>Estimated Benefits (losses avoided):</b>	Lessen road washouts; reduce the cost of interim road, bridge and creek repairs; and eliminate the need for road closures and resident evacuations.
<b>Useful Life:</b>	75 years	<b>Goals Met:</b>	Safety of property and residents
<b>Estimated Cost:</b>	\$1.5 million	<b>Mitigation Action Type:</b>	Structural
<b>Plan for Implementation</b>			

# Draft Plan Review – Section Contents

- Appendices
  - Appendix A – Sample Adoption Resolution
  - Appendix B – Participation Matrix
  - Appendix C – Meeting Documentation
  - Appendix D – Public and Stakeholder Outreach Documentation
  - Appendix E – County Profile and Risk Assessment Supplementary Data
  - Appendix F – Critical Facilities
  - Appendix G – FEMA Plan Review Tools
  - Appendix H – Levee Data Summary and Checklist
  - Appendix I – Mitigation Catalog
  - Appendix J – NYS DHSES 2017 Mitigation Planning Standards

## Next Steps

- Finalize Jurisdictional Annexes – February 15, 2019
- Draft Posted for Public Review and Comment – March-April (30 days)
- Submit to NYS DHSES and FEMA – April 2019
  - Estimated 45 day review period
- Adoption – Estimated July 2019

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## Questions

*Thank you for your time and support during this planning process!*

# Contacts



**Beth A. Lucas, Senior Planner**  
Broome County Planning Department  
607-778-2375 | [BLucas@co.broome.ny.us](mailto:BLucas@co.broome.ny.us)



**Cynthia Addonizio-Bianco**  
Tetra Tech, Inc.  
(973) 630-8044 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

**Heather Apgar**  
Tetra Tech, Inc.  
(973) 630-8025 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

**Chris Huch**  
Tetra Tech, Inc.  
(973) 630-8357 | [cynthia.bianco@tetrattech.com](mailto:cynthia.bianco@tetrattech.com)

**Lisa C. Dolphin, P.E.**  
Senior Managing Engineer – Water Resources  
Shumaker Consulting Engineering & Land Surveying, D.P.C.  
Office (607) 798-8081, Ext. 310 | [ldolphin@shumakerengineering.com](mailto:ldolphin@shumakerengineering.com)

