



# Broome County Hazard Mitigation Plan – 2024 Update

**Steering Committee Meeting #3 – Review  
Preliminary Hazard Ranking**

December 6, 2023

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



# Today's Agenda

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

# In-Kind Tracking



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

Name: \_\_\_\_\_ Title: \_\_\_\_\_

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

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



-or-

<https://www.surveymonkey.com/r/BroomelInKind>

# Project Schedule



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

# Participation Status



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

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

# Public and Stakeholder Outreach



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

A screenshot of a social media post titled "Hazard Mitigation In Broome County". The post features two images: a lightning bolt striking a field and a flooded river. Below the images, the text reads "BROOME COUNTY Hazard Mitigation Plan 2024 Update". It states that Broome County and its jurisdictions are updating their Hazard Mitigation Plan to remain eligible for federal grant funding. A link is provided: <https://broomecountyny.gov/planning/hazardmitigation>. The Broome County seal is visible in the bottom right corner of the post.

A graphic for "BROOME COUNTY HAZARD MITIGATION PLAN UPDATE". The text reads "LIVE OR WORK IN THE COUNTY? WE NEED YOUR HELP!". Below this, there are three icons: a stack of money labeled "Grants &amp; Funding", a document with a pencil labeled "Plan &amp; Prepare", and a hammer labeled "Mitigate". At the bottom, it says "CLICK HERE TO TAKE THE PUBLIC SURVEY" with a link. The Broome County seal is in the top right corner. The text "DRONES OV" is partially visible at the bottom right.

# Risk Assessment Overview

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





# Hazards of Concern (2024 HMP)



Dam and Levee Failure



Flood



Disease Outbreak



Invasive Species



Drought



Severe Storm



Earthquake



Severe Winter Storm



Extreme Temperature



Wildfire



# What is Risk?

## ✓ Hazard

- *Something that has the potential to cause damage, injuries, and losses*

## ✓ Exposure

- *People, property and infrastructure vulnerable to the hazard*

## ✓ Risk

- *Probability and severity of damages to people, property, and infrastructure*



**HAZARD**

**VS**

**RISK**

A **HAZARD** is something that has the potential to harm you

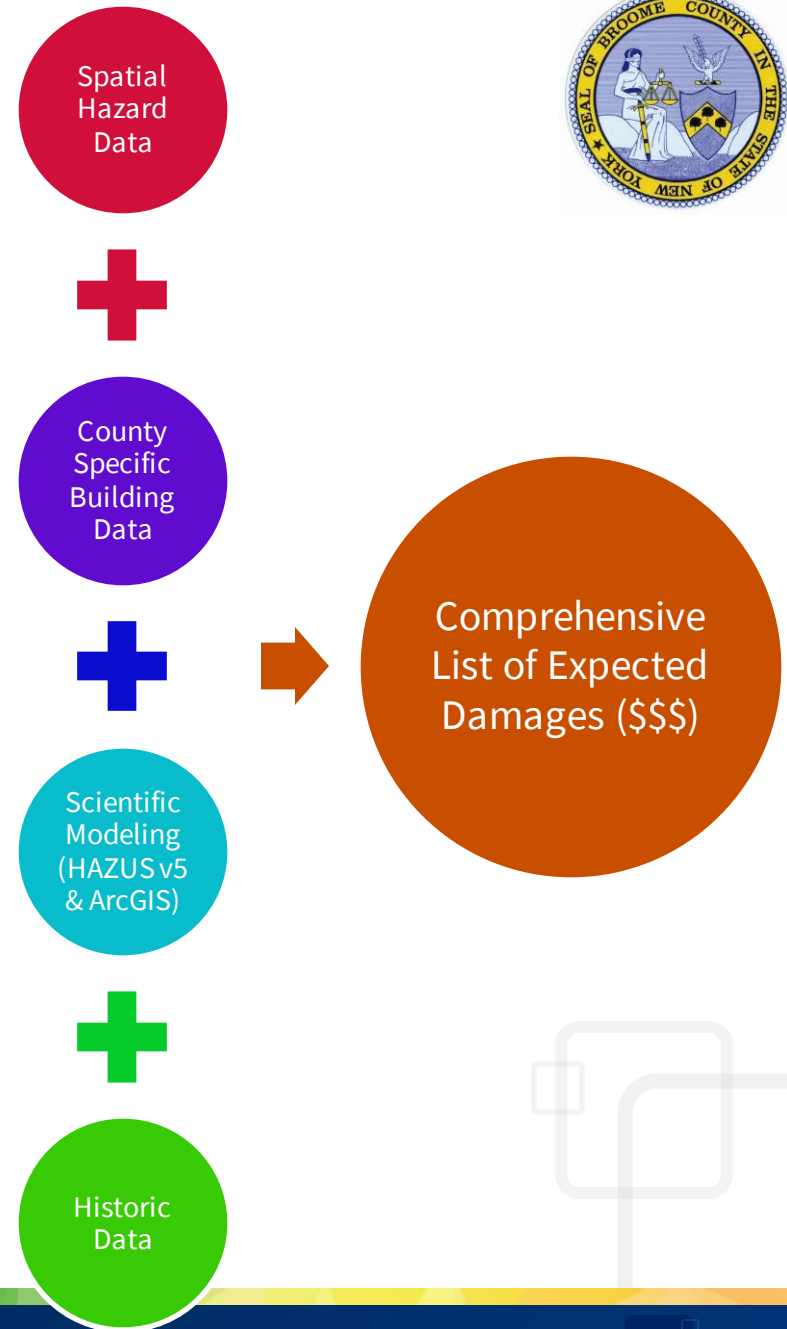


**RISK** is the likelihood of a hazard causing harm

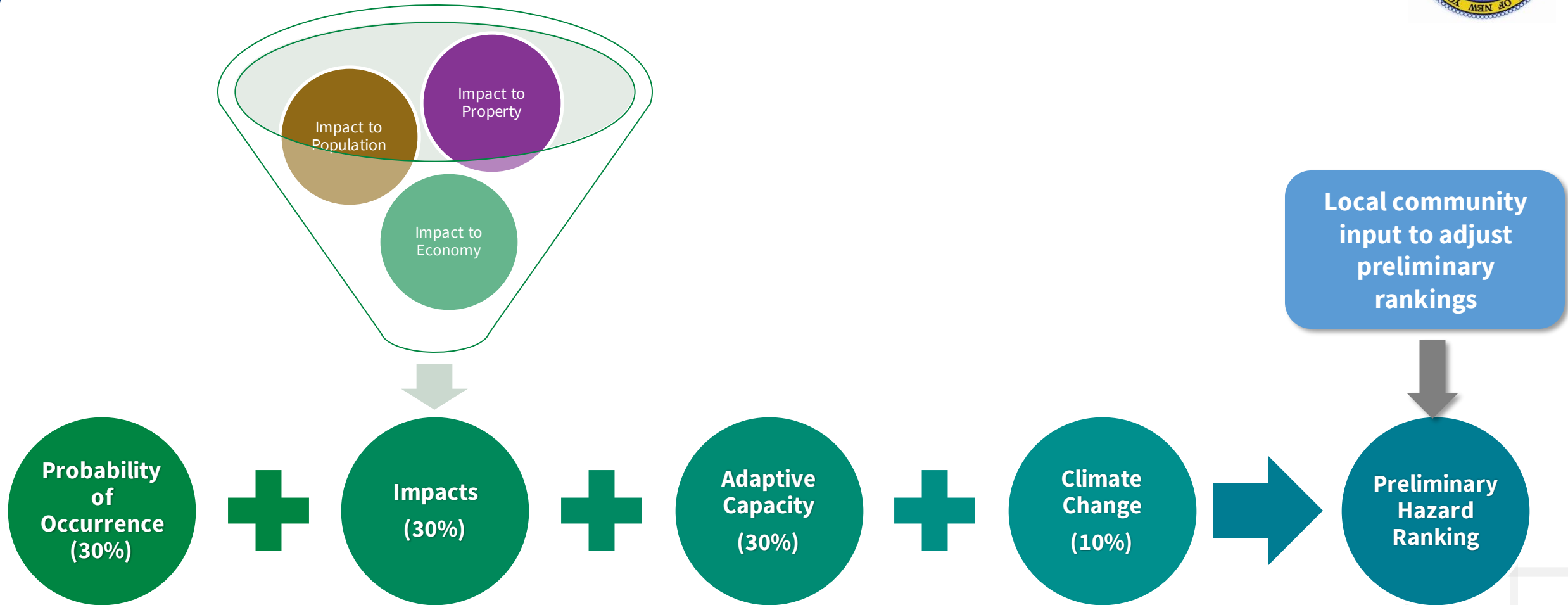


# Purpose of the Risk Assessment

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



# Preliminary Hazard Ranking Formula



# How did we measure impact?



## Probability of Occurring

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



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



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



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

# How did we measure impact?



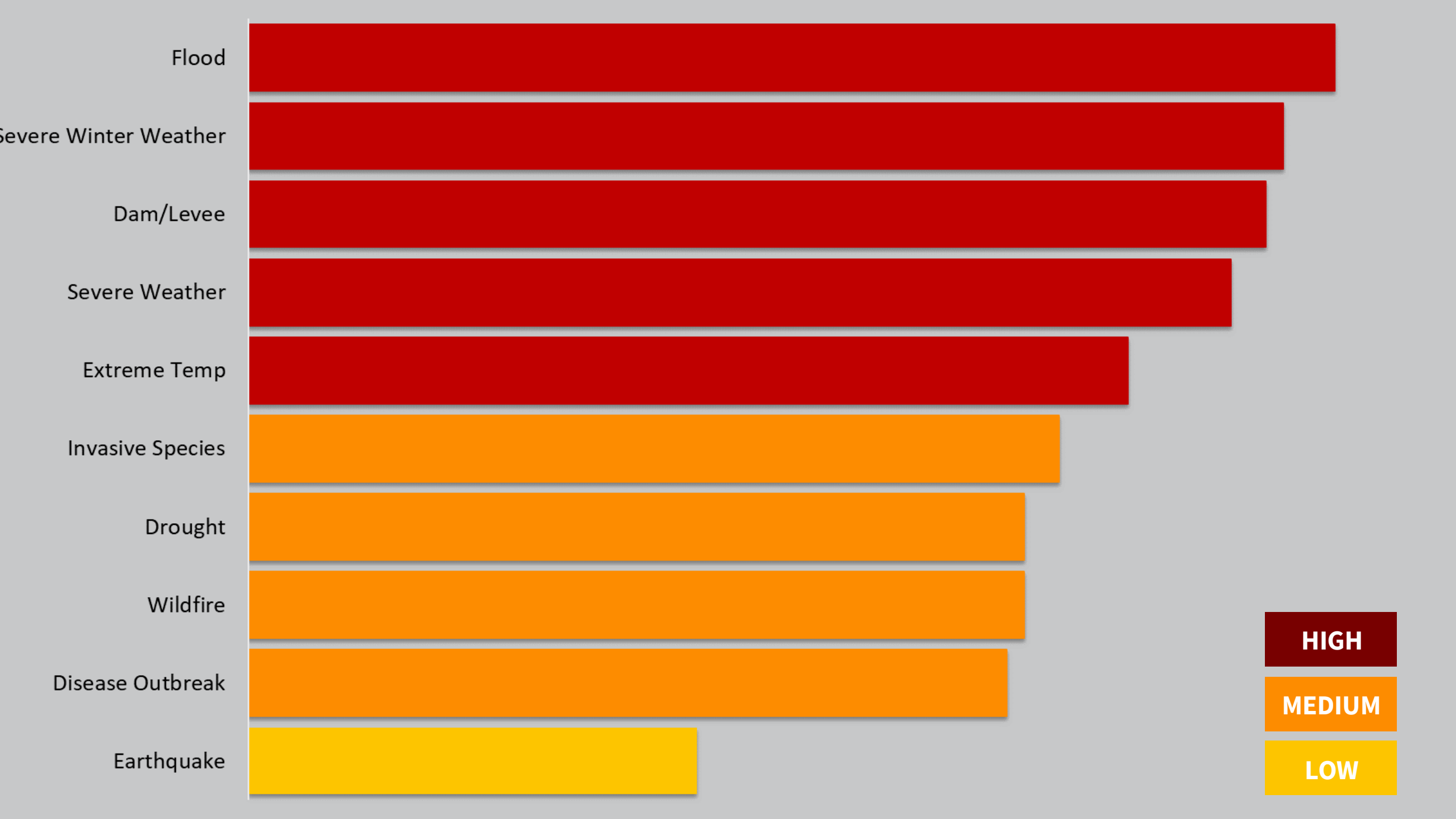
## Capacity

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



## Climate Change

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



Flood

Severe Winter Weather

Dam/Levee

Severe Weather

Extreme Temp

Invasive Species

Drought

Wildfire

Disease Outbreak

Earthquake

**HIGH**

**MEDIUM**

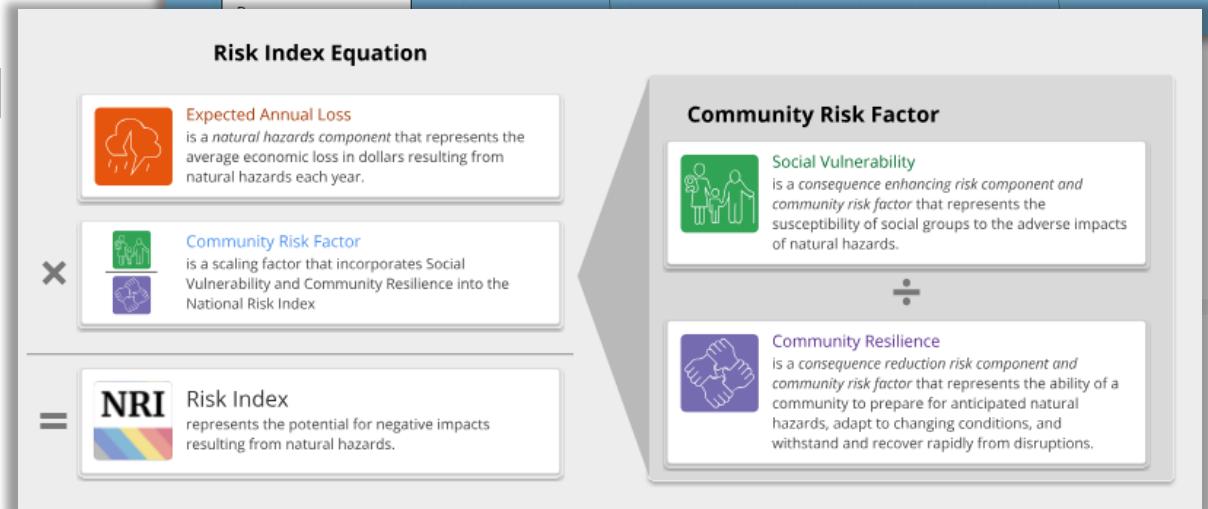
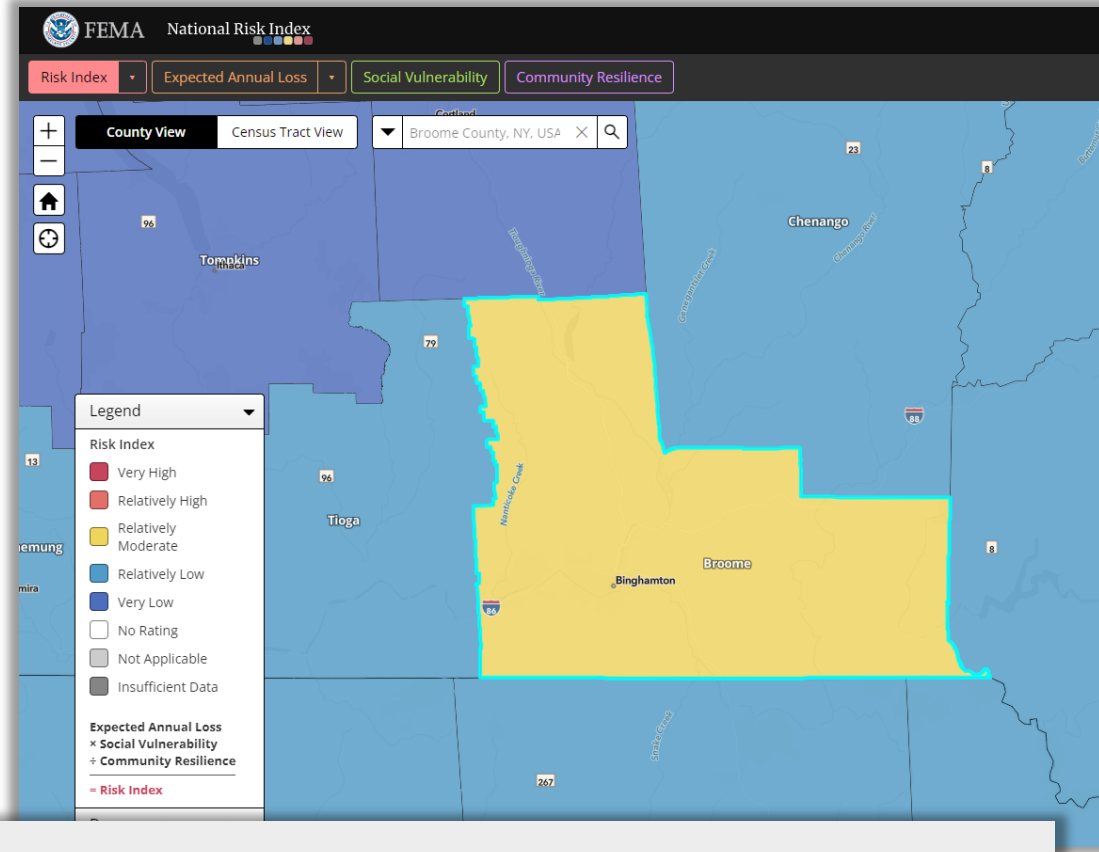
**LOW**

# Preliminary Municipal Rankings

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

# Risk Assessment Summary

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





# Dam/Levee Failure



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

Preliminary Hazard  
Ranking  
**High**

# Disease Outbreak



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

Preliminary Hazard  
Ranking  
**MEDIUM**

# Drought



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

Preliminary Hazard  
Ranking

**MEDIUM**

# Earthquake



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

Preliminary Hazard  
Ranking  
**LOW**

# COUNTY OF BROOME

**Legend**

**NEHRP Soil Class**

-  Class D
-  Class E
-  County Boundary
-  Municipality Boundary
-  Interstate
-  U.S. Route
-  State Route
-  Railroad
-  Waterbody

**Location Map**



0 100 200 Miles

CANADA VT NH MA CT PA NY



0 1 2 Miles

Source Data: NYS GIS; USGS; NYS Division of Homeland Security and Emergency Services



Notes: E.g., (C) - City, (T) - Town, (V) - Village



Cortland County

Chenango County

Tioga County

Delaware County

# Extreme Temperature (hot/cold)



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

Preliminary Hazard  
Ranking  
**HIGH**

# Flood












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

Preliminary Hazard  
Ranking  
**HIGH**


# COUNTY OF BROOME

**Legend**

**FEMA Flood Hazard Area**


-  1-Percent Annual Chance Flood
-  0.2-Percent Annual Chance Flood
-  County Boundary
-  Municipality Boundary
-  Interstate
-  U.S. Route
-  State Route
-  Railroad
-  Waterbody

**Location Map**



0 100 200 Miles

CANADA VT NH MA CT PA NY


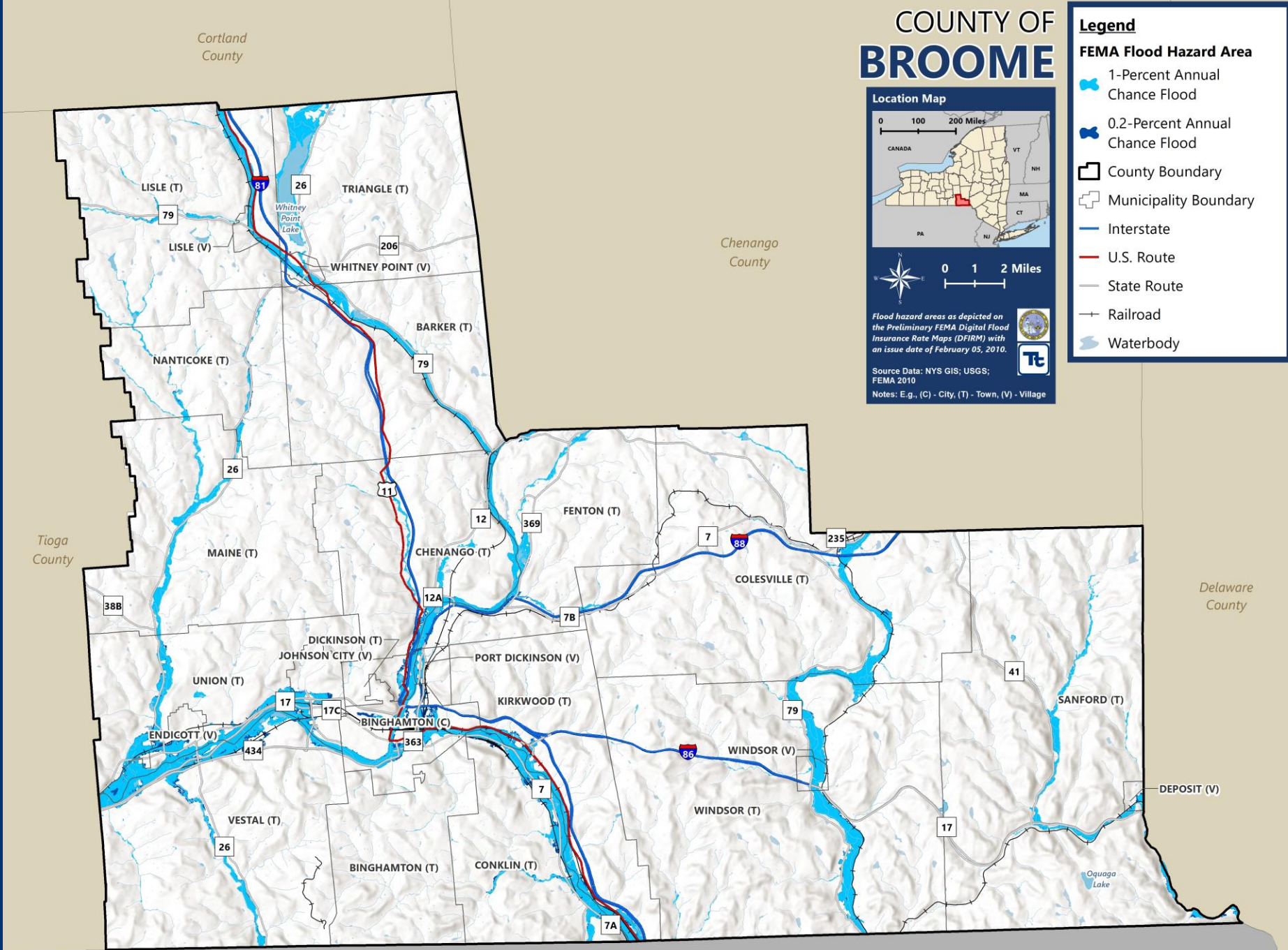


0 1 2 Miles

Flood hazard areas as depicted on the Preliminary FEMA Digital Flood Insurance Rate Maps (DFIRM) with an issue date of February 05, 2010.

Source Data: NYS GIS; USGS; FEMA 2010

Notes: E.g., (C) - City, (T) - Town, (V) - Village





# Invasive and Nuisance Species

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

Preliminary Hazard  
Ranking

**HIGH**

# Severe Storm



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

Preliminary Hazard  
Ranking

**HIGH**

# Severe Winter Weather



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

Preliminary Hazard  
Ranking

**HIGH**

# Wildfire



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

Preliminary Hazard  
Ranking

**MEDIUM**

# COUNTY OF BROOME

**Legend**

**WUI Wildfire Hazard Area**

-  Interface
-  Intermix
-  County Boundary
-  Municipality Boundary
-  Interstate
-  U.S. Route
-  State Route
-  Railroad
-  Waterbody

**Location Map**



0 100 200 Miles

CANADA VT NH MA CT PA NY

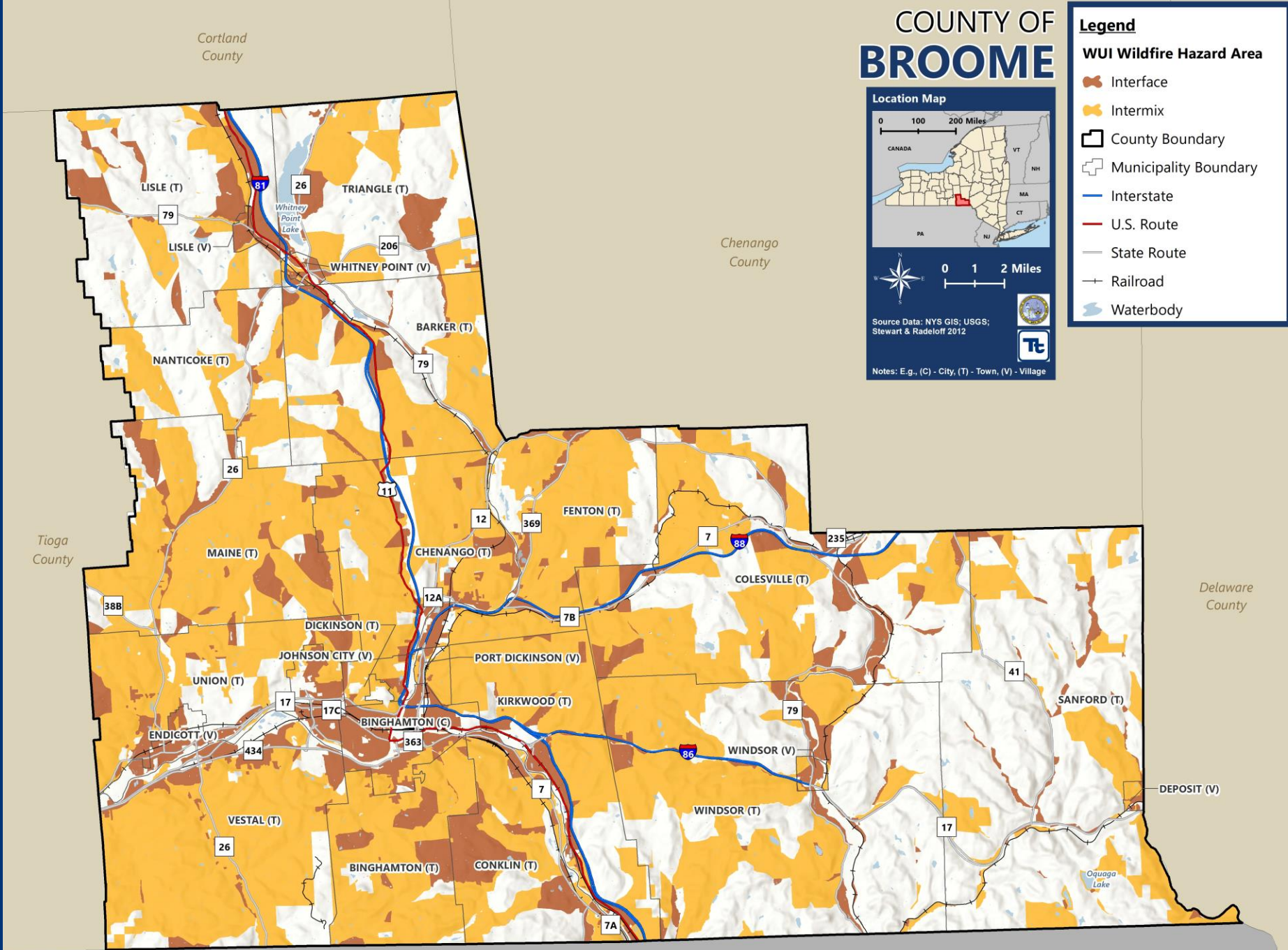


0 1 2 Miles

Source Data: NYS GIS; USGS; Stewart & Radloff 2012

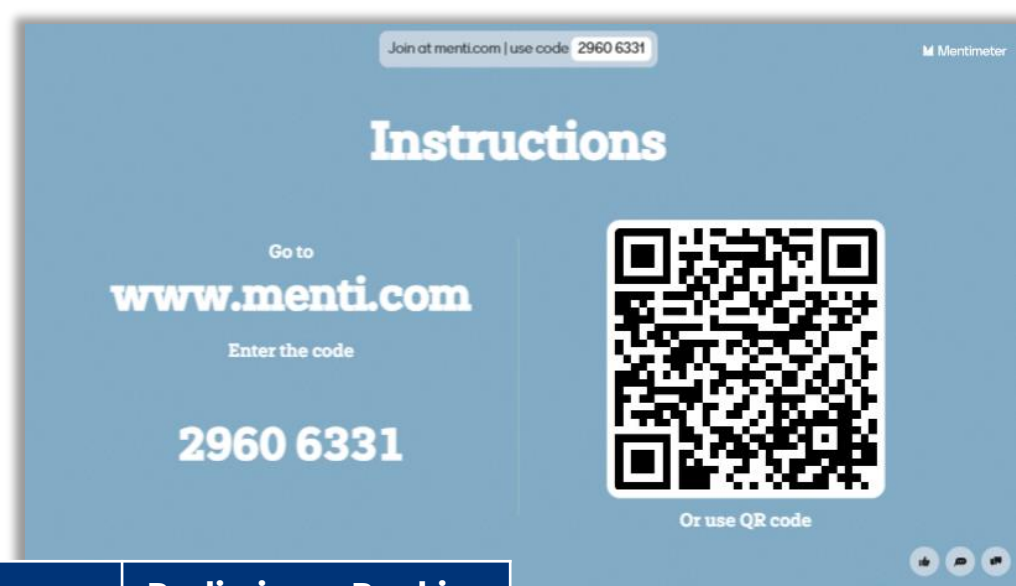


Notes: E.g., (C) - City, (T) - Town, (V) - Village



# Let's Hear From You!

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



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

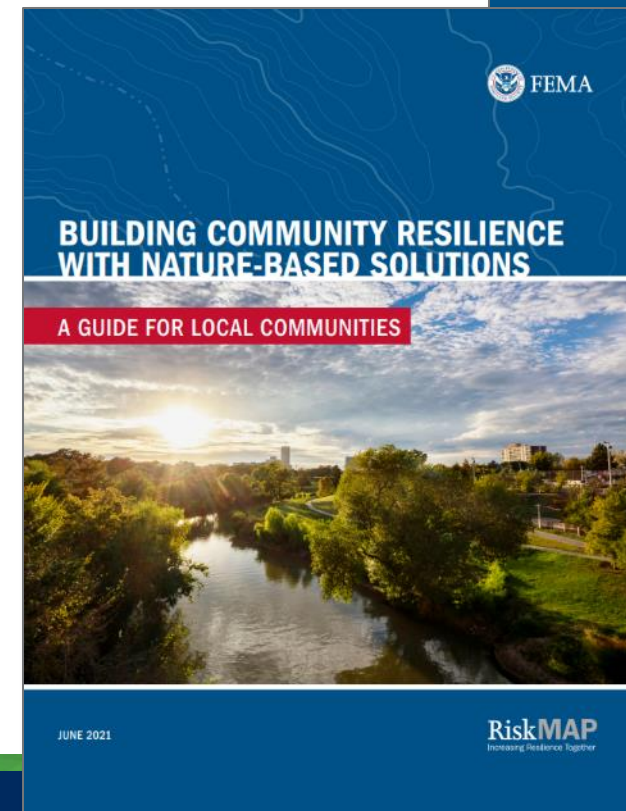
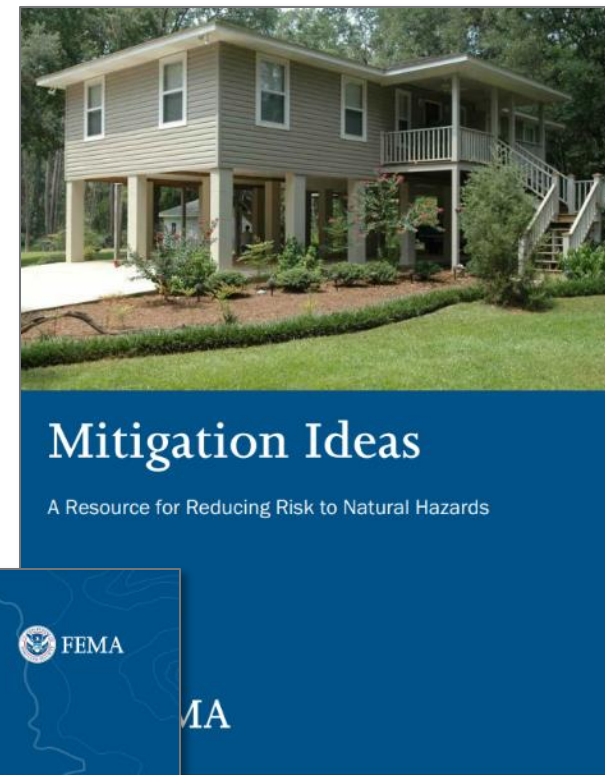


# Mitigation Strategy

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

# How do you reduce risk?

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





# Using Your Mitigation Strategy to Reduce Risk



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

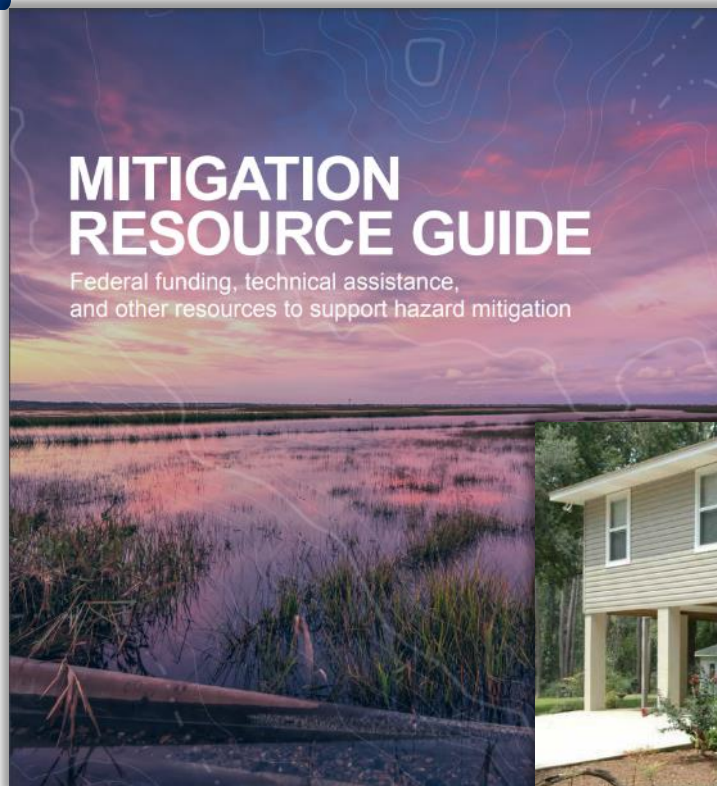
Your Mitigation Strategy table is included in your annex. We will use action worksheets and online forms to collect details on the actions you will include in the 2024 Update.

# Where do you need to focus?



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

# Other Mitigation Actions to Consider



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

# Mitigation Strategy Online Form



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

The screenshot shows a web form titled "Broome County HMP - Mitigation Strategies". The form is set against a background image of a residential area. The title is in white text on a dark green header. Below the title, there is a paragraph of instructions: "Please use this form to develop your mitigation strategy. One form is needed for each strategy/action and FEMA requires one action per hazard of concern. However, one action can address multiple hazards. If you need assistance, please reach out to Heather Apgar ([heather.apgar@tetratech.com](mailto:heather.apgar@tetratech.com))." The form body is white with a light gray background image of a building. It starts with a red asterisk and the word "Required". The section is titled "Contact Information" and includes the instruction "Complete this section with your contact information." There are three numbered fields: "1. Name \*", "2. Title \*", and "3. Email Address \*". Each field has a white input box with the placeholder text "Enter your answer".





**QUESTIONS?**

An aerial photograph of a forest with mist or low clouds hanging over the trees. The sky is a mix of blue and orange, suggesting a sunset or sunrise. The trees are in various shades of green and brown, indicating some autumn foliage.

# Thank You!

## Broome County Project Contact

Stephanie Brewer, Senior Planner  
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## Tetra Tech Project Contacts

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