



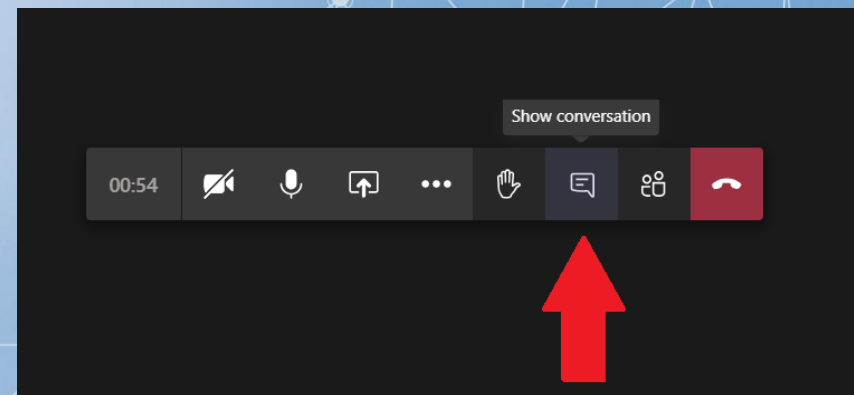
Warren County, New York Hazard Mitigation Plan – 2023 Update

Planning Partnership #2 Meeting | February 15, 2023 | 10:00 – 11:00 AM

WELCOME!

If you are attending the webinar on your computer, please add your name, title, and organization(s) to the chat box.

This will assist in our attendance documentation.



Agenda

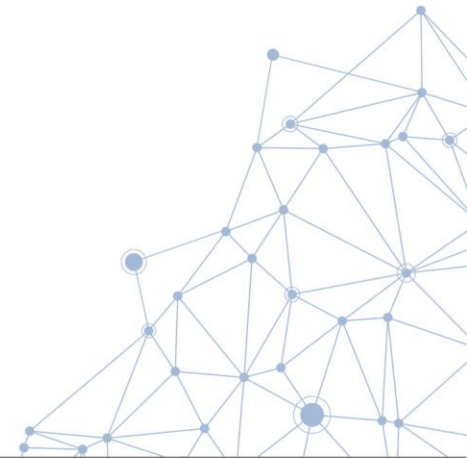
- Welcome
- Progress Report
- In-Kind Services Tracking
- Public and Stakeholder Outreach
- Risk Assessment Overview
- Next Steps/ Questions/ Wrap Up





Project Schedule Review

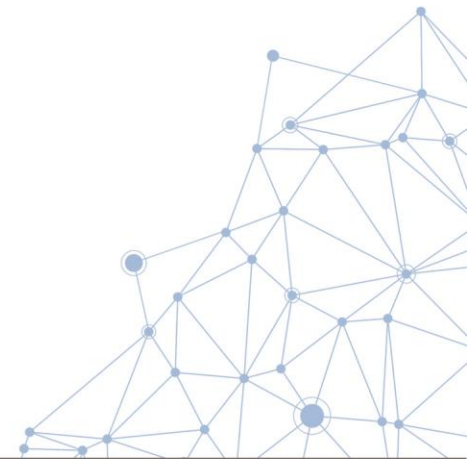
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|---|-------------------------|--|
| ✓ | November 2, 2022 | Municipal Kick-Off Meeting |
| ✓ | November – December | Data Collection |
| ✓ | January 2023 – February | Update hazard profiles |
| ☐ | February 15, 2023 | Risk Assessment Presentation to Planning Partnership |
| ☐ | March 15, 2023 | Mitigation Strategy Workshop |
| ☐ | May 2023 | Review draft plan |
| ☐ | July/August 2023 | Submit plan to NYSDHSES and FEMA |

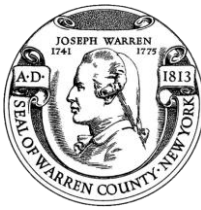




Progress

- Requested NFIP Data – *Data pending*
- GIS Data Collection - *Complete*
- Critical Facility Survey for Municipal Input – *Complete*
- HMP website, HMP Fact Sheet, Citizen Survey, Agency Surveys - *Complete*
- County-Level/Regional Plan Collection – *Complete*
- Planning Partnership Participation – 100%






In-Kind Services Tracking

- Use on-line survey: <https://www.surveymonkey.com/r/WarrenNYHMPInKind>
- Submit form to Jim Lieberum at jiml@warrenswcd.org

Name of Team Member:							
Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/ Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting					Yes - sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting						Discussed the HMP update
Phone Call	Town of ??phone call					No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting					Yes - agenda	



Warren County HMP - In-Kind Tracker

Warren County received FEMA funding to update the Hazard Mitigation Plan (HMP). To help meet the required 25% match, the County will use in-kind services.

Please use this form to document your time spent working on the HMP. This includes attending meeting, conference calls, working on your municipal annex, reviewing sections of the plan, etc.

If you have any questions, please reach out to Cynthia Bianco (cynthia.bianco@tetrattech.com | 973.630.8044).

* Name

* Title

* Jurisdiction

Please document your time spent working on the HMP:

Date

Hours





Public and Stakeholder Outreach

- HMP website is LIVE!

<https://www.warrencountynynewyorkhmp.com>

- Social Media
- Public Survey
- Stakeholder Survey
- Neighboring County Outreach
 - Notified of planning process
 - Survey

The screenshot shows the homepage of the Warren County Hazard Mitigation Plan 2023 Update website. The header is dark blue with the Warren County seal and the title "WARREN COUNTY HAZARD MITIGATION PLAN 2023 UPDATE". Below the header is a navigation menu with links: Home, About, What is Mitigation, Meetings, Calendar, Explore the Plan, and Additional Information. The main content area has a white background. It starts with the title "Warren County Hazard Mitigation Plan 2023 Update" and a welcome message. It then describes the project's goal to save lives and property by reducing hazard vulnerability. A call to action for a public survey is prominently displayed, with a button that says "CLICK HERE TO TAKE THE PUBLIC SURVEY". The survey is for organizations or groups that work in the county. The website also mentions that public participation and feedback are vital parts of the planning process. At the bottom, there is a section for "Events in February 2023" with a calendar view showing the current date as February 2023.

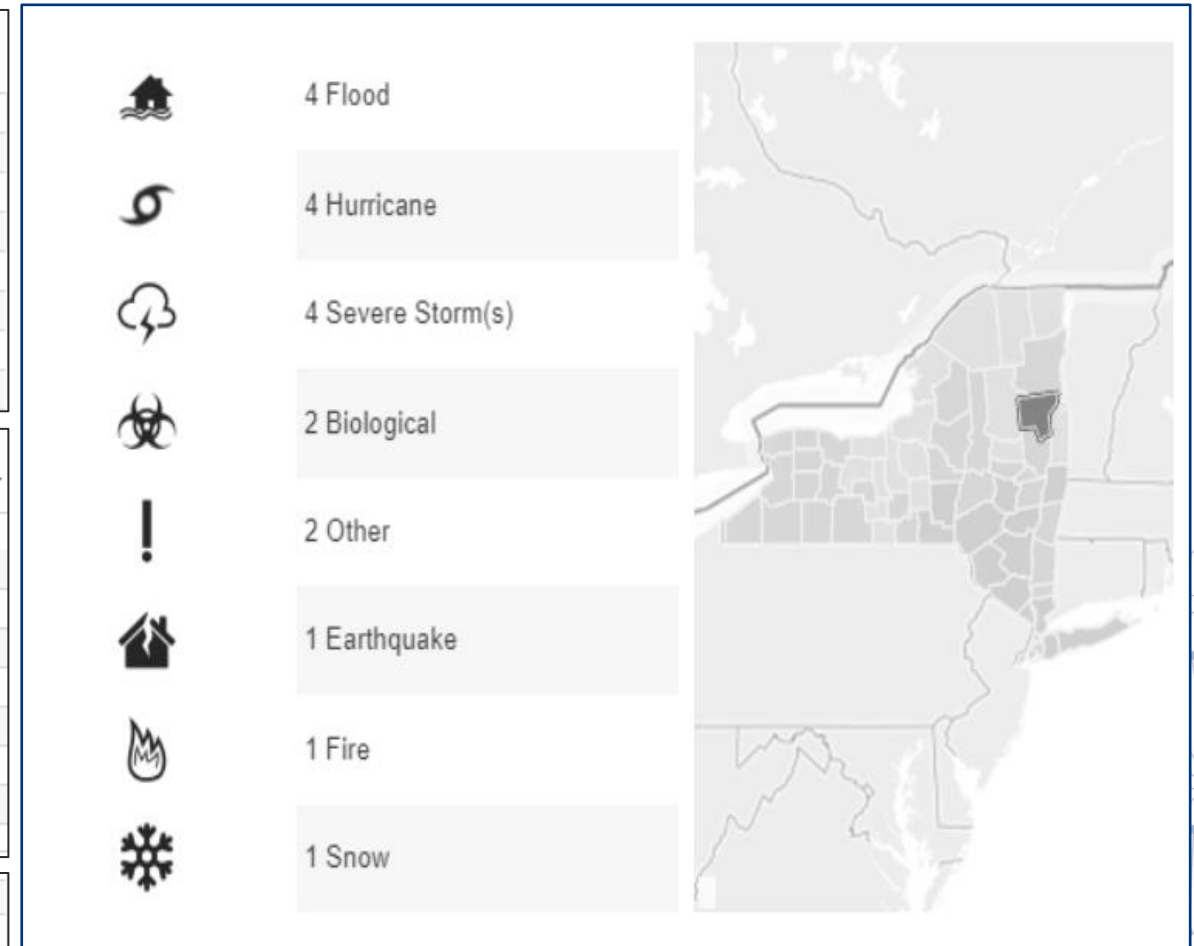


Hazard Mitigation – What's at Risk?

- FEMA Disaster Declarations

Year of Declaration Date	Declaration Title	Disaster Number
1976	SEVERE STORMS & FLOODING	515
1993	SEVERE BLIZZARD	3107
1996	SEVERE STORMS AND FLOODING	1095
1999	HURRICANE FLOYD MAJOR DISASTER DECLARATIONS	1296
2000	WEST NILE VIRUS	3155
2001	FIRES AND EXPLOSIONS	1391
2002	EARTHQUAKE	1415
2003	POWER OUTAGE	3186

Year of Declaration Date	Declaration Title	Disaster Number
2004	SEVERE STORMS AND FLOODING	1534
		1564
2005	HURRICANE KATRINA EVACUATION	3262
2010	SEVERE STORMS AND FLOODING	1899
2011	HURRICANE IRENE	4020
	SEVERE STORMS, FLOODING, TORNADOES, AND STRAIGHT-...	1993
2012	HURRICANE SANDY	3351
2013	SEVERE STORMS AND FLOODING	4129
2019	SEVERE STORMS, STRAIGHT-LINE WINDS, AND FLOODING	4472
2020	COVID-19	3434
	COVID-19 PANDEMIC	4480





2023 HMP Hazards of Concern

- Disease Outbreak
- Earthquake
- Extreme Temperatures
- Flood
- High Hazard Potential Dams
- Infestation
- Severe Storm (Windstorm, Thunderstorm, Hail, Tornado)
- Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)
- Wildfire



What is Risk?

✓ Hazard

- Source of potential danger or adverse condition

✓ Exposure

- Manmade or natural features that are exposed to the hazard

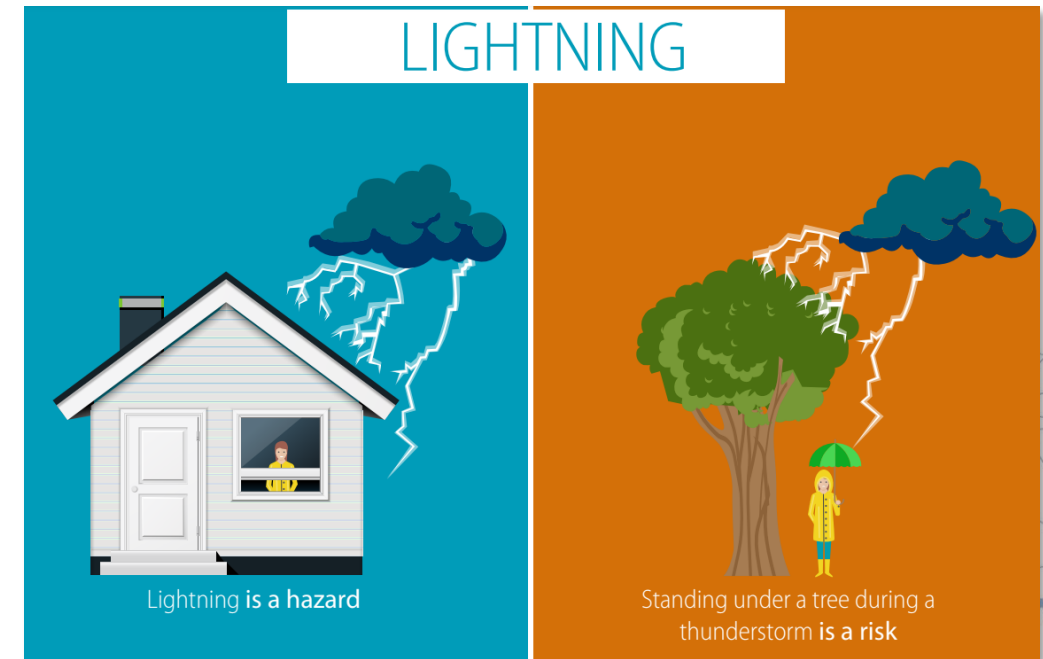
✓ Vulnerability

- Damage susceptibility of the exposed features

✓ Adaptive Capacity (or capability)

- Plans/policies
- Response/recovery
- Financial resources

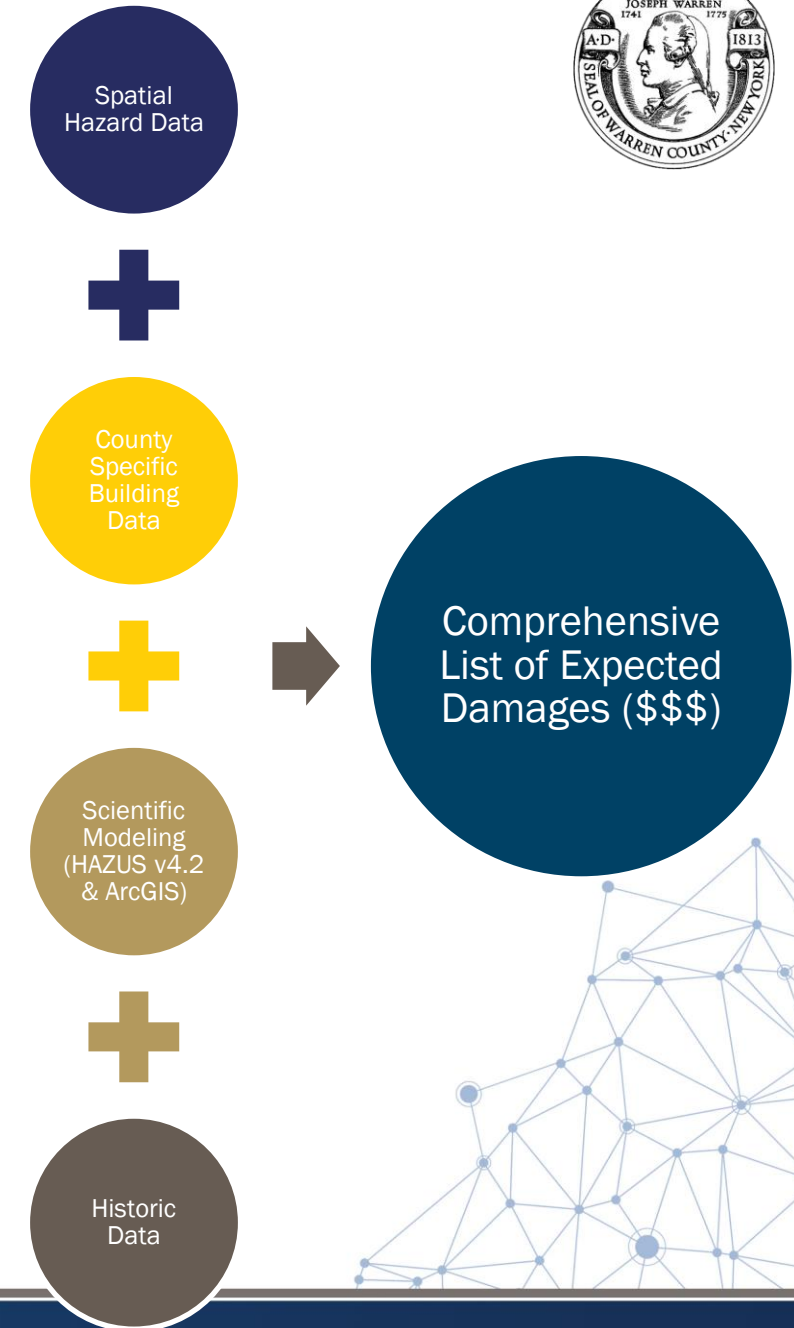
✓ Climate Change





Purpose of the Risk Assessment

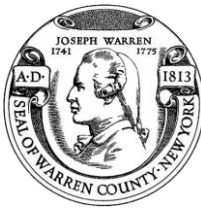
- To get a better understanding of the risks you face
- Initial results based on available data
- Quantitative data (population/structures exposed, structural damages within hazard zones) used when available
- Qualitative community input (such as unmapped flood areas) integrated to adjust results
- Local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



Preliminary Hazard Ranking

How are the rankings calculated?

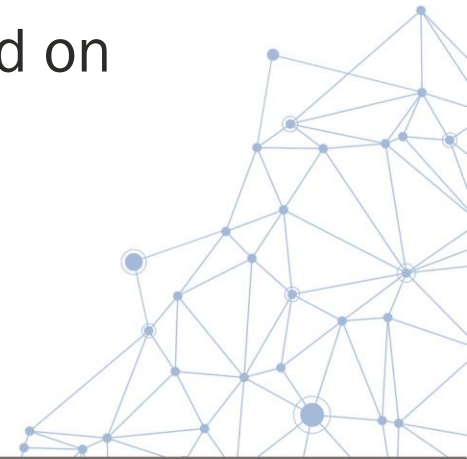




Preliminary Hazard Ranking Methodology

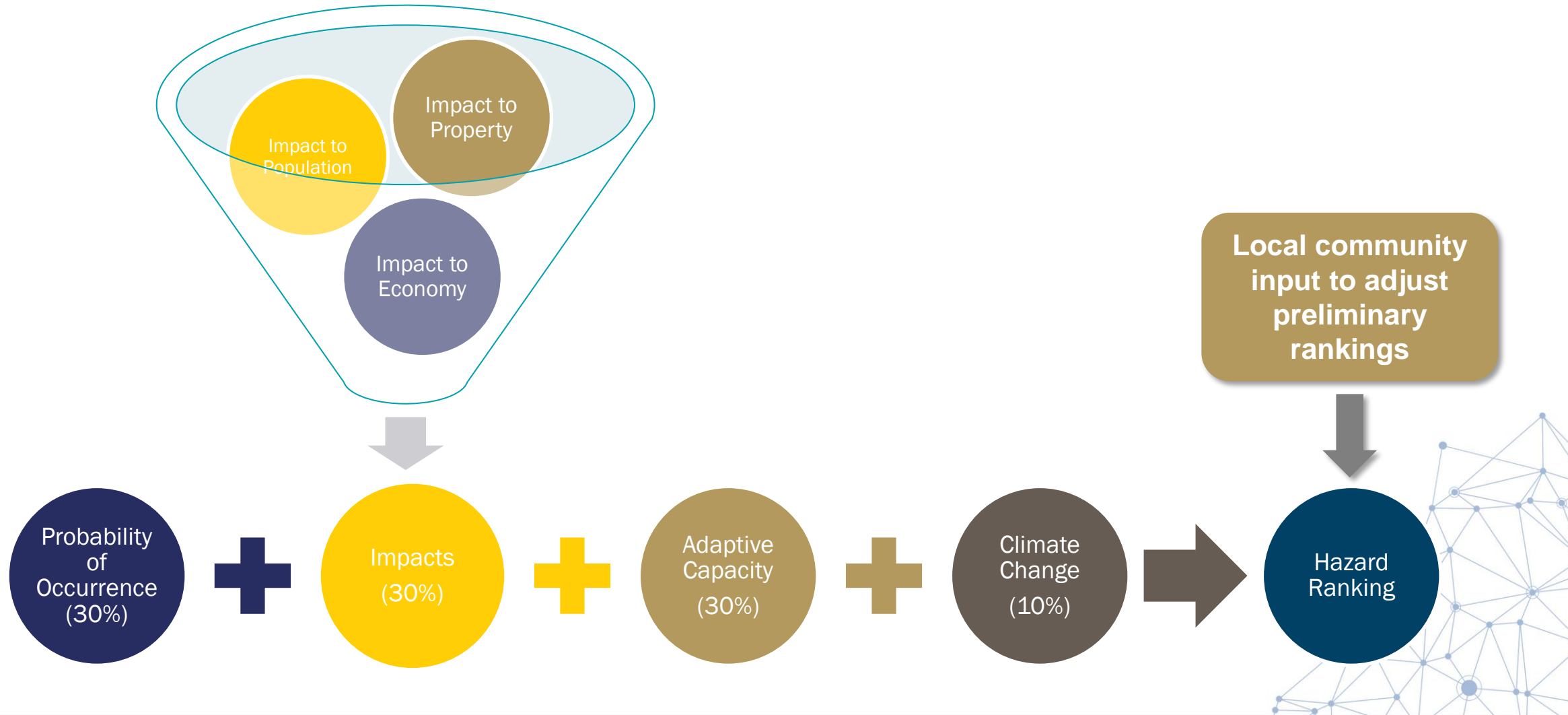
Hazard Ranking is determined by quantitative and qualitative factors including:

- The calculated probability of a hazard occurring based on historical data
- *Impacts to people, property, and the economy* based on GIS data and analysis of exposure.
- The degree to which climate change will affect future occurrences based on best available data.
- Capability- the ability of your community to respond to the hazard based on ordinances, mitigation strategies and procedures, and readiness.





Hazard Ranking Formula



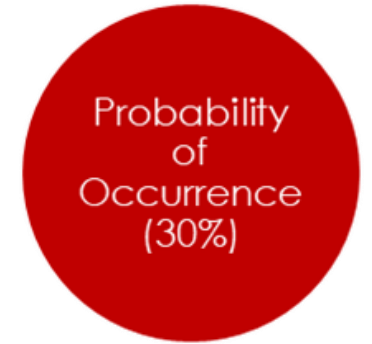
Ranking the Hazards of Concern

What information plays a role in determining the risk rankings?

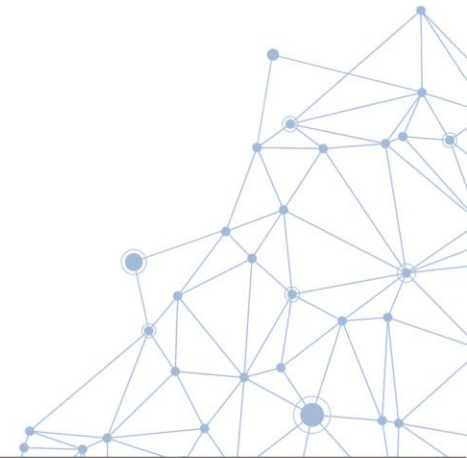


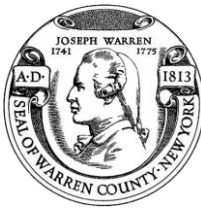


Probability Of Occurrence



- **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





Hazard Ranking Input

Impact on Population – Function of population exposed

- ✓ Low – 14% or less population exposed
- ✓ Medium – 15%-29% population exposed
- ✓ High – 30%+ population exposed

Impact on property – Function of structures exposed

- ✓ Low – 14% or less structures exposed
- ✓ Medium – 15%-29% structures exposed
- ✓ High – 30%+ structures exposed

Impact on economy – Function of damages to building stock

- ✓ Low – 9% or less loss estimate of total replacement cost
- ✓ Medium – 10%-19% loss estimate of total replacement cost
- ✓ High – 19%+ loss estimate of total replacement cost

Capability – Function of level of planning, policies, enforcement

- ✓ Weak – outdated policies; limited to no deployable resources; limited capabilities to respond; long recovery
- ✓ Moderate – minimum requirements; mitigation strategies identified but not implemented; moderate county capabilities
- ✓ Strong – exceed requirements; mitigation/protective measures in place; county/jurisdiction has ability to recover quickly because resources are readily available, and capabilities are high

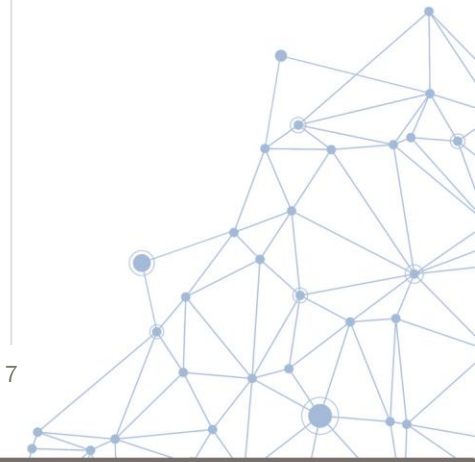
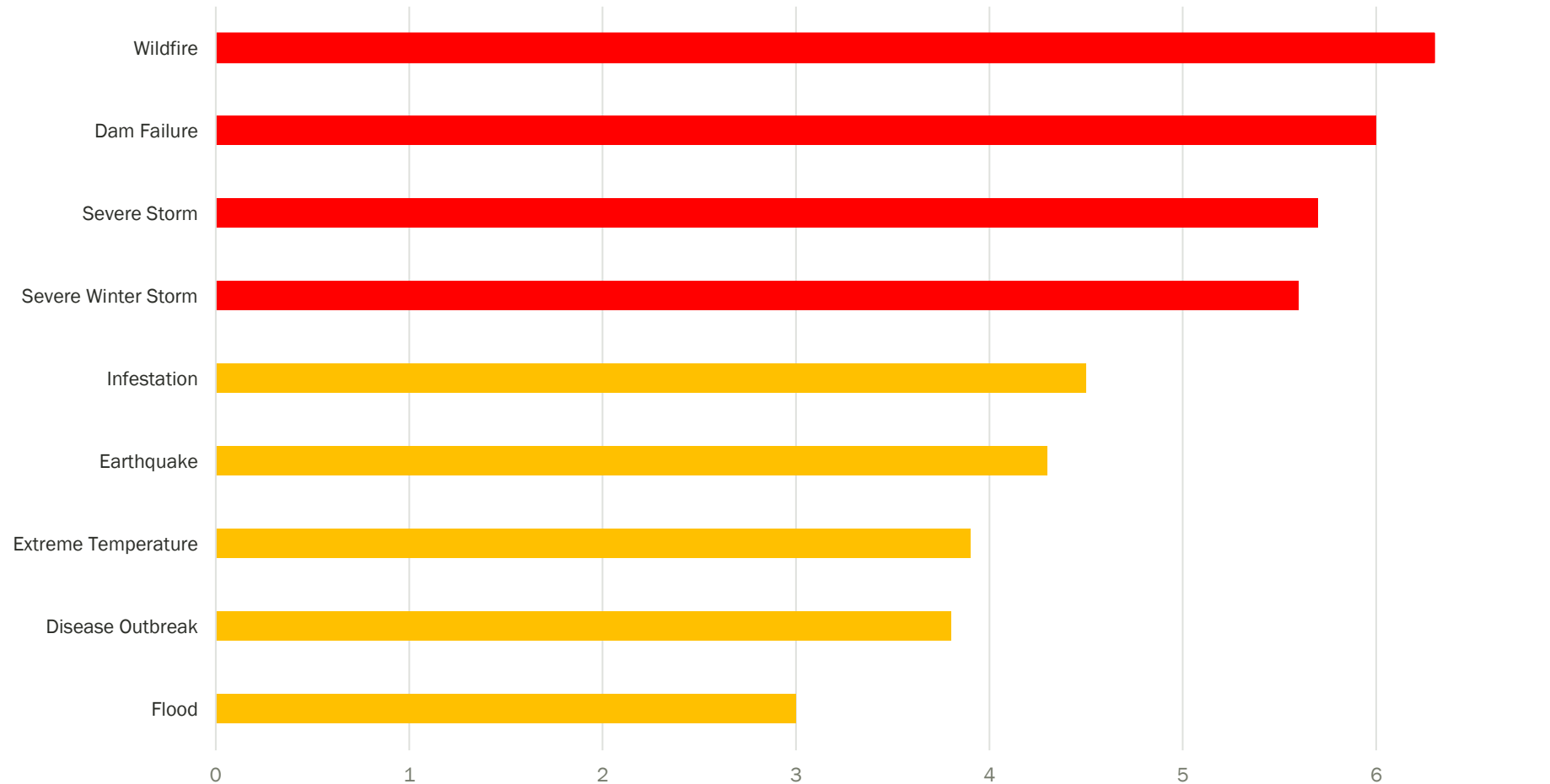
Climate Change – Function of climate predictions

- ✓ Low - No local data is available; modeling projects are uncertain on whether there is increased future risk; confidence level is low (inconclusive evidence)
- ✓ Medium - Studies and modeling projections indicate a potential for exacerbated conditions due to climate change
- ✓ High - Studies and modeling projections indicate exacerbated conditions/increased future risk due to climate change



Preliminary County Overall Risk Ranking

County Preliminary Relative Risk Rankings





Preliminary County Overall Risk Ranking

Hazard of Concern	2021 CEPA Ranking	2023 Calculated Risk Ranking	2017 Risk Ranking	2023 Adjusted Ranking
Earthquake	Low	Low	High	Medium
Extreme Temperature	-	Medium	-	Medium
Flood	Very High	Low	Medium	Medium
Severe Storm	Medium	High	High	High
Severe Winter Storm	High	High	High	High
Wildfire	Medium	High	High	High
Infestation	-	Medium	Medium	Medium
Dam Failure	-	High	-	High
Disease Outbreak/Pandemic	Medium	Low	Medium	Medium

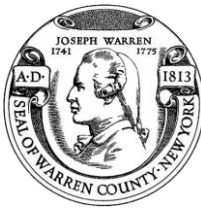
* Potential adjustments

Municipal Level Risk Ranking (Preliminary)



Municipality	Hazard Ranking								
	Earthquake	Extreme Temps	Flood	Severe Storm	Severe Winter Storm	Wildfire	Infestation	Dam Failure	Disease Outbreak
Bolton (T)	Low	Medium	Low	High	High	Medium	Medium	High	Medium
Chester (T)	Low	Medium	Medium	High	High	Low	Medium	High	Low
Glens Falls (C)	Medium	Medium	Low	High	High	High	Medium	Medium	Low
Hague (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Horicon (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Johnsburg (T)	Low	Medium	Low	High	High	Low	Medium	High	Medium
Lake George (T)	Low	Medium	Low	High	High	High	Medium	Medium	Medium
Lake George (V)	Low	Medium	Low	High	High	High	Medium	Low	Low
Lake Luzerne (T)	Medium	Medium	Medium	High	High	Medium	Medium	Medium	Low
Queensbury (T)	Medium	Medium	Medium	High	High	High	Medium	Medium	Low
Stony Creek (T)	Medium	Low	Low	High	High	Low	Medium	Medium	Low
Thurman (T)	Low	Medium	Low	High	High	Low	Medium	Medium	Medium
Warrensburg (T)	Medium	Medium	Medium	High	High	High	Medium	Medium	Low
Warren County	Medium	Medium	Medium	High	High	High	Medium	High	Medium

* adjusted



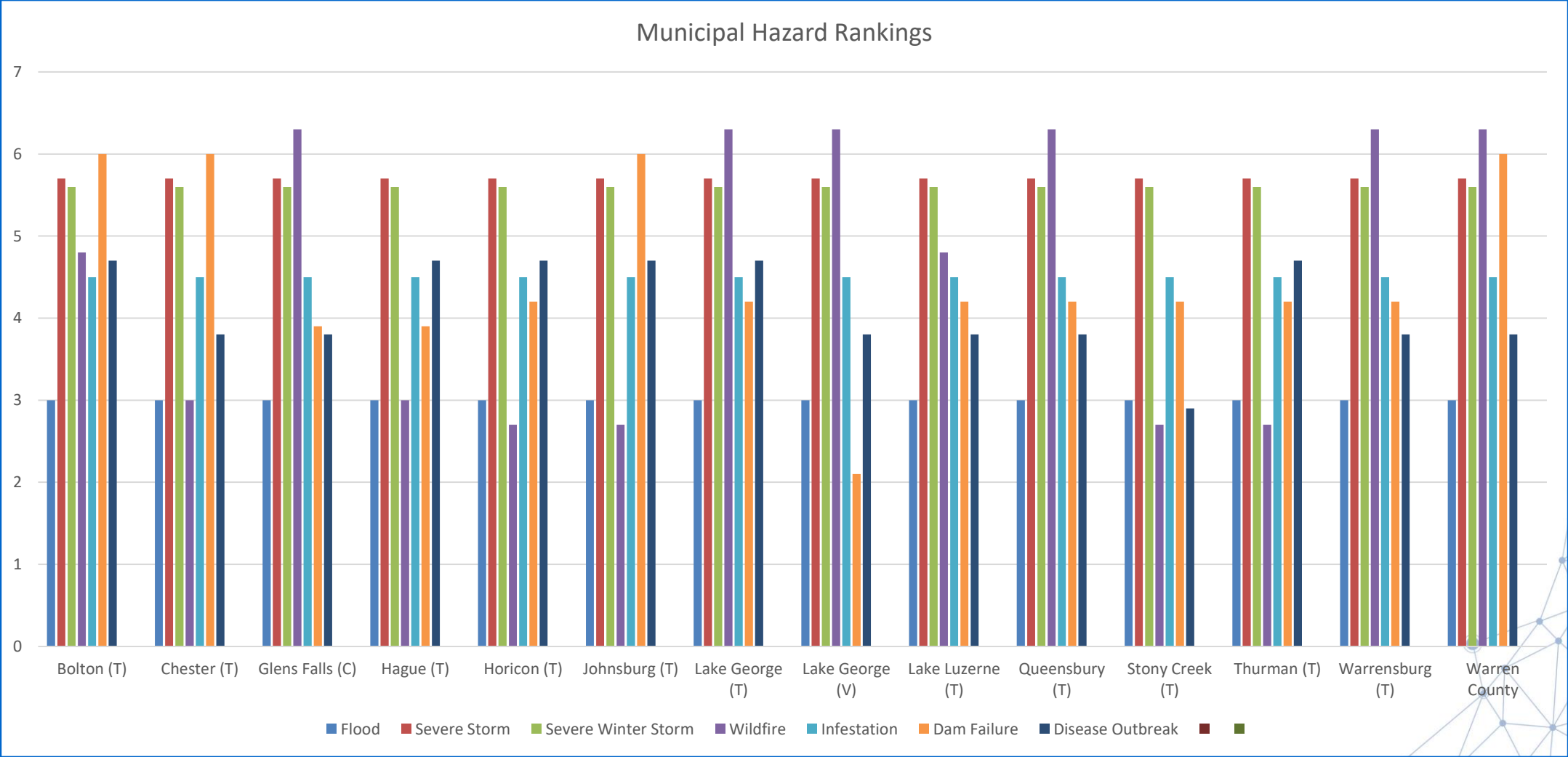
Public Input: Flood Hazard Events

In the past 10 years, which of the following hazard events have you experienced in Warren County? Check all that apply.





Preliminary Hazard Ranking – Warren County

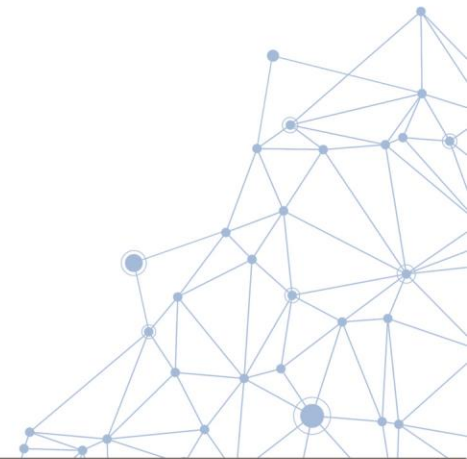




Earthquake

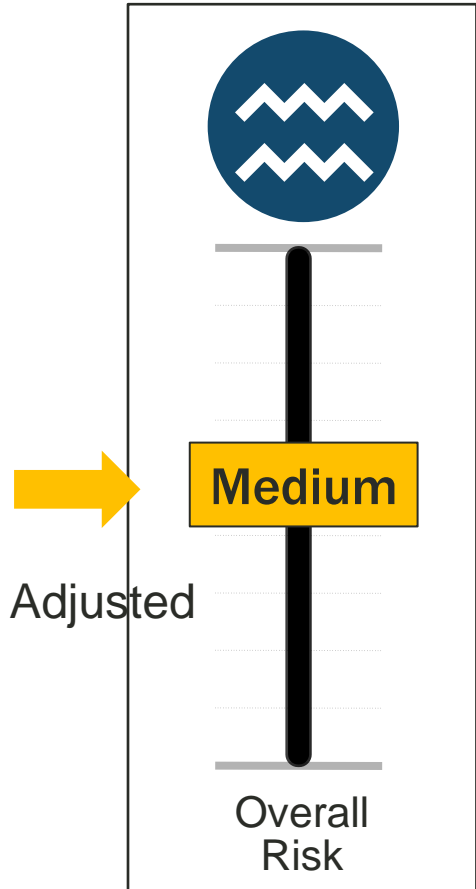
- Number of Events
 - 189 earthquakes epicentered in NYS with 4 epicentered in Warren County, per 2015 NYS HMP, between 1973 and 2014
 - Faults are located within the County
 - Individual Assistance (IA) declared for EMA declarations DR-1415 in Warren County (5/16/2002)
 - Impacts
 - 2 earthquake scenarios: 500-yr and 2500-yr events
 - People and structures located in areas with soils more susceptible to earthquakes

Warren County
Ranking
MEDIUM





Countywide Preliminary Risk Ranking: Earthquake



Probability of Occurrence: Rare



Impact on Population: Medium

65.6% of population is exposed and vulnerable (NEHRP D & E soils)



Impact on Property: High

48.7% of County building stock is exposed and vulnerable (NEHRP D & E soils)



Impact on Economy: Low

\$1.9% of Structural Replacement Cost Value damaged



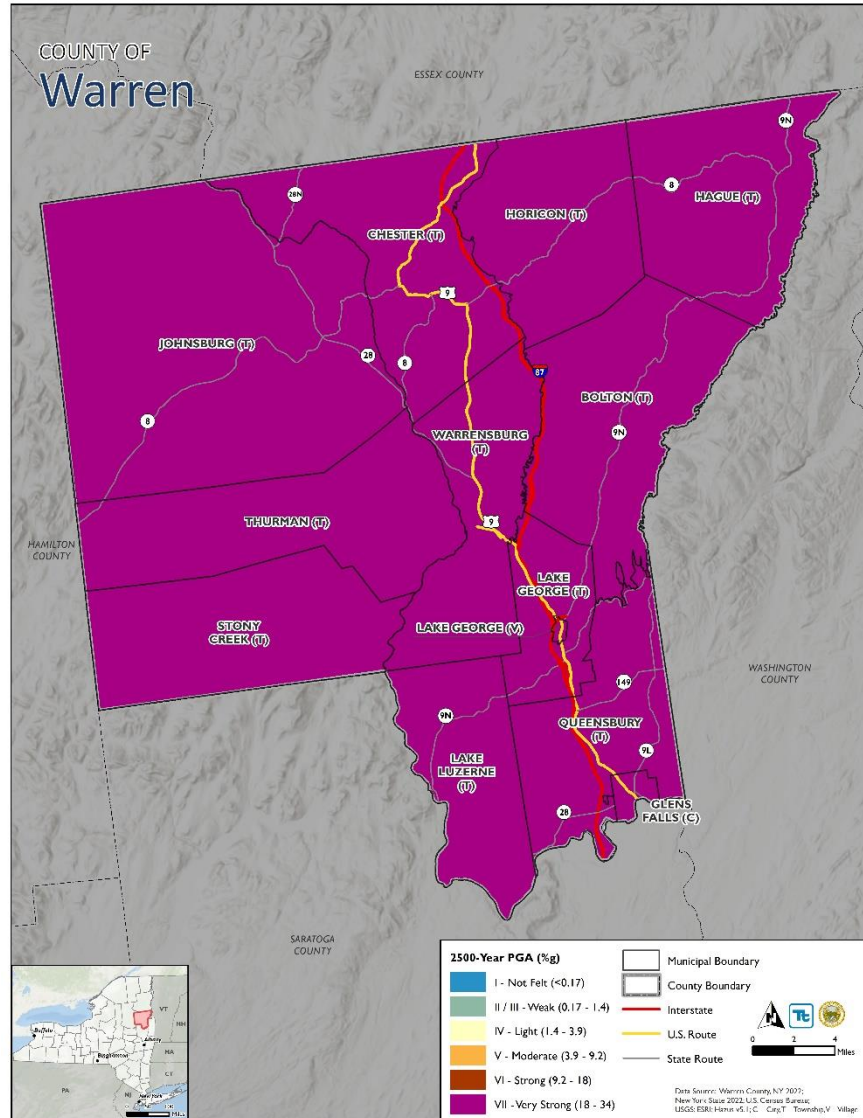
Adaptive Capacity: Medium for all municipalities



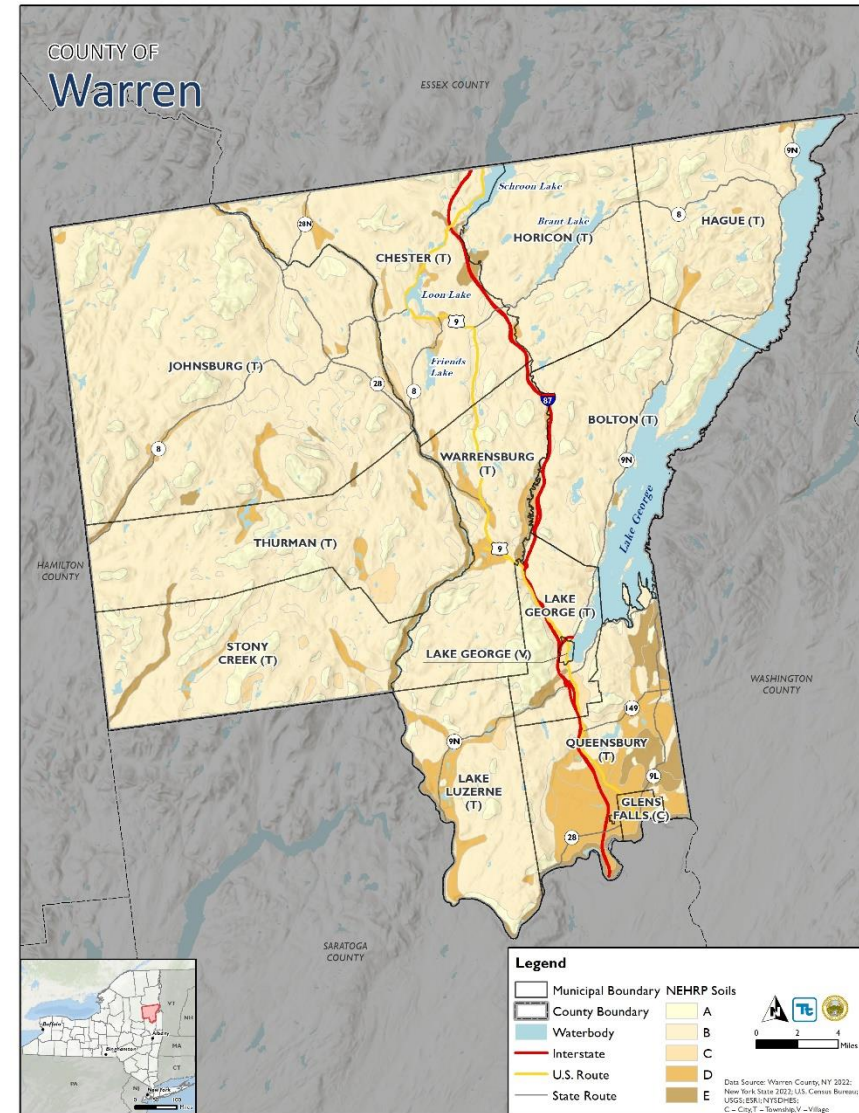
Climate Change: Low for all municipalities



Peak Ground Acceleration



NEHRP Soil Class

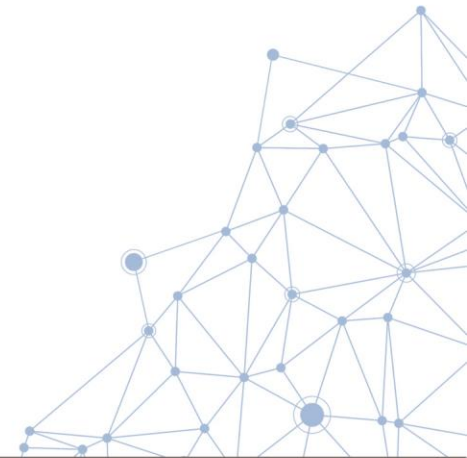




Flood

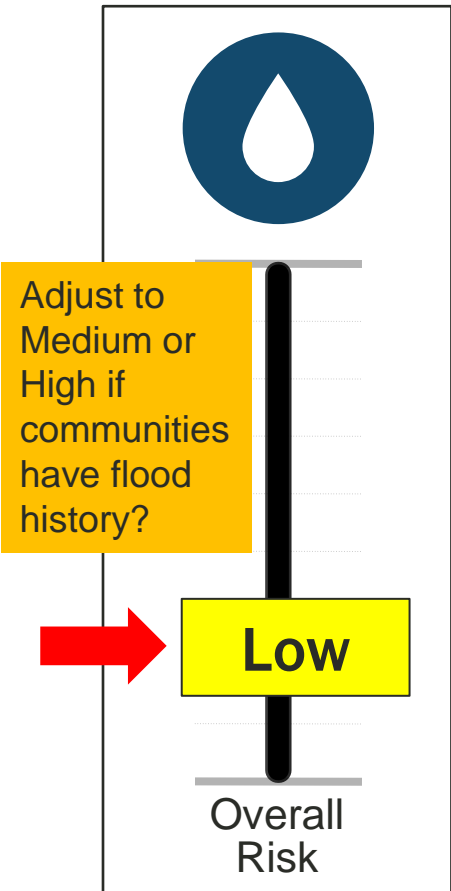
- Previous Events
 - Riverine, flash, and stormwater flooding
 - Between 2000 and 2022, Warren County included in 2 FEMA flood-related declarations.
 - FEMA-DR-1993 (Severe Storms Tornadoes, Winds and Flooding) – April 26, 2011
 - FEMA-DR-4129 (Severe Storms, and Flooding) – July 2013
- Exposure
 - People and property located in the 1% annual chance flood area

Warren County
Ranking
LOW





Countywide Preliminary Risk Ranking: Flood



Probability of Occurrence: Occasional or Frequent



Impact on Population: Low

1,385 people (2.1% of the population) in the SFHA



Impact on Property: Low

1,252 buildings (3.1% of total County buildings) in the SFHA; 1 Rep Loss



Impact on Economy: Low

\$721 M Replacement Cost Value (RCV) (3% of County total RCV) located in the Regulatory Floodplain



Adaptive Capacity: Medium for all municipalities



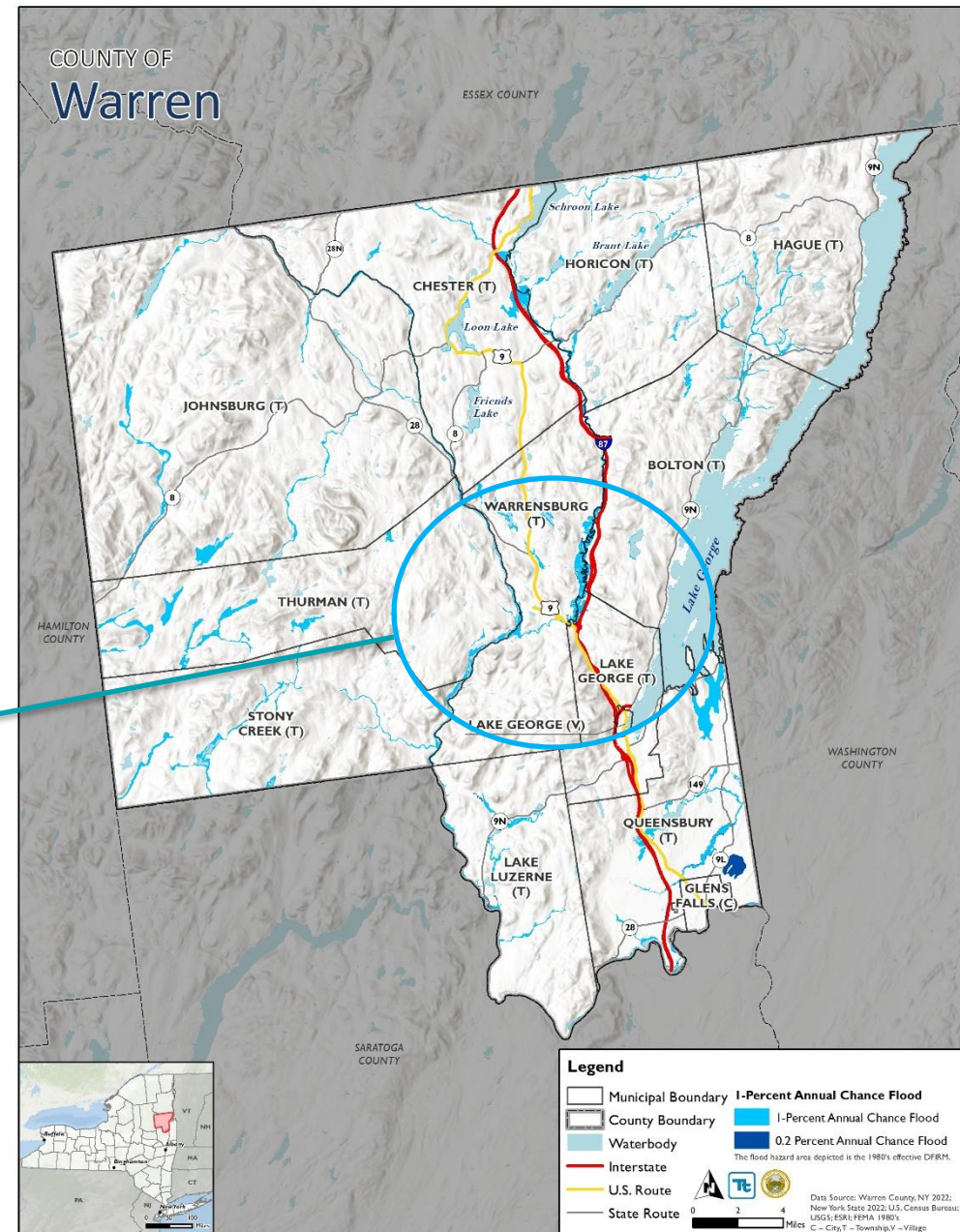
Climate Change: High for all municipalities



Preliminary 2023 vs. 2017 Rankings (Flood)

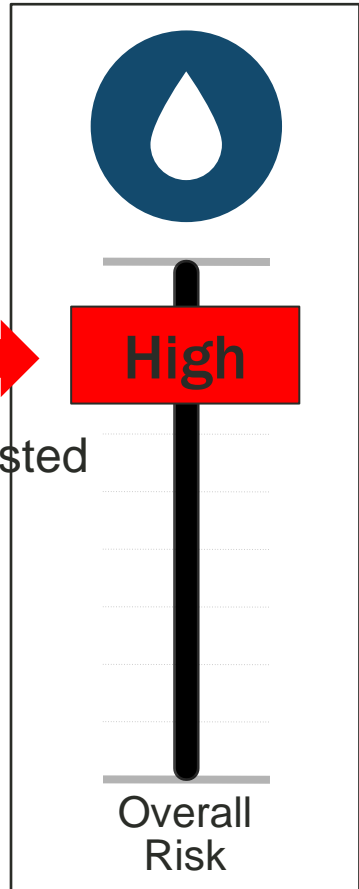
Warren County Municipality	IMPACT ON POPULATION	IMPACT ON PROPERTY	IMPACT ON ECONOMY	RISK RANKING	RISK RANKING
	Percent Population Exposed (1-Percent Annual Chance Flood Event)	Percent of Total Buildings in 1% Flood Area	Percent of Total GBS RCV	2023 Estimated	2017
Bolton (T)	6.5%	6.6%	6.5%	Low	Medium
Chester (T)	8.5%	8.2%	7.6%	Low	Medium
Glens Falls (C)	0.0%	0.1%	1.0%	Low	Medium
Hague (T)	7.1%	7.0%	3.2%	Low	Medium
Horicon (T)	5.2%	5.2%	7.2%	Low	Medium
Johnsburg (T)	2.3%	2.4%	3.8%	Low	Medium
Lake George (T)	2.6%	2.5%	1.0%	Low	Medium
Lake George (V)	0.2%	1.1%	1.2%	Low	Medium
Lake Luzerne (T)	6.5%	6.3%	3.6%	Low	Medium
Queensbury (T)	1.3%	1.4%	2.1%	Low	Medium
Stony Creek (T)	3.0%	3.2%	3.8%	Low	Medium
Thurman (T)	0.7%	0.8%	0.5%	Low	Medium
Warrensburg (T)	3.7%	3.9%	2.7%	Low	High
Warren County	2.1%	3.1%	3.0%	Low	Medium

Flood Hazard Areas





Countywide Preliminary Risk Ranking: Dam Failure



Probability of Occurrence: Rare



Impact on Population: High

216 people in inundation areas



Impact on Property: High

254 buildings (0.6% of total County buildings) located in inundation areas



Impact on Economy: High

\$130 M Replacement Cost Value (RCV) (0.5% of County total RCV) in inundation areas

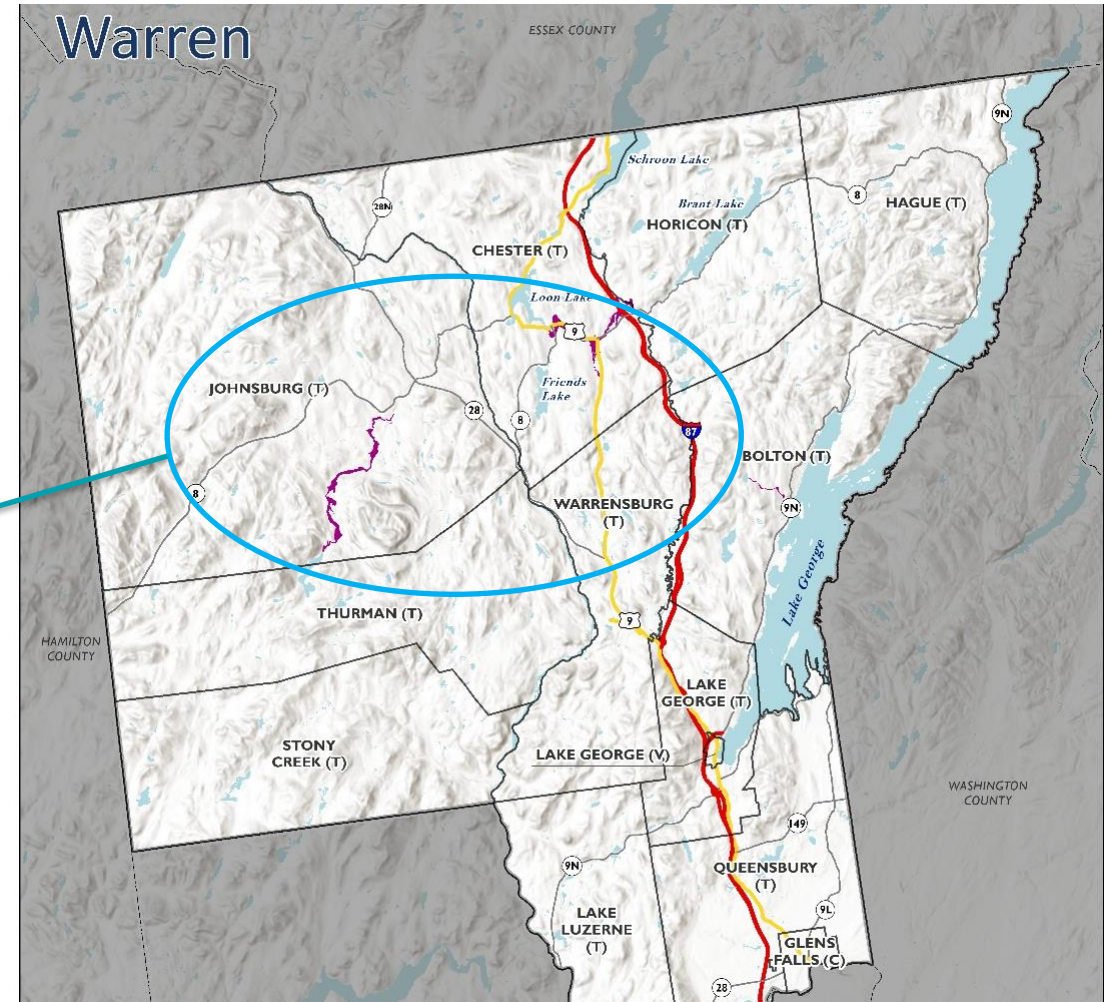


Adaptive Capacity: Medium for all municipalities



Climate Change: High for all municipalities

Dam Inundation Areas





Severe Storm

- Previous Events

- Hazard includes lightning, hail, and windstorms
- FEMA-DR-4472 (Severe Storms, Straight-line Winds and Flooding) – October 2019
- Between 2016 and 2022, Warren County was included in 1 FEMA severe storm-related declaration.
- According to the NOAA, 5 tornado events took place in Warren County between 1950 and 2022

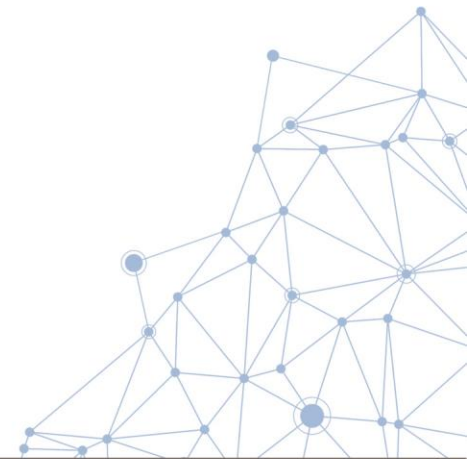
Warren County
Ranking
HIGH

- Exposure

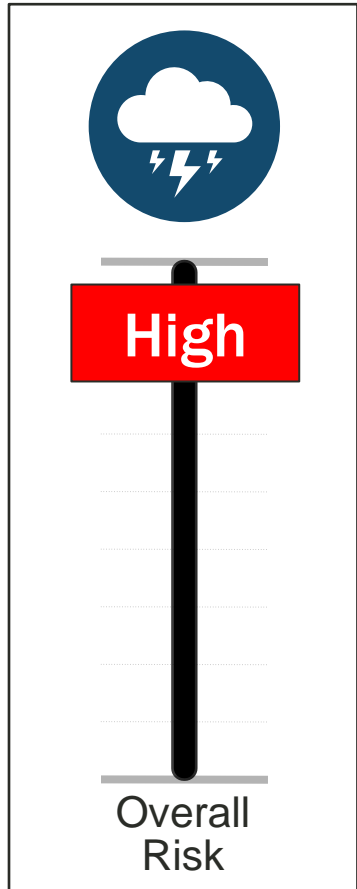
- Population and property exposed to 100-year peak wind gusts (Tropical Storm-39 to 73 mph) and 500-year (Tropical Storm speeds)
- All people and property exposed and vulnerable

- Potential Impacts

- Power outages
- Critical facility and infrastructure damage



Countywide Preliminary Risk Ranking: Severe Storm



Probability of Occurrence: Frequent



Impact on Population: High

Entire population is exposed and vulnerable



Impact on Property: High

Entire building stock is exposed and vulnerable



Impact on Economy: Low

\$4.8 M (less than 1%) general building stock loss for a 500-year event



Adaptive Capacity: High for all municipalities



Climate Change: High for all municipalities

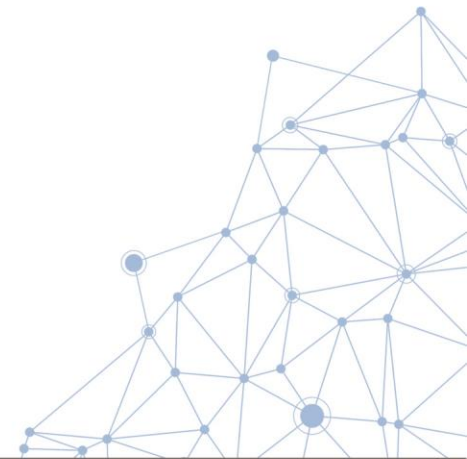


Wildfire

- Previous Events

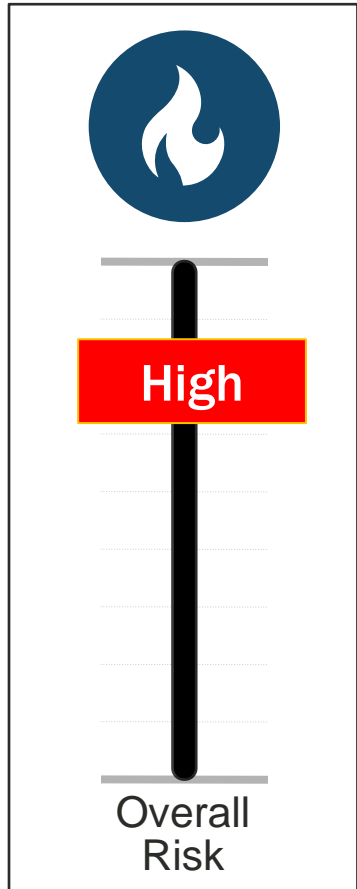
- The NYS HMP identified wildfire as a hazard of concern for New York State, however the daily probability of a wildfire event for the state is .09 percent.
- Warren County was included in one FEMA fire declaration; however, it was a manmade terrorist attack.
- According to the 2020 Warren County CEPA, the wildfire hazard is ranked medium.
- Exposure
 - People and property located in Wildfire Urban Interface WUI.

Warren County
Ranking
HIGH





Countywide Preliminary Risk Ranking: Wildfire



Probability of Occurrence: Occasional



Impact on Population: High

44.4% of population exposed to the WUI Interface



Impact on Property: High

14,488 buildings (35.9 % of County total) exposed to WUI Interface



Impact on Economy: High

\$8.6M in RCV 35.4% of County total) exposed to WUI Interface

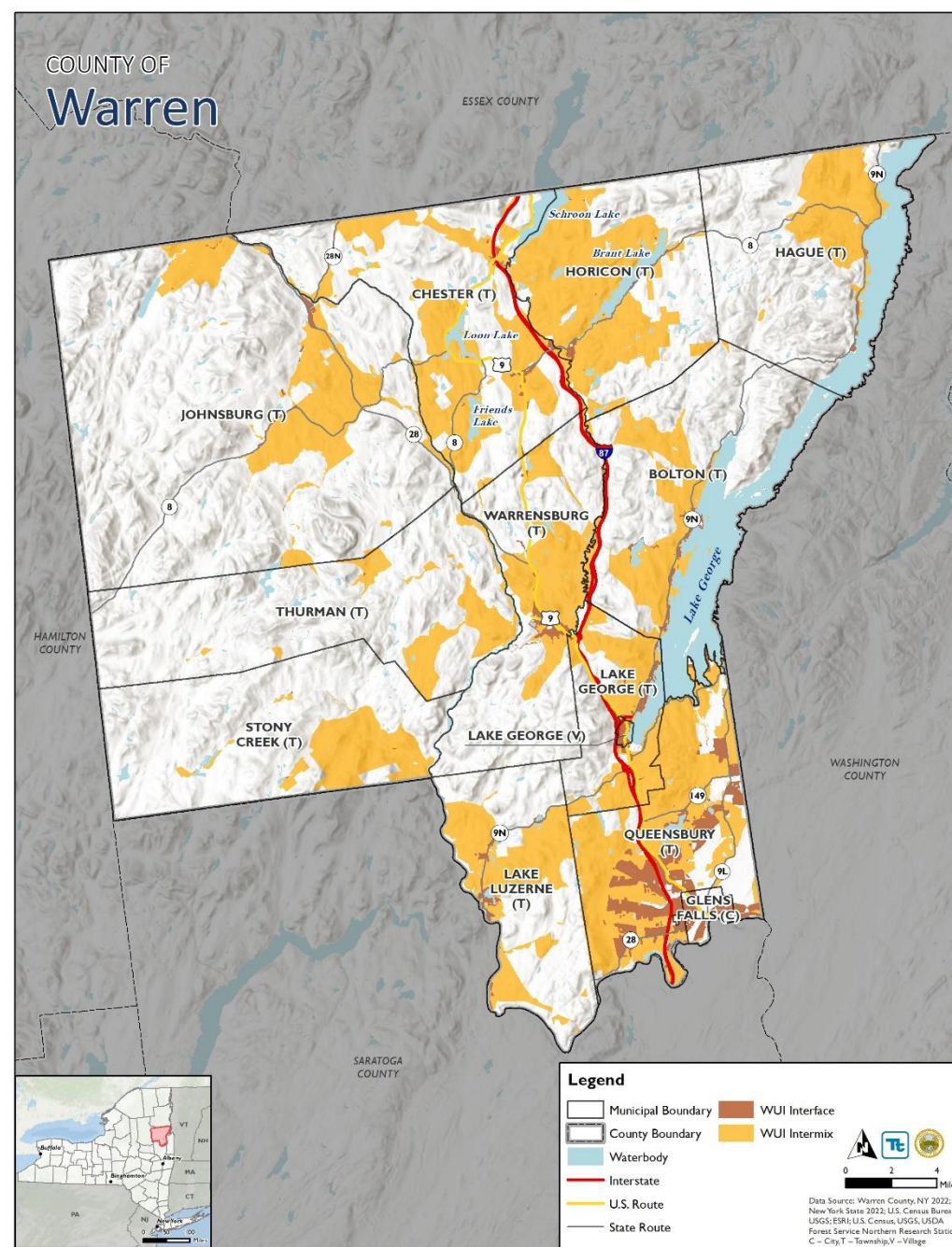
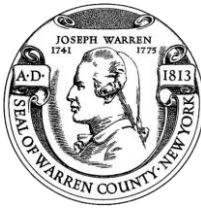


Adaptive Capacity: Medium for all municipalities



Climate Change: High for all municipalities

Wildland Urban Interface/Intermix Area

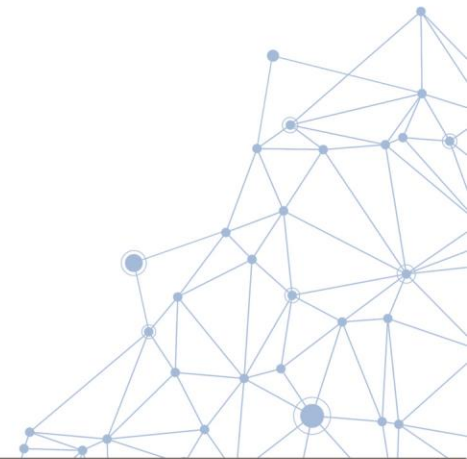




Severe Winter Storm

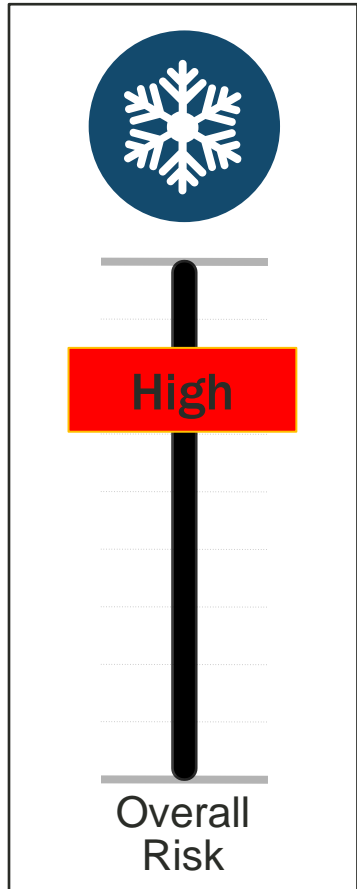
- Hazard includes heavy snow, blizzards, ice storms
- Previous Events
 - FEMA included Warren County in one winter storm-related disaster declaration
 - FEMA-EM-3107 (Severe Blizzard) – March 1993
- Exposure
 - All people and property exposed and vulnerable
- Potential Impacts
 - Power outages
 - Critical facility and infrastructure damage
 - Transportation interruptions/accidents

Warren County
Ranking
HIGH





Countywide Preliminary Risk Ranking: Severe Winter Storm



Probability of Occurrence: Frequent



Impact on Population: High

Entire population is exposed and vulnerable



Impact on Property: High

Entire building stock is exposed and vulnerable; however, impacts are minimal



Impact on Economy: Low

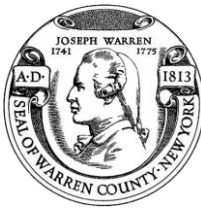
\$1.2M (5%) potential losses to building stock



Adaptive Capacity: High for all municipalities



Climate Change: Medium for all municipalities

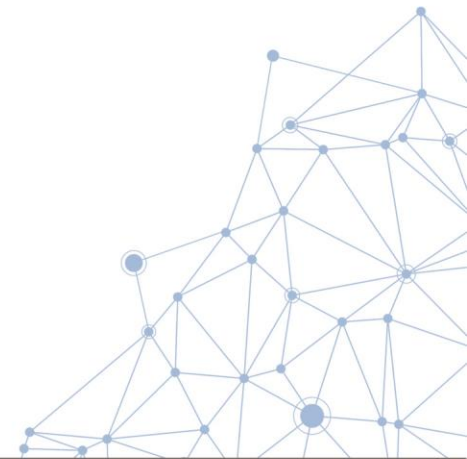


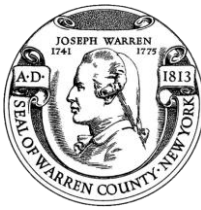
Disease Outbreak/Pandemic

- Previous Events

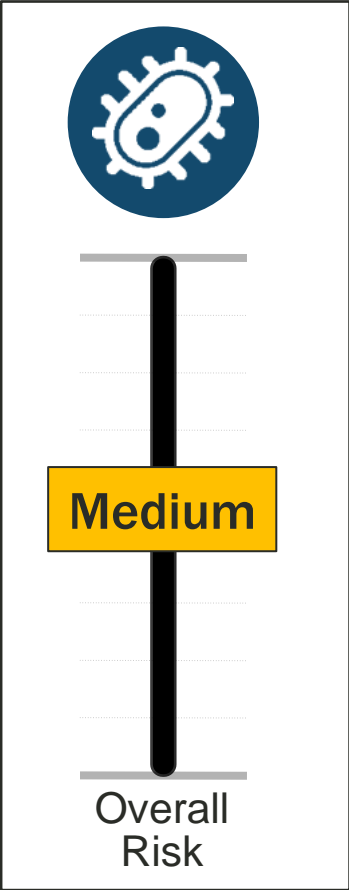
- According to the 2020 Warren County CEPA, the pandemic hazard is ranked medium.
- The County has been impacted by the COVID-19 pandemic (DR-4480).
- The County has been impacted by various diseases (COVID-19, West Nile Virus, Lyme disease)
- Exposure
 - Entire County is exposed and vulnerable; however, not occurring multiple times a year with significant impacts
 - Severe events can lead to staffing and bed shortages in hospitals

Warren County
Ranking
MEDIUM





Countywide Preliminary Risk Ranking: Disease Outbreak



Probability of Occurrence: Occasional

Impact on Population: Medium
(14,754 County residents are 65+ years and 2,850 >5 years (26.8 % of County population))

Impact on Property: Low

Impact on Economy: Medium

Adaptive Capacity: Medium for all municipalities

Climate Change: Medium for all municipalities

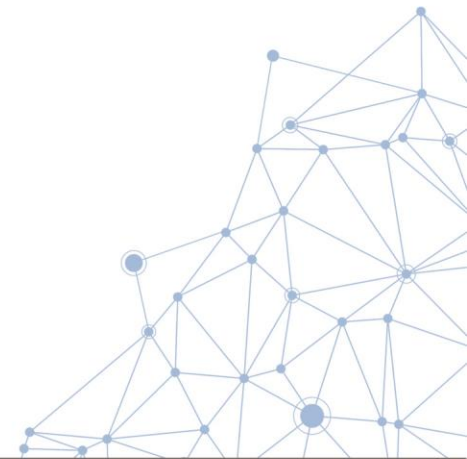




Extreme Temperature

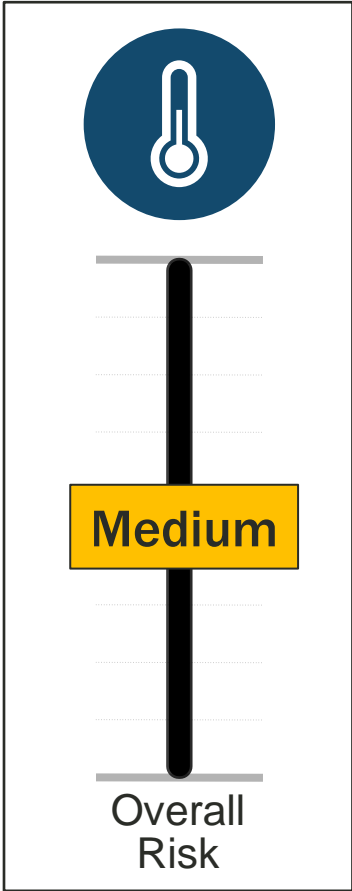
- Previous Events
 - Hot and cold events
- Exposure
 - Entire County is vulnerable
 - Increased vulnerability to populations at higher risk (65+ / <5 years old)
- Potential impacts:
 - Increased wildfire/brush fire risk
 - Impacts to agriculture/farms
 - Long-periods of warm temperatures can lead to drought conditions







Warren County
Ranking
MEDIUM





Countywide Preliminary Risk Ranking: Extreme Temps



-  **Probability of Occurrence: Occasional**
-  **Impact on Population: Medium**
17,604 County residents are 65+ years old or >5 years (26.8% of County population)
-  **Impact on Property: Low**
-  **Impact on Economy: Medium**
-  **Adaptive Capacity: Medium for all municipalities**
-  **Climate Change: High for all municipalities**





Infestation and Invasive Species

- Previous Events

- Beaver Dam Failure, March 2022
- Hemlock Woolly Adelgid, Lake George, 2017
- Emerald Ash Borer (EAB), Shroon River, 2022

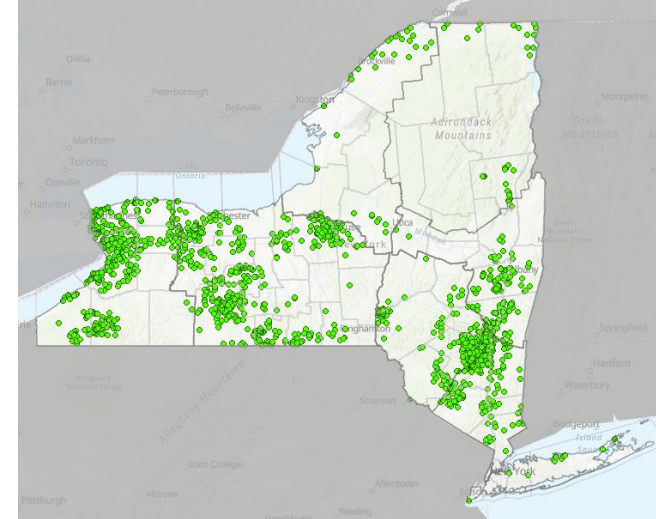
- Exposure

- Entire County is vulnerable

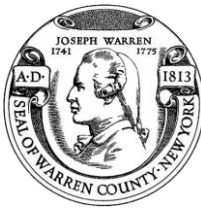
- Potential impacts:

- Soil destabilization
- Increased wildfire risk
- Impacts to agriculture/farms

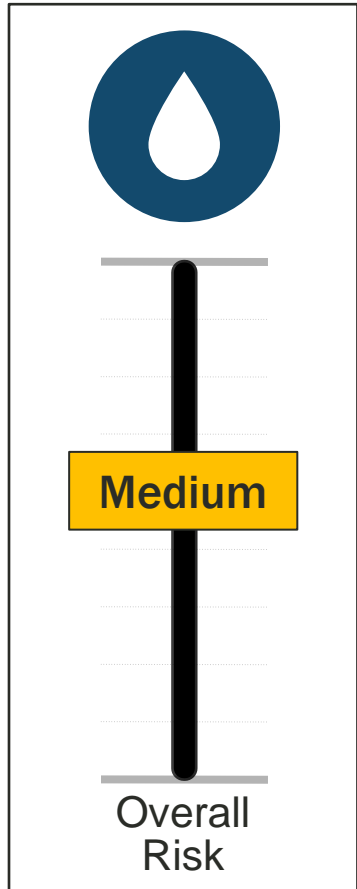
Warren County
Ranking
MEDIUM



EAB – Source: New York Invasive Species Network 2019



Countywide Preliminary Risk Ranking: Infestation



Probability of Occurrence: Occasional



Impact on Population: Medium



Impact on Property: Medium



Impact on Economy: Medium

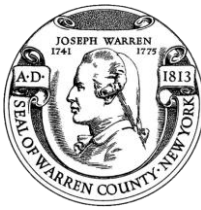


Adaptive Capacity: Medium for all municipalities



Climate Change: High for all municipalities





Next Steps

- Update Risk Assessment
 - Prepare results to present to planning partners
 - Populate adjusted results municipal annexes
 - Planning Partnership Risk Assessment Meeting: February 15, 2023
 - Public Involvement Strategy – ongoing throughout the planning process
- Mitigation Strategy
 - Begin working with the municipalities to develop mitigation strategy/actions: **February 2023**
 - Mitigation Strategy Workshop with FEMA and NYSDHSES – **March 15, 2023**



Questions?



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Thank
You!