




**Tt TETRA TECH**

# Rockland County Hazard Mitigation Plan 2024 Update

**Planning Partnership Risk Assessment Meeting**  
**December 13, 2023 | 10:00 am**


*Leading with Science®*

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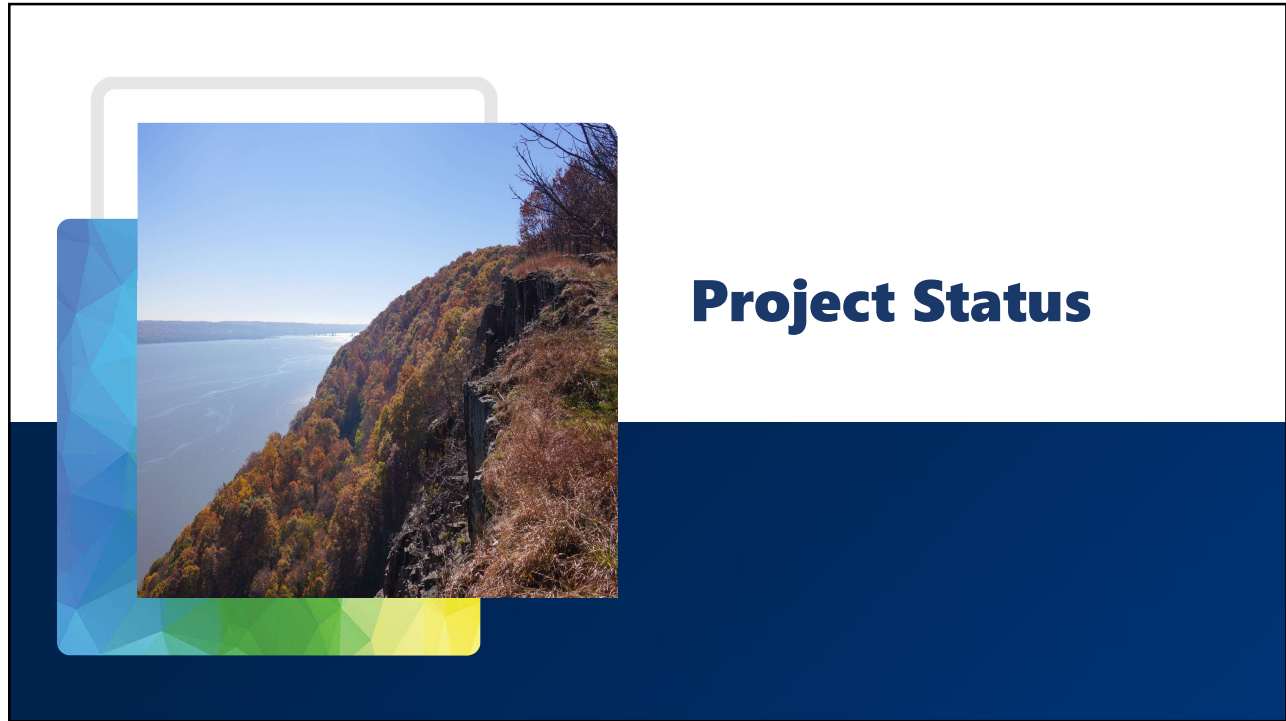


## Today's Agenda

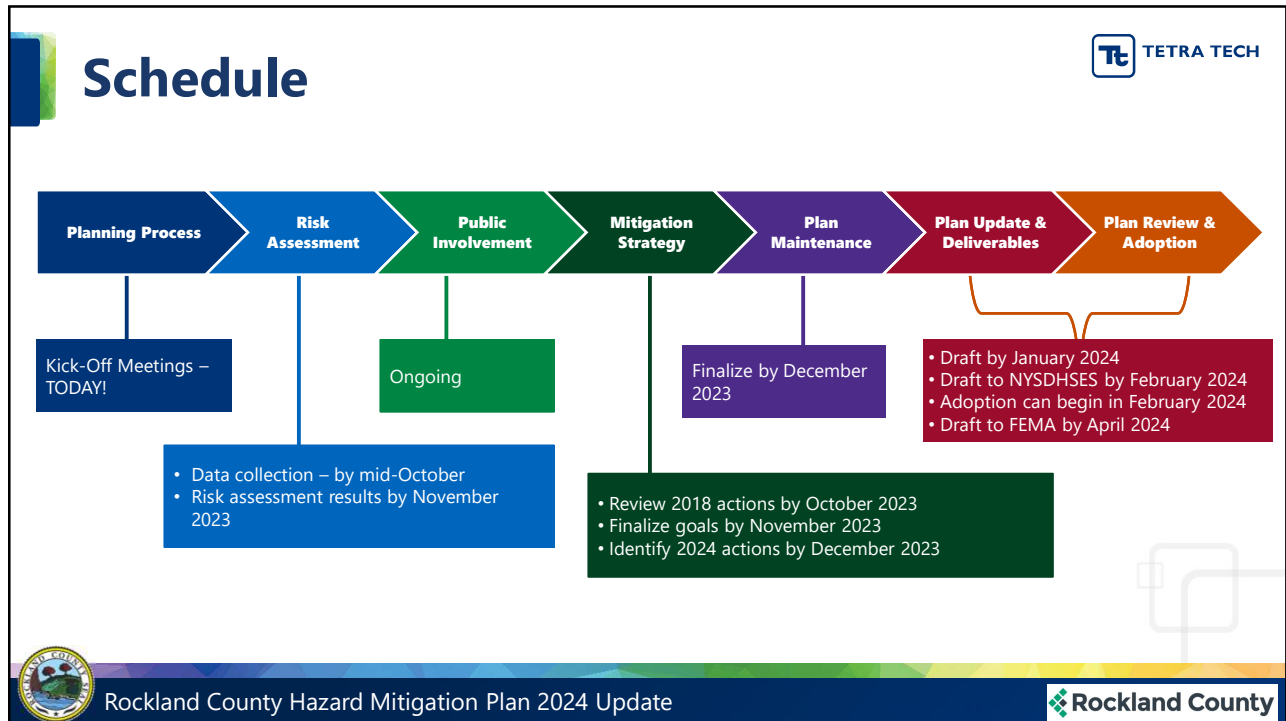
1. Welcome
2. Progress Report
3. Public and Stakeholder Outreach
4. Risk Assessment Overview
5. Hazard Ranking
6. SWOO
7. Schedule
8. Questions/Wrap Up



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# Municipal Participation Status




Jurisdiction	Participating?	Status	Jurisdiction	Participating?	Status
Rockland County	Yes	Annex up-to-date	Orangetown (T)	Yes	Annex updated; need status of 2019 actions
Airmont (V)	Yes	Annex up-to-date	Piermont (V)	Yes	Annex up-to-date
Chestnut Ridge (V)	Yes	Annex up-to-date	Pomona (V)	Yes	Annex updated; need status of 2019 actions
Clarkstown (T)	Yes	Annex updated; need status of 2019 actions	Ramapo (T)	Yes	Annex up-to-date
Grand View-on-Hudson (V)	Yes	Annex updated; need status of 2019 actions	Sloatsburg (V)	Yes	Annex up-to-date
Haverstraw (T)	Yes	Missing NFIP input; need status of 2019 actions	Spring Valley (V)	Yes	Annex updated; need status of 2019 actions
Haverstraw (V)	Yes	Missing hazard event history and NFIP input; need status of 2019 actions	Stony Point (T)	Yes	Annex up-to-date
Hillburn (V)	Yes	Annex up-to-date	Suffern (V)	Yes	Missing hazard event history and NFIP input; need status of 2019 actions
Kaser (V)	Yes	Missing hazard event history and NFIP input; need status of 2019 actions	Upper Nyack (V)	Yes	Annex updated; need status of 2019 actions
Montebello (V)	Yes	Missing hazard event history and NFIP input; need status of 2019 actions	Wesley Hills (V)	Yes	Annex up-to-date
New Hempstead (V)	Yes	Annex updated; need status of 2019 actions	West Haverstraw (V)	Yes	Missing NFIP input; need status of 2019 actions
New Square (V)	Yes	Missing hazard event history and NFIP input; need status of 2019 actions			
Nyack (V)	Yes	Annex updated; need status of 2019 actions			





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# Public and Stakeholder Outreach




- Public Outreach Toolkit –
  - Social media templates and posts
  - Printable materials
- Surveys
  - Stakeholders
  - Neighboring communities
  - Public
- HMP website - <https://rocklandhmp.com/>
- StoryMap – Coming Soon!


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## Risk Assessment Overview and Results

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## 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*




**RISK = HAZARD x EXPOSURE**


**HAZARD vs RISK**

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



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





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## 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

Spatial Hazard Data  
+  
County Specific Building Data  
+  
Scientific Modeling (HAZUS v5 & ArcGIS)  
+  
Historic Data  
→ Comprehensive List of Expected Damages (\$\$\$)

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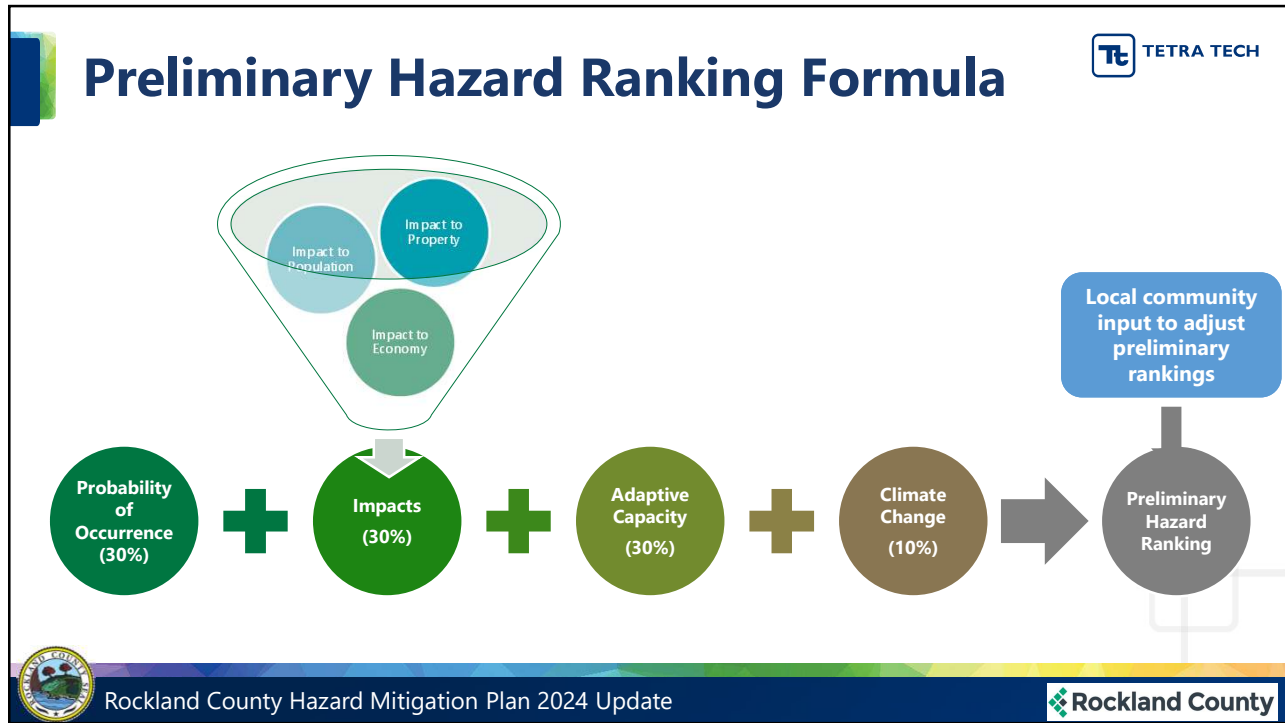
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## What We Looked At

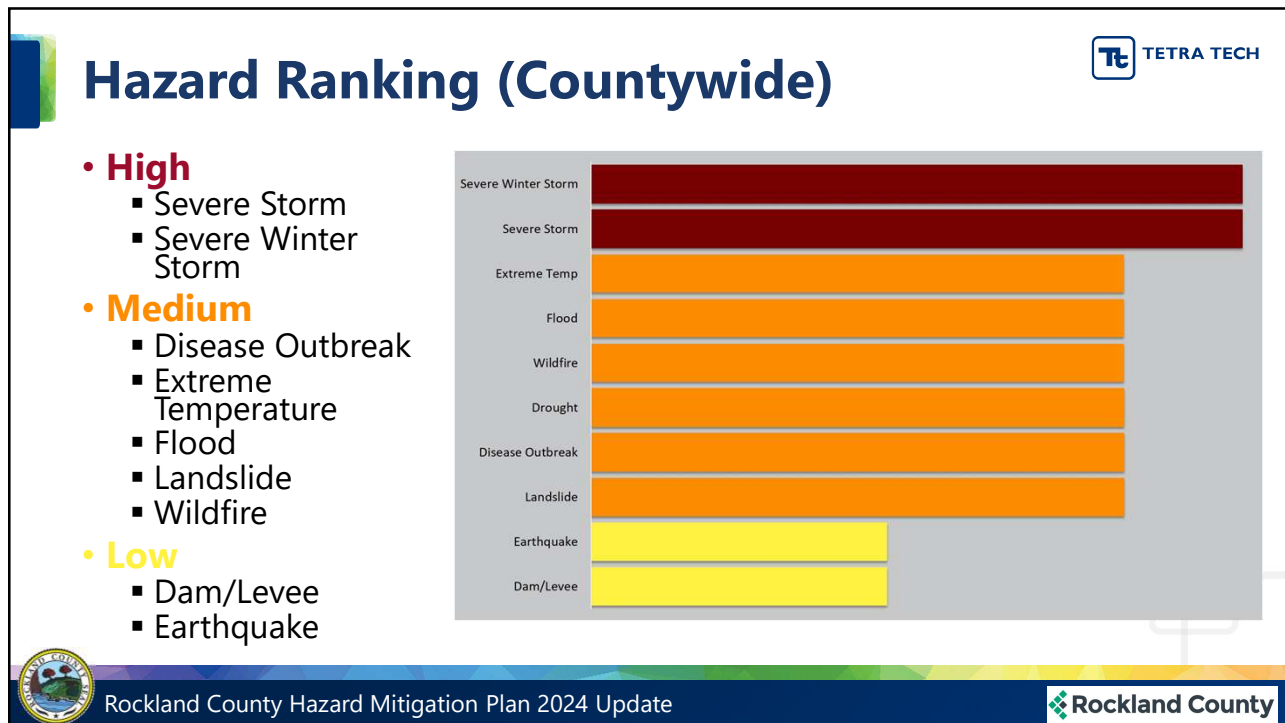
Hazard	Population	Property	Economy
Dam/Levee Failure	General and vulnerable populations in dam inundation areas	Buildings and lifelines in dam inundation areas	Replacement cost values of buildings in dam inundation areas
Disease Outbreak	Entire population exposed/vulnerable	Entire building stock exposed/vulnerable	Entire building stock exposed/vulnerable
Drought	Entire population exposed/vulnerable	Entire building stock exposed/vulnerable	Entire building stock exposed/vulnerable
Earthquake	General and vulnerable populations in Class D & E NEHRP Soils	Buildings and lifelines in Class D & E NEHRP Soils	Replacement cost values of buildings in Class D & E NEHRP Soils
Extreme Temperature	Entire population exposed/vulnerable	Entire building stock exposed/vulnerable	Entire building stock exposed/vulnerable
Flood	General and vulnerable populations in 1% SFHA	Buildings and lifelines in 1% SFHA	Replacement cost values of buildings in 1% SFHA
Landslide	General and vulnerable populations in high landslide incidence areas	Buildings and lifelines in high landslide incidence areas	Replacement cost values of buildings in high landslide incidence areas
Severe Storm	Entire population exposed/vulnerable	Entire building stock exposed/vulnerable	Entire building stock exposed/vulnerable
Severe Winter Storm	Entire population exposed/vulnerable	Entire building stock exposed/vulnerable	Entire building stock exposed/vulnerable
Wildfire	General and vulnerable populations in Wildland/Urban Interface Areas	Buildings and lifelines in Wildland/Urban Interface Areas	Replacement cost values of buildings in Wildland/Urban Interface Areas

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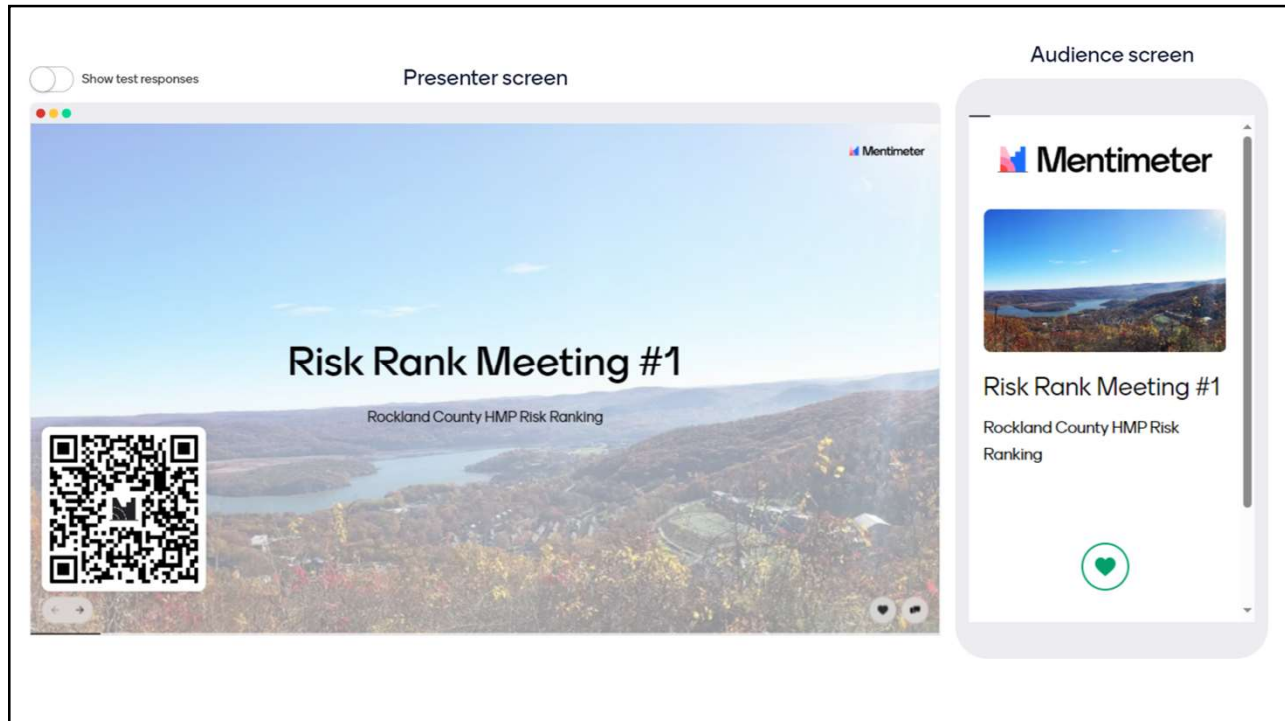
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## Municipal Hazard Rankings (Preliminary)

Jurisdictions	Hazard Ranking									
	Dam/Levee	Disease Outbreak	Drought	Earthquake	Extreme Temp	Flood	Landslide	Severe Weather	Severe Winter Weather	Wildfire
Airmont, Village of	Low	Medium	Medium	Low	Medium	Low	Low	High	High	Low
Chestnut Ridge, Village of	Low	Medium	Medium	Low	Medium	Medium	Low	High	High	Medium
Clarkstown, Town of	Low	Medium	Medium	Low	Medium	Medium	Low	High	High	Medium
Grand View on Hudson, Village of	Low	Medium	Medium	Low	Medium	Low	Low	High	High	Medium
Haverstraw, Town of	Low	Medium	Medium	Medium	Medium	Medium	High	High	High	Medium
Haverstraw, Village of	Low	Medium	Medium	Medium	Medium	Medium	Low	High	High	Medium
Hillburn, Village of	Low	Medium	Medium	Medium	Medium	Medium	Low	High	High	Medium
Kaser, Village of	Low	Medium	Medium	Low	Medium	Low	Low	High	High	Low
Montebello, Village of	Low	Medium	Medium	Low	Medium	Medium	Low	High	High	Medium
New Hempstead, Village of	Low	Medium	Medium	Low	Medium	Medium	Low	High	High	Medium
New Square, Village of	Low	Medium	Medium	Low	Medium	Medium	Low	High	High	Low
Nyack, Village of	Low	Medium	Medium	Low	Medium	Medium	Low	High	High	Medium
Orangetown, Town of	Low	Medium	Medium	Low	Medium	Medium	Low	High	High	Medium
Piermont, Village of	Low	Medium	Medium	Medium	Medium	Medium	Low	High	High	Medium
Pomona, Village of	Low	Medium	Medium	Low	Medium	Medium	High	High	High	Medium
Ramapo, Town of	Low	Medium	Medium	Low	Medium	Medium	Low	High	High	Medium
Sloatsburg, Village of	High	Medium	Medium	Medium	Medium	Medium	Low	High	High	Medium
Spring Valley, Village of	Low	Medium	Medium	Low	Medium	Medium	Low	High	High	Low
Stony Point, Town of	Low	Medium	Medium	Low	Medium	Medium	High	High	High	Medium
Suffern, Village of	Low	Medium	Medium	Medium	Medium	Medium	Low	High	High	Medium
Upper Nyack, Village of	Low	Medium	Medium	Low	Medium	Medium	Low	High	High	Medium
Wesley Hills, Village of	Low	Medium	Medium	Low	Medium	Medium	Low	High	High	Medium
West Haverstraw, Village of	Low	Medium	Medium	Medium	Medium	Medium	High	High	High	Medium
<b>Rockland County (Total)</b>	<b>Low</b>	<b>Medium</b>	<b>Medium</b>	<b>Low</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>High</b>	<b>High</b>	<b>Medium</b>

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# Review Preliminary Rankings

**Hazard Ranking Review**

Please send all electronic Word versions of this worksheet to Emma (Tetra Tech) by January 3rd  
Email: emma.kilkelly@tetratech.com

Jurisdiction: Albion, NY

Name/Title of Individual Completing Worksheet: \_\_\_\_\_

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

Hazard Ranking is determined by quantitative and qualitative factors including:

- 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.
- Adaptive Capacity, which is the ability your community has to respond to the hazard based on ordinances, mitigation strategies and procedures, and readiness.

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


**Table 1. 2023 HMP Municipal Hazard Rankings**

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


**Table 2. 2024 HMP Municipal Adaptive Capacity**

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


# Review Preliminary Rankings



Hazard	Preliminary 2024 Ranking Based on RA Results	Agree with draft hazard ranking (Y/N)? If no, indicate the preferred ranking.	What changes in mitigation or other conditions have resulted in the change in hazard ranking since 2019?
Dam Failure	Low	Yes	
Disease Outbreak	Medium	Yes	
Drought	Low	Yes	
Earthquake	Low	Yes	
Extreme Temperature	Medium	Yes	
Flood	Low	No - high	Stormwater flooding causes significant damage; flood should be ranked as high
Landslide	High	No - low	No landslide history; developed parts of the city are relatively flat
Severe Weather	High	Yes	
Severe Winter Weather	Medium	No - high	The City experiences significant impacts of winter weather each year
Wildfire	Low	Yes	



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# Review Preliminary Adaptive Capacity



Hazard	Preliminary Adaptive Capacity (Capabilities)	What should we indicate for your community's adaptive capacity for each hazard?
Dam Failure	Moderate	
Disease Outbreak	Moderate	
Drought	Moderate	Weak – many residents rely on surface water and we do not have backup water sources in the event of a severe drought
Earthquake	Moderate	
Extreme Temperature	Moderate	
Flood	Moderate	
Landslide	Moderate	
Severe Storm	Moderate	
Severe Winter Storm	Moderate	Strong – the City deals with winter weather each year and have the capabilities and staffing to respond appropriately
Wildfire	Moderate	



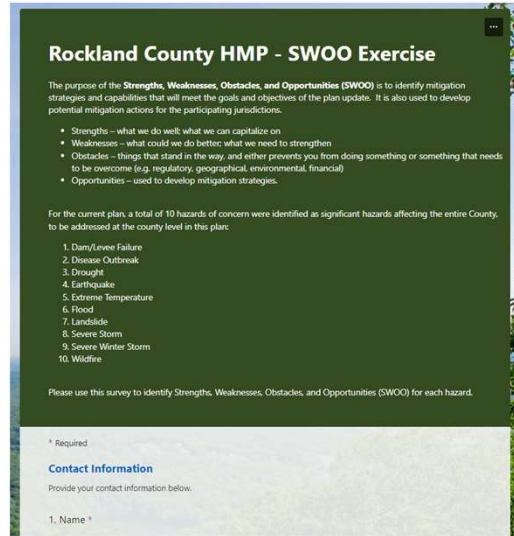
## Strengths, Weaknesses, Obstacles, and Opportunities (SWOO)

Fill out your SWOO worksheet to provide more information on capabilities, risks, and potential new actions

# 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 for the Rockland County HMP. Look at the following for each hazard of concern:
  - **Strengths** – what the County and communities do well; things upon which we can capitalize;
  - **Weaknesses** – what can be done better; what can be strengthened;
  - **Obstacles** – what stands in the way to implementation to prevent mitigation or response (for example regulatory, geographical, environmental, financial issues); and
  - **Opportunities** - actions or projects to mitigate issues or improve resilience.




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## Next Steps and Questions


# Next Steps



- Complete the hazard ranking and SWOO worksheets
  - Turn in before the end of the meeting!
- Take a 10 minute break and we will reconvene to go over the mitigation strategy



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**Rockland County Project Contacts**

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Thank You!

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