



**Tt TETRA TECH**

# Franklin County, Ohio Hazard Mitigation Plan – 2023 Update

**Core Planning Team Meeting – Review  
Preliminary Hazard Ranking**  
April 14, 2023

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

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# 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

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# Participation Status




- Annex updates are in progress
- Next round of worksheets (online forms) will go out after the April 27<sup>th</sup> meeting
  - Feedback on hazard ranking
  - Mitigation actions
  - For the CPT, we will distribute these next week

- Franklin County
- **Bexley (C)**
- Blendon (Twp)
- **Brice (V)**
- **Brown (Twp)**
- Canal Winchester (C)
- Clinton (Twp)
- **Columbus (C)**
- Dublin (C)
- Franklin (Twp)
- **Gahanna (C)**
- Grandview Heights (C)
- Grove City (C)
- Groveport (C)
- Hamilton (Twp)
- **Harrisburg (V)**
- Hilliard (C)
- **Jackson (Twp)**
- Jefferson (Twp)
- Lockbourne (V)
- Madison (Twp)
- Marble Cliff (V)
- **Mifflin (Twp)**
- Minerva Park (V)
- New Albany (C)
- **Norwich (Twp)**
- Obetz (C)
- Perry (Twp)
- Plain (Twp)
- Pleasant (Twp)
- Prairie (Twp)
- **Reynoldsburg (C)**
- Sharon (Twp)
- Truro (Twp)
- Upper Arlington (C)
- **Urbancrest (V)**
- **Valleyview (V)**
- Washington (Twp)
- Westerville (C)
- **Whitehall (C)**
- Worthington (C)
- **The Ohio State University**




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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://www.franklincountyohhmp.com/>
- Planning Team meetings open to the public and stakeholders
- Thank you for helping with this!

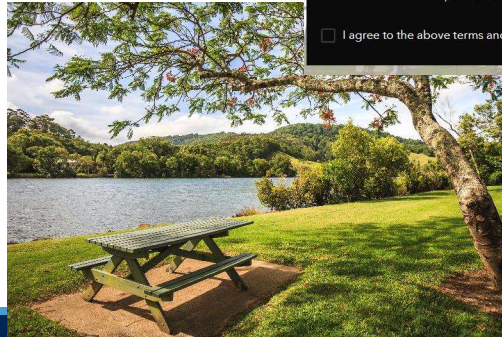
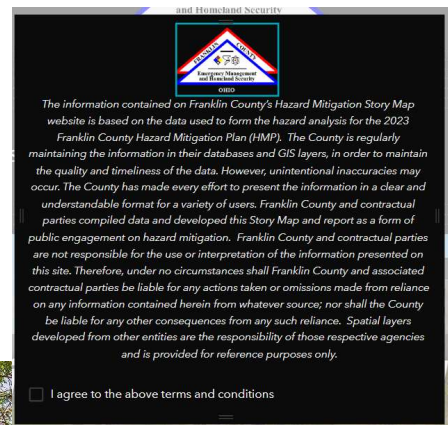




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## StoryMap

- Disclaimer when site accessed
- Photos of green/open space, parks, etc.



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## Risk Assessment

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



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## Hazards of Concern (2023 HMP)



- Dam/Levee Failure
- Disease Outbreak
- Drought
- Earthquake
- Extreme Temperature (heat/cold)
- Flooding (inland, flash, urban/stormwater, ice jam)
- Geologic Hazards (sinkholes, erosion)
- Invasive Species
- Severe Summer Weather
- Severe Winter Weather
- Tornadoes

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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*



### 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

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## Preliminary Hazard Ranking Formula

+

+

+


→

Local community input to adjust preliminary rankings

↓


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




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



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# How did we measure impact?




### Capacity

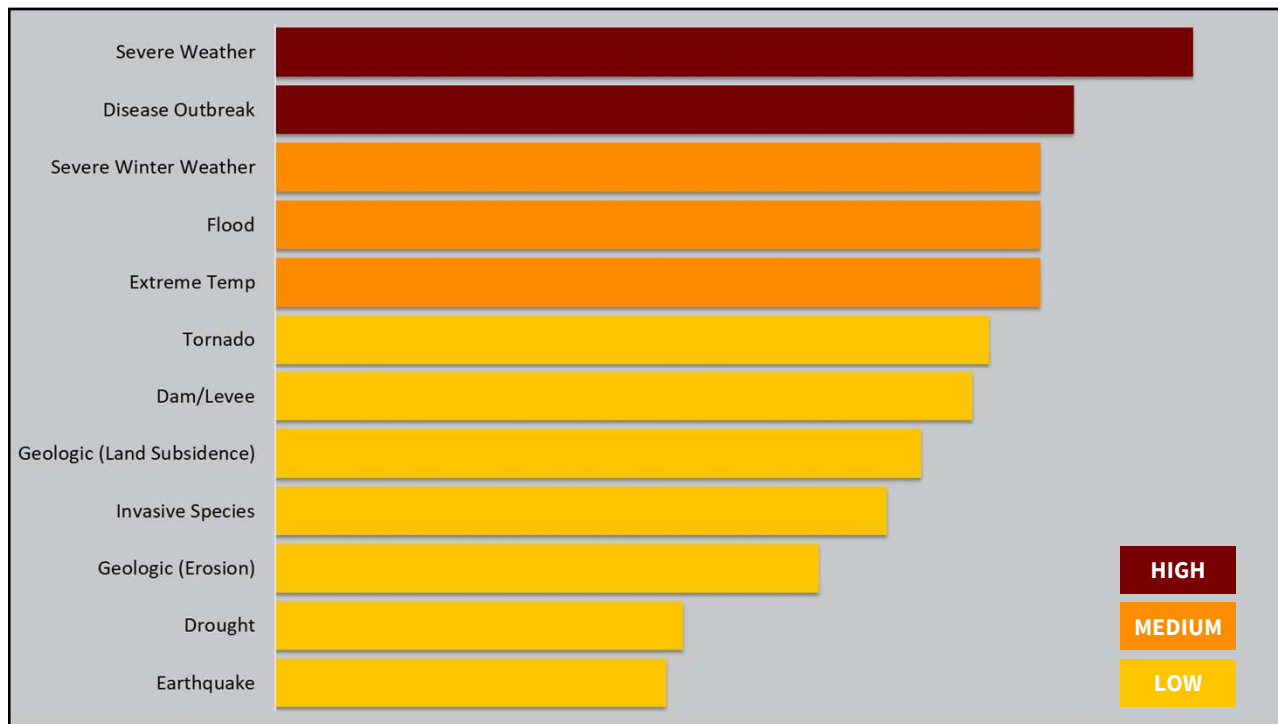
- **Low (1)** - Weak/outdated/inconsistent plans, policies, codes/ordinances in place; no redundancies; limited to no deployable resources; limited capabilities to respond; long recovery.
- **Medium (0)** - Plans, policies, codes/ordinances in place and meet minimum requirements; mitigation strategies 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).



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Jurisdictions	Hazard Ranking											
	Dam/Levee	Disease Outbreak	Drought	Earthquake	Extreme Temp	Flood	Geologic (Erosion)	Geologic (Land Subsidence)	Invasive Species	Severe Weather	Severe Winter Weather	Tornado
Bexley (C)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Blendon (T)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Briar (V)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Brown (T)	Low	Low	Low	Low	Low	Medium	Low	Low	Low	High	Medium	Medium
Canal Winchester (C)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Clinton (T)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Columbus (C)	Medium	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Dublin (C)	Medium	Low	Low	Low	Low	Medium	Low	Low	Low	High	Medium	Medium
Franklin (T)	Medium	Medium	Medium	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Gahanna (C)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Grandview Heights (C)	Low	Low	Low	Low	Low	Medium	Low	Low	Low	High	Medium	Medium
Grove City (C)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Groveport (V)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Hamilton (T)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Harrisburg	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Hilliard (C)	Low	Low	Low	Low	Low	Medium	Low	Low	Low	High	Medium	Medium
Jackson (T)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Jefferson (T)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Lithopolis (V)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Lockbourne (V)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Madison (T)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Marble Cliff (V)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Mifflin (T)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Minerva Park (V)	Medium	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
New Albany (C)	Low	Low	Low	Low	Low	Medium	Low	Low	Low	High	Medium	Medium
Norwich (T)	Low	Low	Low	Low	Low	Medium	Low	Low	Low	High	Low	Medium
Obetz (C)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Perry (T)	Low	Low	Low	Low	Low	Medium	Low	Low	Low	High	Medium	Medium
Pickerington (C)	Low	Low	Low	Low	Low	Medium	Low	Low	Low	High	Medium	Medium
Plain (T)	Low	Low	Low	Low	Low	Medium	Low	Low	Low	High	Medium	Medium
Pleasant (T)	Medium	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Prairie (T)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Reynoldsburg (C)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Riverlea (V)	Low	Low	Low	Low	Low	Medium	Low	Low	Low	High	Low	Medium
Sharon (T)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Truro (T)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Upper Arlington (C)	Medium	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Urbancrest (V)	Low	Medium	Medium	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Valleyview (V)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Washington (T)	Low	Low	Low	Low	Low	Medium	Low	Low	Low	High	Medium	Medium
Westerville (C)	Medium	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Whitehall (C)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Worthington (C)	Low	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium
Franklin County (Total)	Medium	Medium	Low	Low	Medium	Medium	Low	Low	Low	High	Medium	Medium

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## Dam/Levee Failure



- Number of dams
  - 18 dams (USACE) – 3 identified as high hazard
- Number of levees
  - 3 levee systems (USACE); all used for flood risk reduction
- No reported failures or incidents
  - Any events we should include?
- Inundation areas – currently working on obtaining

Preliminary Hazard  
Ranking  
**MEDIUM**



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## Disease Outbreak



- Included – Lyme, West Nile, Flu, Ebola, Measles, and Covid-19
- History of occurrence throughout the County
  - Most recent has been a measles outbreak
- Impacts
  - Vulnerable populations at risk (age, disability, and poverty)
  - Property impacts – low
  - Economic impacts – depends on extent of outbreak

Preliminary Hazard  
Ranking  
**MEDIUM**



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## Drought



- Event history is minimal
  - Drought Impact Report lists 5 events since 1950
- Impacts
  - Entire population at risk; however, >65 and <5 more at risk
  - Property impacts – low
  - Economic impacts – low

Preliminary Hazard  
Ranking

**LOW**

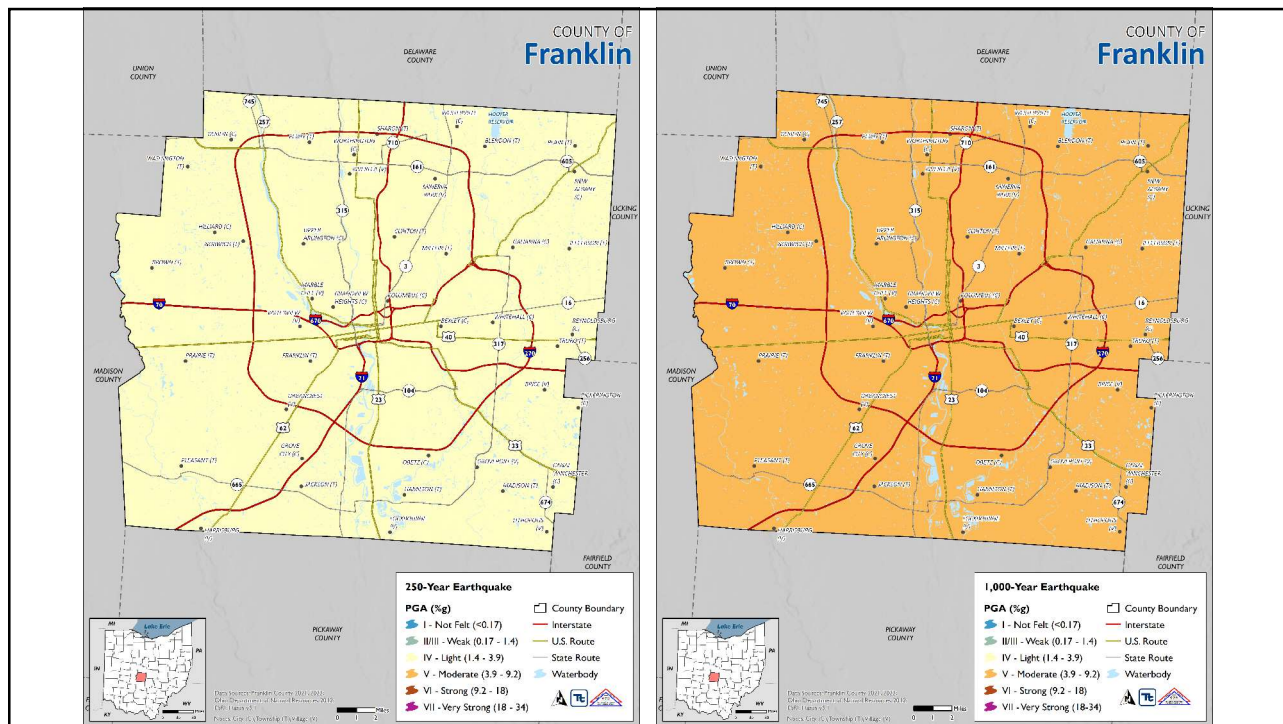
## Earthquake



- Event history is minimal
  - No earthquakes in the County since 1950
- Impacts
  - Population - low
  - Property impacts – low
  - Economic impacts – low

Preliminary Hazard  
Ranking

**LOW**



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## Extreme Temperature (hot/cold)

- Extreme Heat -  $>90^{\circ}\text{F}$ 
  - Over 200 days with a recorded high of  $>90$
- Extreme Cold -  $<25^{\circ}\text{F}$ 
  - Over 400 days with a recorded low of  $<25$
- Impacts
  - Vulnerable populations most at risk – age, disability, and poverty
  - Property impacts – low
  - Economic impacts – low

Preliminary Hazard Ranking  
**MEDIUM**

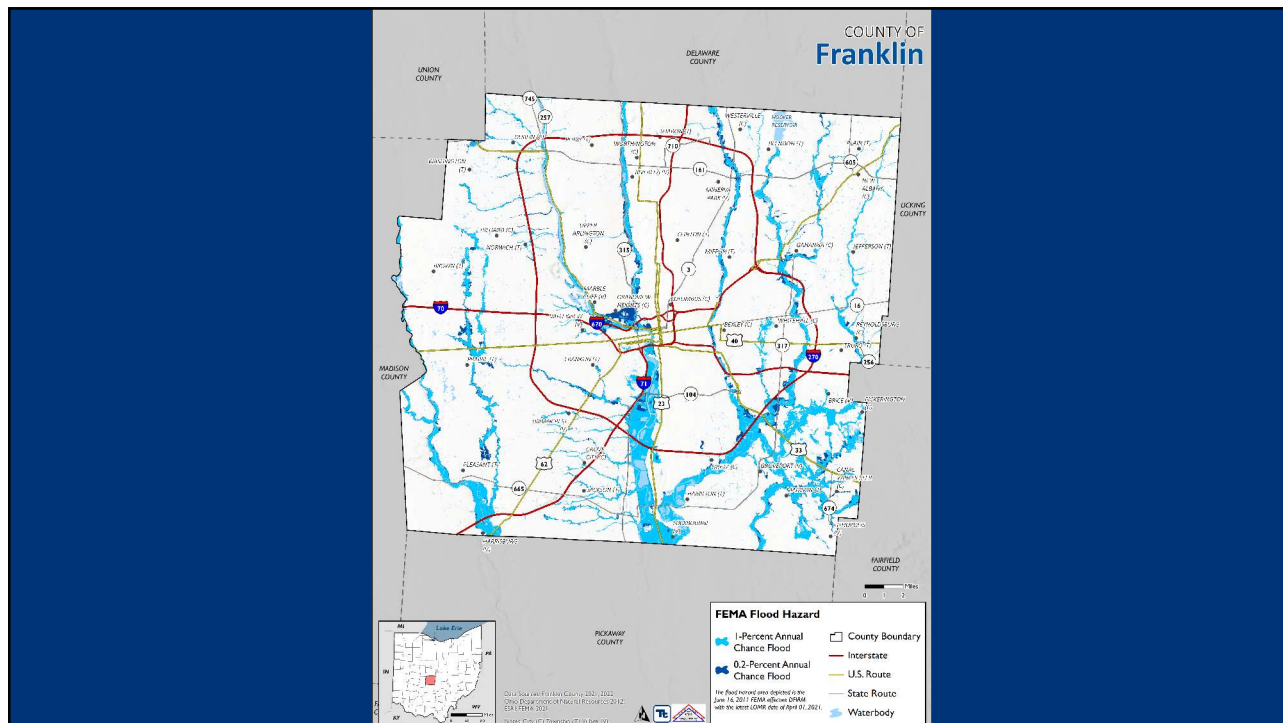
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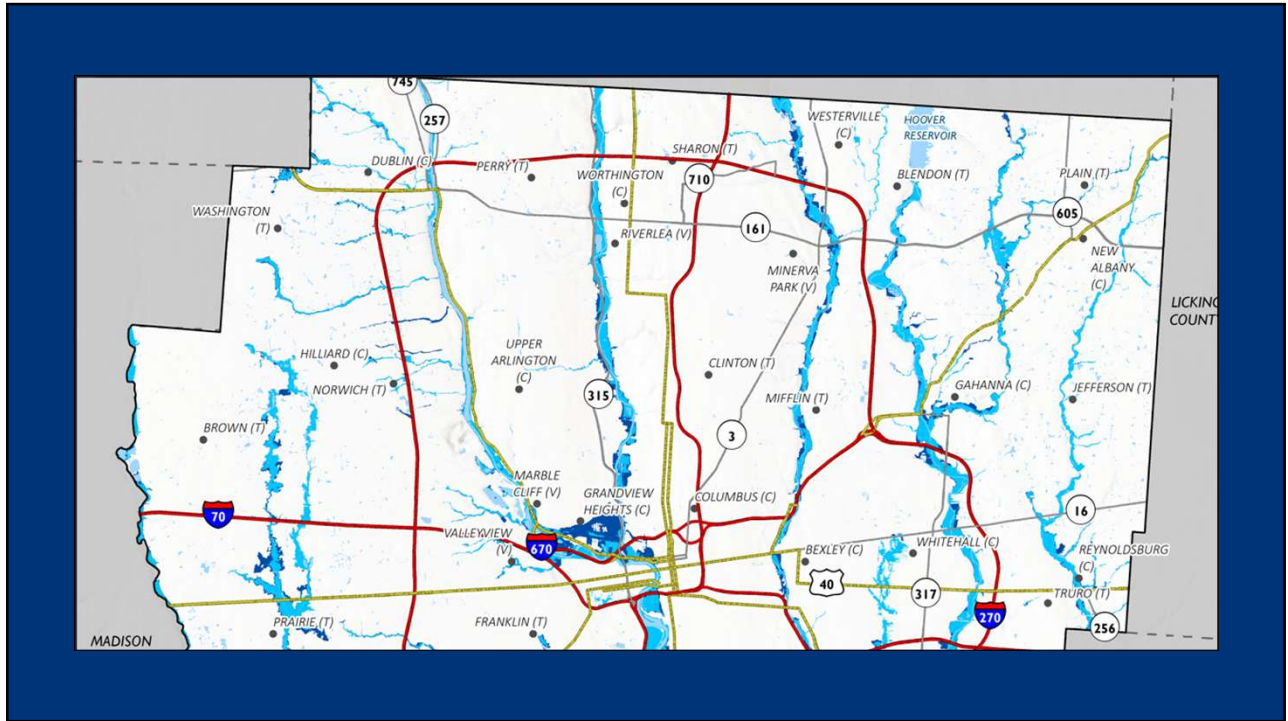
# Flood



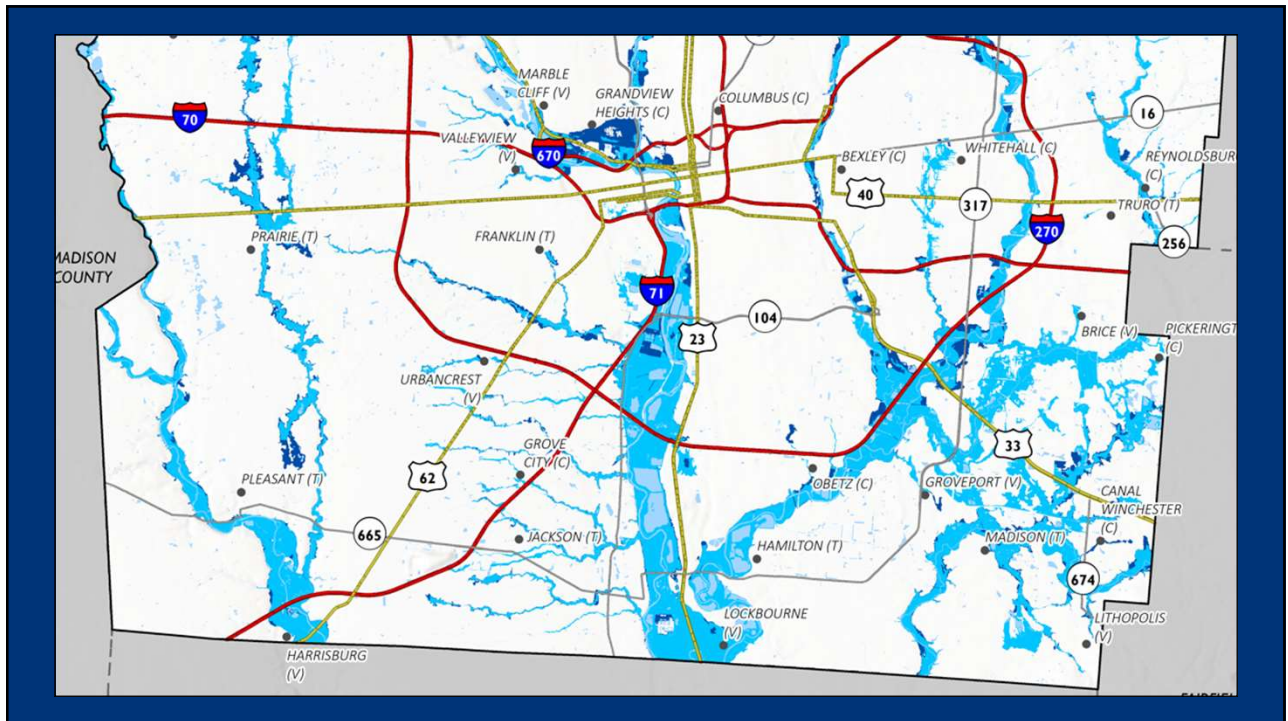
- History of occurrence throughout the County
  - 162 recorded flood events (NOAA-NCEI)
  - 8 FEMA declarations
- Impacts
  - Population and property located in the 1% SFHA
  - Economic impacts – replacement cost values of buildings in the 1% SFHA
  - Considered stormwater impacts as well

Preliminary Hazard Ranking  
**MEDIUM**





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# Geologic – Erosion and Land Subsidence



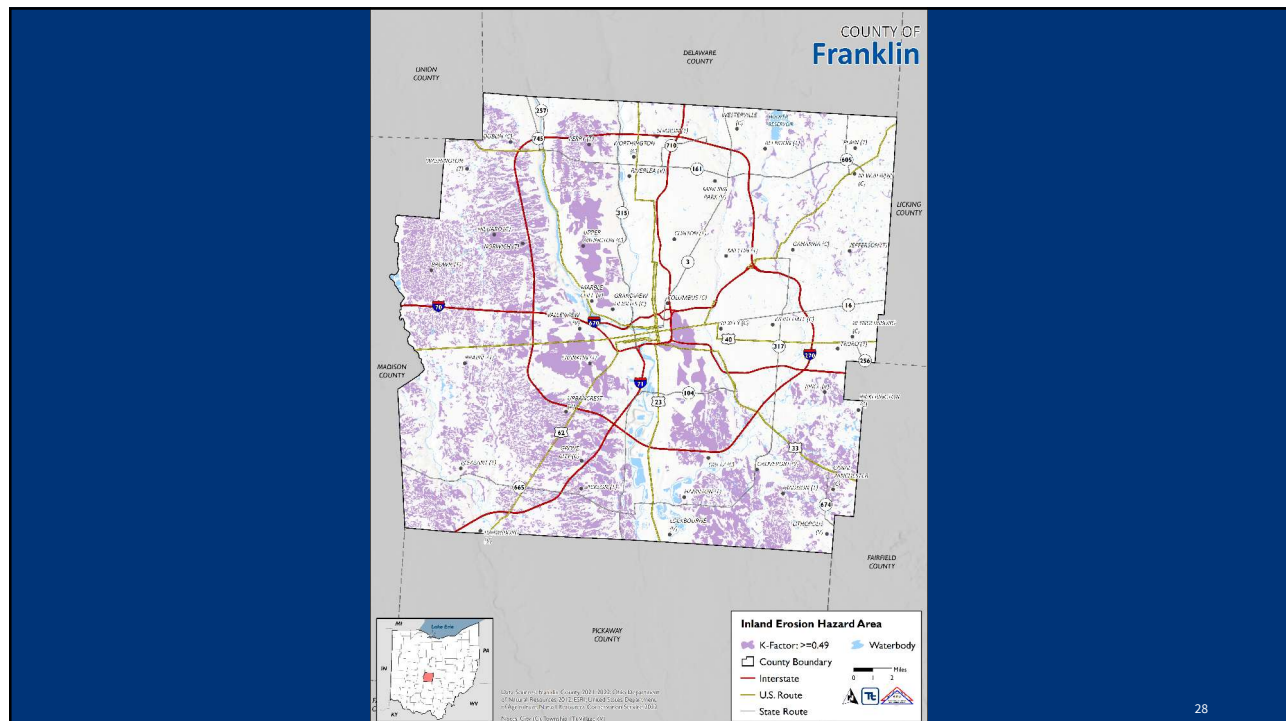
- Event history is minimal
- Erosion
  - K Factor ( $\geq 0.49$ ) – susceptibility of a soil to erosion; the higher the K Factor the higher susceptibility
- Subsidence (sinkholes)
  - Carbonate rocks (e.g. limestone) more susceptible to dissolution by groundwater leading to sinkholes

Preliminary Hazard Ranking  
**LOW**

Preliminary Hazard Ranking  
**LOW**

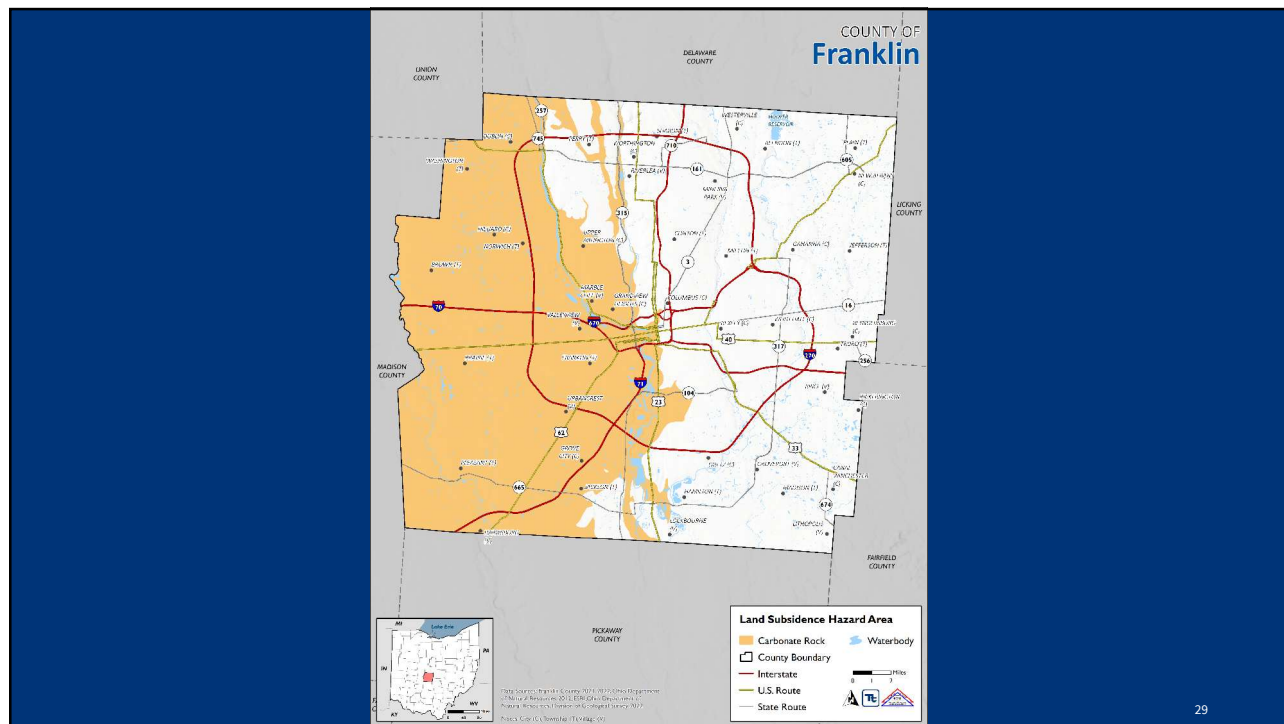


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## Invasive/Nuisance Species



- Included – Asian Longhorned Beetle, Emerald Ash Borer, Harmful Algal Bloom, Hemlock Woolly Adelgid, Spotted Lantern Fly, and Zebra Mussels
- Impacts
  - Entire population at risk
  - Property impacts – medium
  - Economic impacts – medium

Preliminary Hazard  
Ranking  
**LOW**

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## Severe Weather



- Included – Hail, Lightning, Wind, Thunderstorms
- Over 500 events since 1950 (NOAA-NCEI)
- 11 FEMA declarations
- Impacts
  - Entire population at risk
  - Property impacts – medium
  - Economic impacts – medium

Preliminary Hazard  
Ranking  
**HIGH**



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## Severe Winter Weather



- Included – Hail, Lightning, Wind, Thunderstorms
- Over 130 events since 1950 (NOAA-NCEI)
- 5 FEMA declarations
- Impacts
  - Vulnerable populations most at risk – age, disability, and poverty
  - Property impacts – medium
  - Economic impacts – low

Preliminary Hazard  
Ranking  
**MEDIUM**



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## Tornado



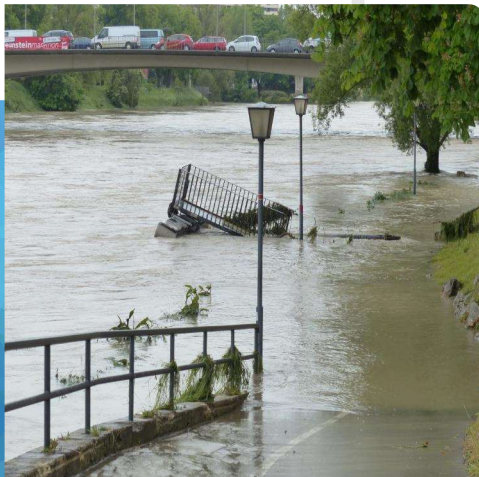
- 34 tornadoes recorded since 1950 (NOAA-NCEI)
- 6 FEMA declarations
- Impacts
  - Entire population at risk
  - Property impacts – Medium
  - Economic impacts – Low

Preliminary Hazard  
Ranking

**MEDIUM**



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## Mitigation Strategy

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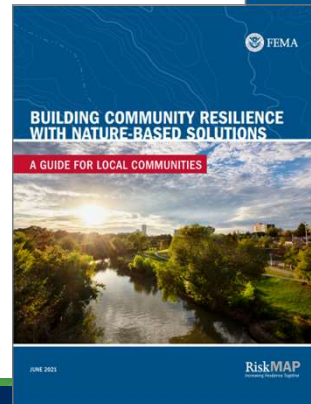
## How do you reduce risk?

- 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



### Mitigation Ideas

A Resource for Reducing Risk to Natural Hazards



## 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 2023 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.)



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## Other Mitigation Actions to Consider



### Mitigation Ideas

A Resource for Reducing Risk to Natural Hazards

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



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## 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!

Franklin County HMP - Mitigation Strategies

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)).

\* Required

Contact Information  
Complete this section with your contact information.

1. Name \*

Enter your answer

2. Title \*

Enter your answer

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**Thank  
You!**

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