



Burlington County Multi-Jurisdictional Hazard Mitigation Plan 2024 Update

Public Risk Assessment Meeting

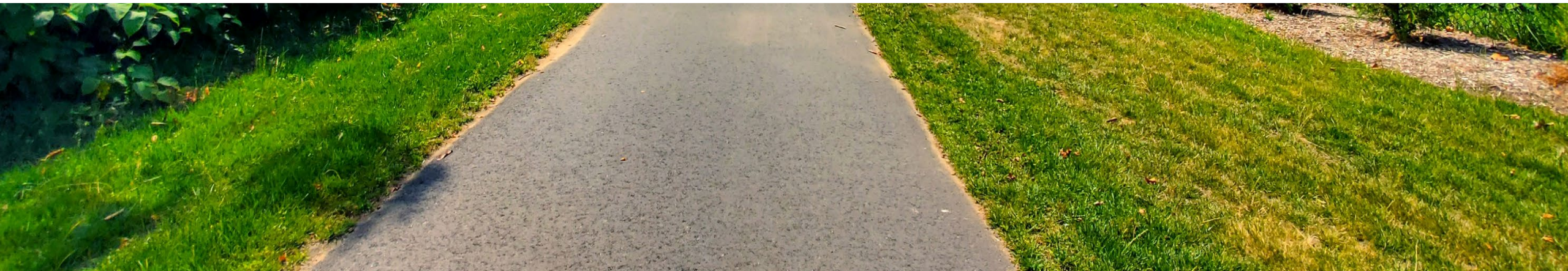
November 9, 2023

While waiting for the meeting to start, please enter your name and which municipality you are from in the chat.



Today's Agenda

1. Welcome and Introductions
2. Hazard Mitigation Planning Overview
3. Planning Process Overview
4. Risk Assessment Overview
5. Hazard Ranking
6. Questions/Wrap Up





Hazard Mitigation Overview

Mitigation planning happens before a disaster strikes. It results in safer, more resilient communities – reducing risk for the residents, businesses, and critical services in Burlington County.

Hazard Mitigation Planning Overview



- ✓ Authorized by the Disaster Mitigation Act of 2000
- ✓ Provides an overview of the impacts of natural hazards on communities
- ✓ Provides a roadmap to reducing the impact of these hazards
- ✓ Requires a FEMA-approved natural hazard mitigation plan to be eligible for Pre-Disaster Mitigation Funding
- ✓ 5-year updates required to maintain eligibility

- What is hazard mitigation?
- Why update the plan?
- What is the process?

What is Hazard Mitigation?



Mitigation is a 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).



Planning Process Overview

A well-defined planning process is essential to the success of Burlington County's HMP Update.

Planning Process Overview



1 Planning Process

2 Risk Assessment

3 Public Involvement Strategy

4 Mitigation Strategy

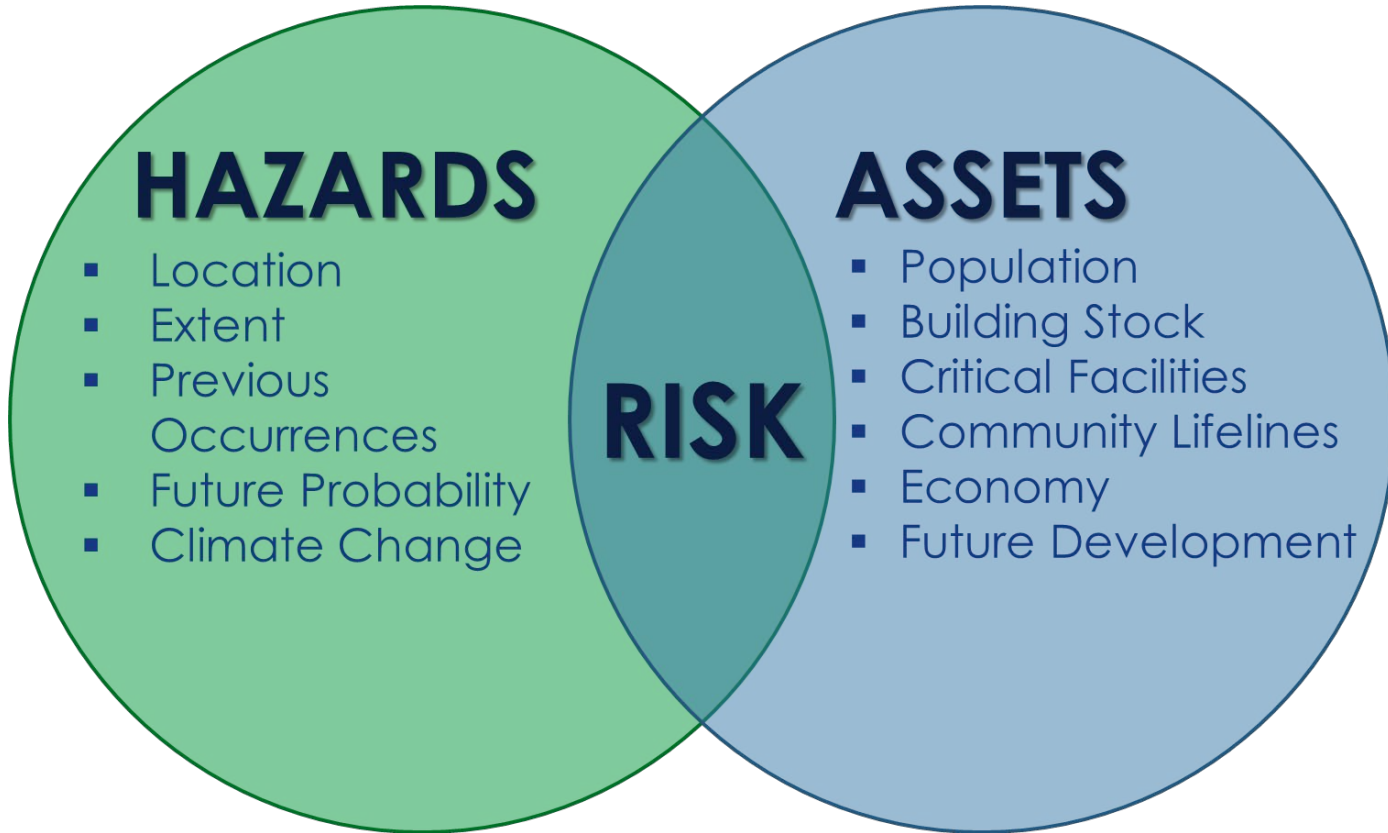
5 Plan Maintenance

6 Plan Update and Deliverables

7 Plan Adoption

8 Project Management and Coordination

Update Risk Assessment



- Updated Assets
- Examined Previous Impacts
- Analyzed Risks
- Reviewed with Steering Committee
- Risk Assessment Meeting (today!)

Hazards of Concern



Dam Failure



Disease Outbreak



Drought



Earthquake



Flood



Severe Weather



Severe Winter Weather



Wildfire





Risk Assessment Overview



What is Risk?

Risk is defined as a function of :

- 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





Purpose of 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 Risk Assessment Results

Dam Failure

Dam failures in Burlington County are a low-probability and high-consequence event. A dam failure can have devastating impacts on the County. While most dams have storage volumes small enough that failures would have little or no consequences, dams with large storage amounts could cause significant flooding downstream.

Number of Dams

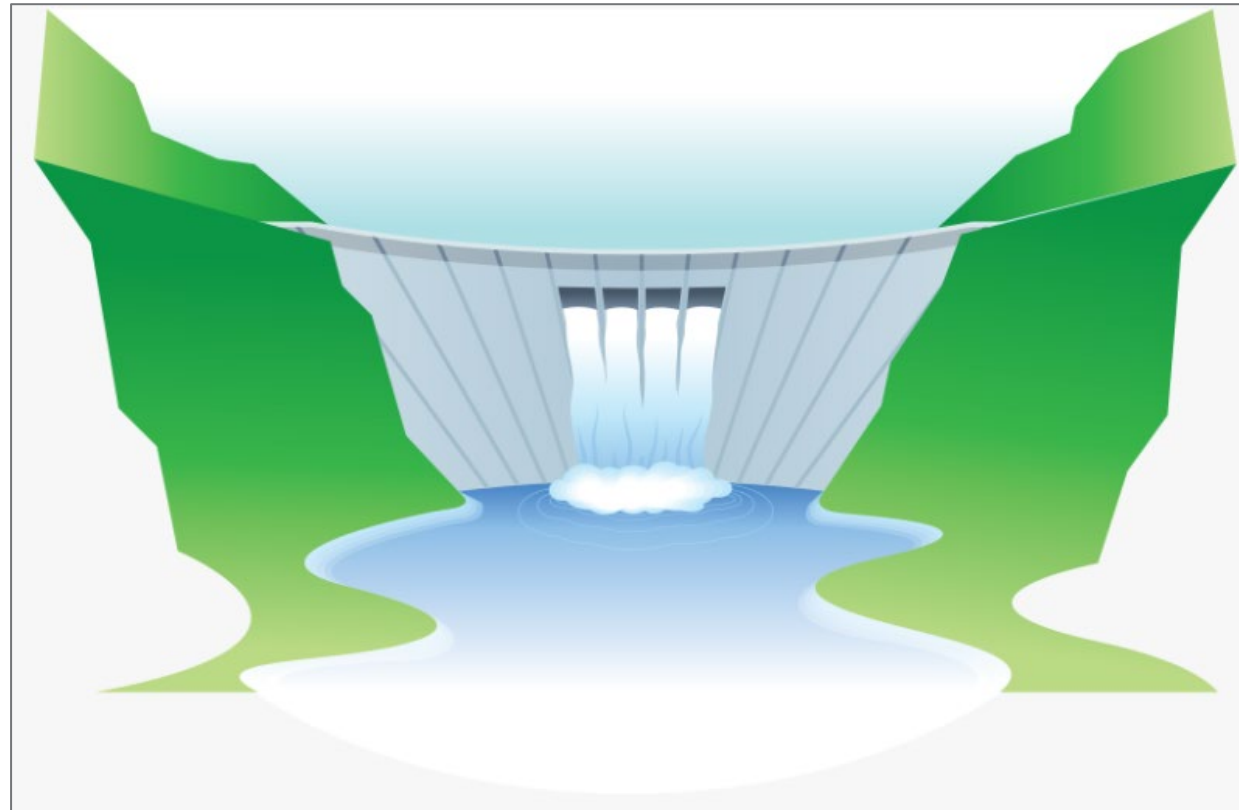
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- 10 High Hazard
- 40 Significant Hazard
- 24 Low Hazard

Impacts

- Dam failure can cut evacuation routes, limit emergency access, and/or create isolation issues.
- Severe flooding that follows a dam failure can cause extensive structural damage and withhold essential services.
- The environmental impacts of a dam failure can include significant water-quality and debris-disposal issues or severe erosion that can impact local ecosystems.

Dam Graphic



Notable Occurrence



On July 12-13, 2004, the Townships of Lumberton and Medford experienced major flooding due to heavy rainfall. Property damage from the flood was estimated at \$50 million. The flooding led to the evacuation of about 760 residents, the complete destruction of seven homes, major flood damage to approximately 200 homes, flood damage to approximately 1,000 homes, the closing of 25 major roads.

Disease Outbreak

Disease outbreaks can impact the entirety of Burlington County. Emerging diseases are difficult to contain or treat and present significant challenges to risk communication since the mechanics of transmission, laboratory identification, and effective treatment protocols may be unknown.


Population Exposed

461,860

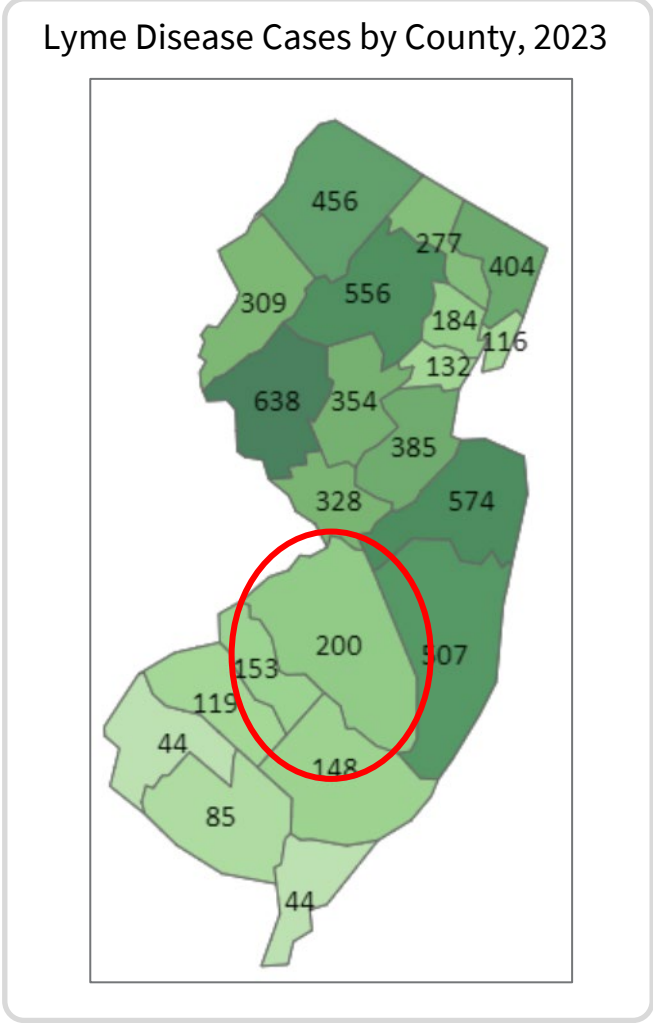
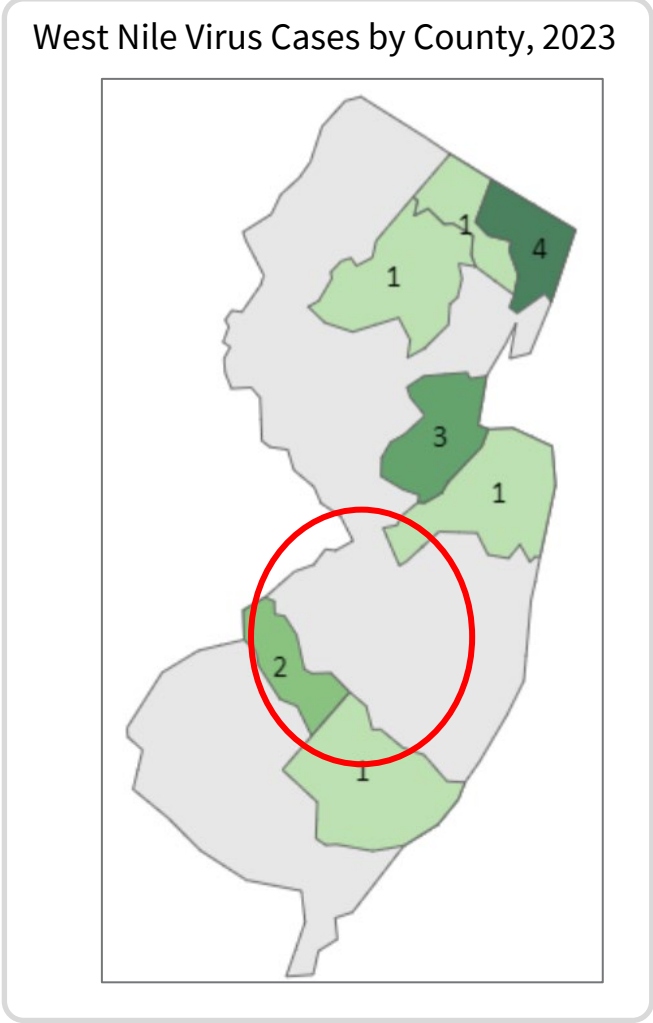
(100%)

The entire County is susceptible

Notable Occurrences



- In 2019, there were 236 confirmed cases of Lyme Disease.
- In 2020, there were 847 confirmed cases of Influenza.
- Since 2020, Burlington County reported 117,710 positive cases of COVID-19 and 681 deaths.



- Hazard Types
- Influenza
 - West Nile Virus
 - Lyme Disease
 - Coronavirus

Drought

Droughts can affect Burlington County's industries and make day to day tasks more difficult to complete when water usage must be monitored.

Population Exposed

461,860

(100%)

The entire County is susceptible

USDA Declarations

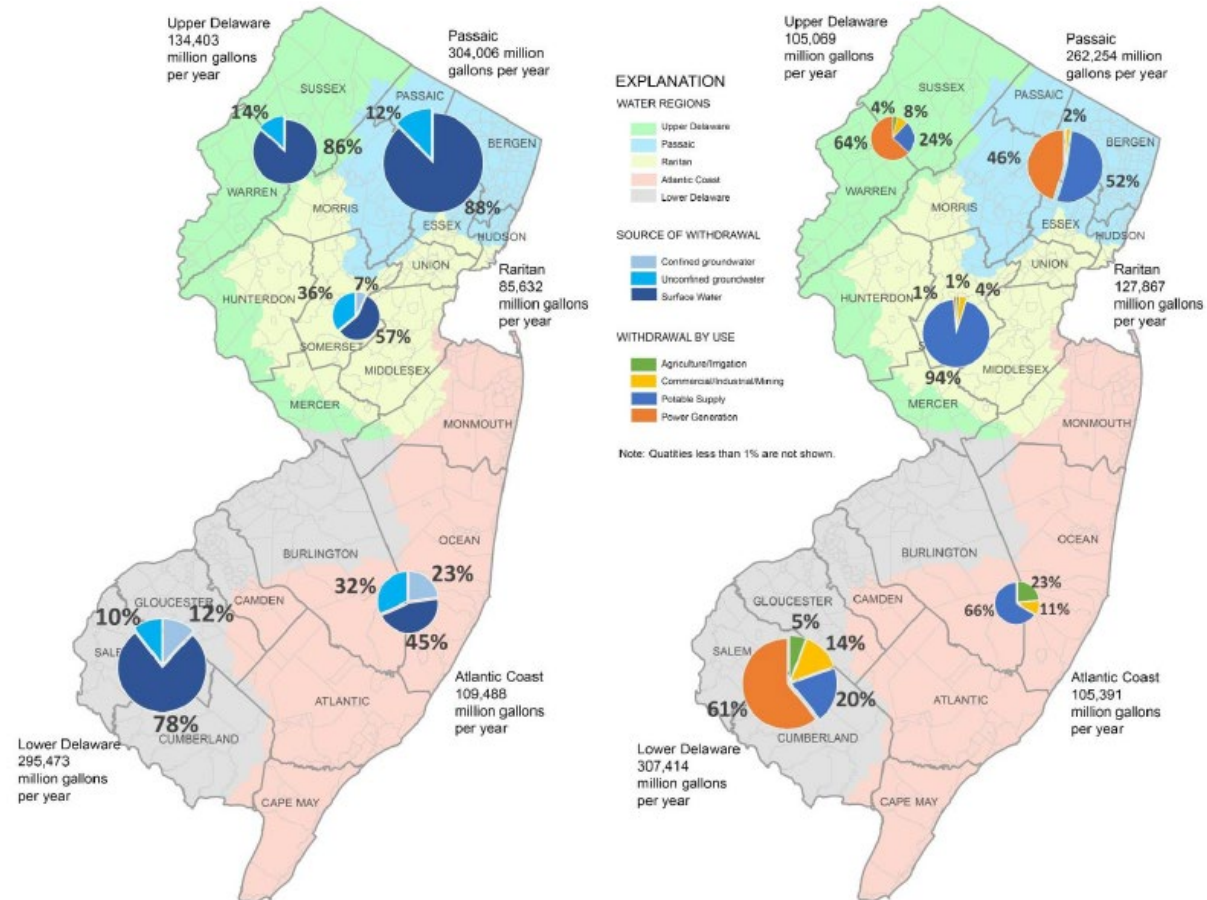
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- 3 Drought declarations

Climate Change Impacts

It is anticipated that droughts lasting 3 to 6 months and longer may slightly increase in frequency under a low emissions scenario and will significantly increase under a high emissions scenario.

Water Regions, Sources and Withdrawal by Sector in New Jersey



Hazard Types



Meteorological



Hydrological



Agricultural



Socioeconomic

Earthquake



Earthquakes in Burlington County are a low-probability and high-consequence event. An earthquake can have devastating impacts on the County. Ground shaking can lead to the collapse of buildings and bridges and disrupt gas lines, electricity, and phone service.

Population Exposed

461,860

(100%)

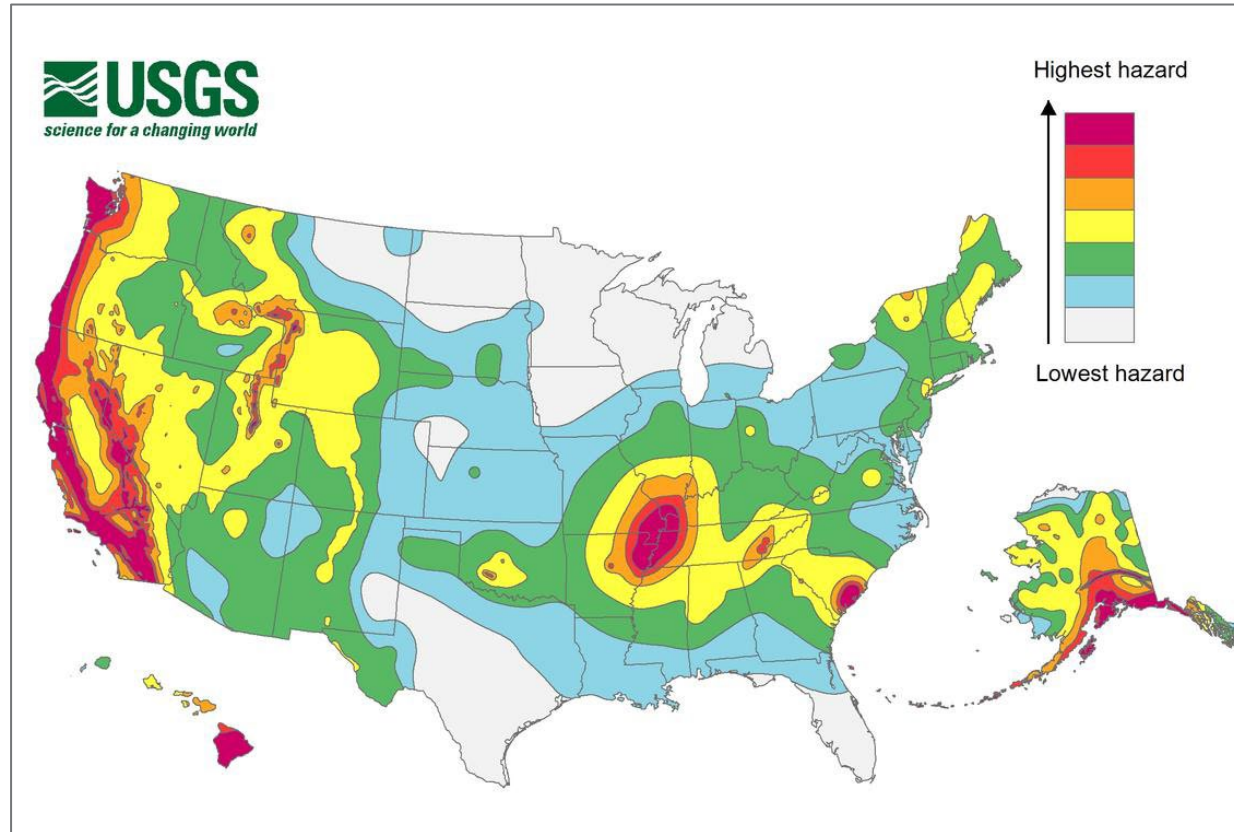
The entire County is susceptible

Notable Occurrences



Small earthquakes may occur several times a year and generally do not cause significant damage. The strongest earthquake with an epicenter in Burlington County was a 3.0 quake in Medford Lakes in 1980.

Location



Hazard Types

- Surface Faulting
- Ground Motion
- Liquefaction
- Tectonic Deformation
- Seiche

Extreme Temperatures

Extreme temperature includes both heat and cold events, which affects the entire County including, human health and commercial/agricultural businesses. Extreme temperature events can have primary and secondary effects on infrastructure.

Population Exposed

461,860

(100%)

The entire County is susceptible

USDA Declarations

2

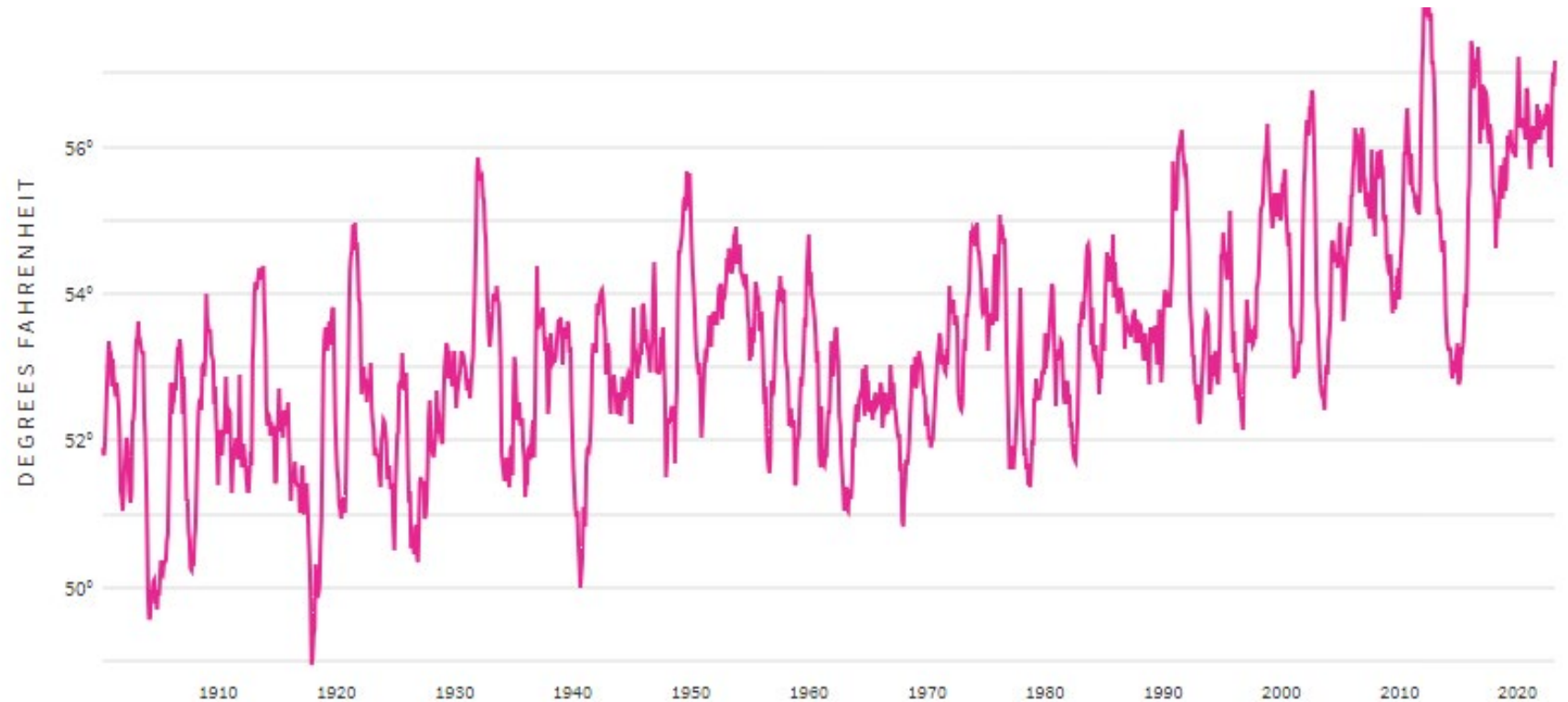
- 2 Excessive Heat declarations

Climate Change Impacts

New Jersey has experienced a 3.5° F (1.9° C) increase in the State's average temperature. By 2050, temperatures in New Jersey are expected to increase by 4.1 to 5.7° F.



12-Month Temperature Averages in Burlington County



Flood

Floods are one of the most frequent and costly natural hazards in Burlington County in terms of human hardship and economic loss, particularly to communities that lie within flood prone areas or floodplains.

Population Exposed

14,583
(3.2%)

In 1% Annual Chance Flood Area

25,026
(5.4%)

In 0.2% Annual Chance Flood Area

Number of Buildings Exposed

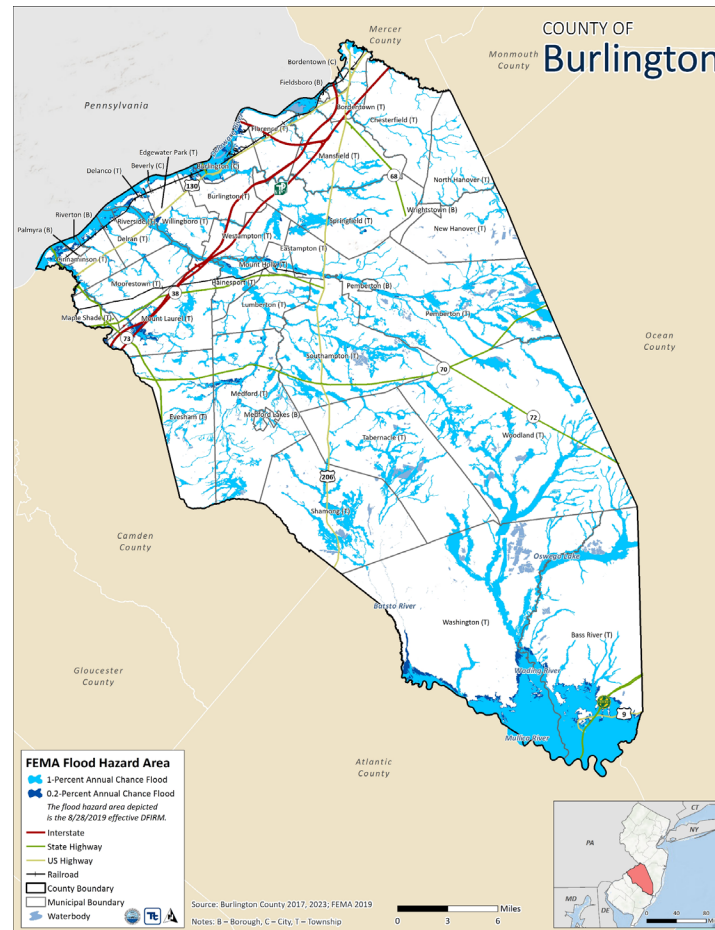
5,163

In 1% Annual Chance Flood Area

8,739

In 0.2% Annual Chance Flood Area

Location



Flood Building Replacement Cost Value

\$9,333,016,825

In 1% Annual Chance Flood Area

\$14,060,945,896

In 0.2% Annual Chance Flood Area



Land Exposed to Flood Hazard

72,903

(14.6%)

Sea Level Rise Impacts

1-Foot Hazard Area

- 225 Persons Located in Hazard Area
- 90 Buildings Located in Hazard Area

3-Foot Hazard Area

- 677 Persons Located in Hazard Area
- 272 Buildings Located in Hazard Area

Hazard Types



Riverine / Inland



Flash Flood



Urban / Stormwater



Coastal



Ice Jam



Erosion



Sea Level Rise

Severe Weather

Severe weather can occur anywhere in the County at any time and have the potential to be life-threatening. It is critical for the community to prepare and be aware of forecasts in their local jurisdictions.

Population Exposed

461,860

(100%)

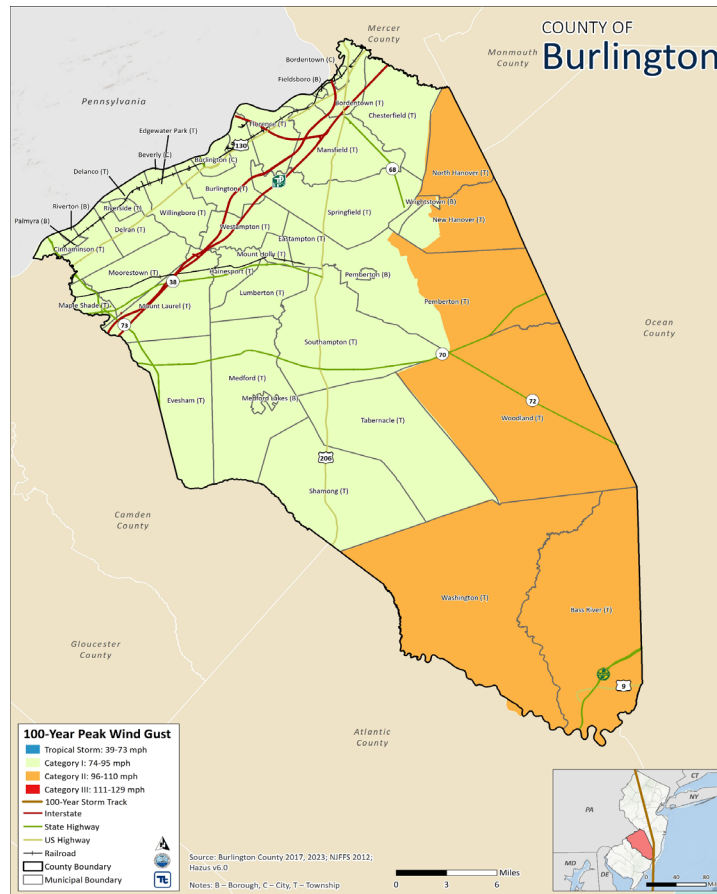
The entire County is susceptible

Notable Occurrences



The remnants of Hurricane Ida resulted in widespread thunderstorms. An EF-1 tornado formed in Burlington Township, near Edgewater Park. Extensive tree damage was reported. Power outages occurred due to damages to powerlines.

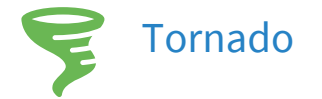
Location



Potential Impacts

- Essential Services Interruptions Power Outages
- Traffic Accidents
- Downed Trees
- Property Damage
- Personal Injury / Loss of Life

Hazard Types



Climate Change Impacts

New Jersey has experienced a 3.5° F (1.9° C) increase in the State's average temperature. By 2050, temperatures in New Jersey are expected to increase by 4.1 to 5.7° F. Increases will be more conducive to increased frequency and intensity of severe storms (e.g., thunderstorms, tornadoes).



Severe Winter Weather

Severe winter weather can occur anywhere in the County and have the potential to be life-threatening. It is critical for the community to prepare and be aware of forecasts in their local jurisdictions.

Population Exposed

461,860

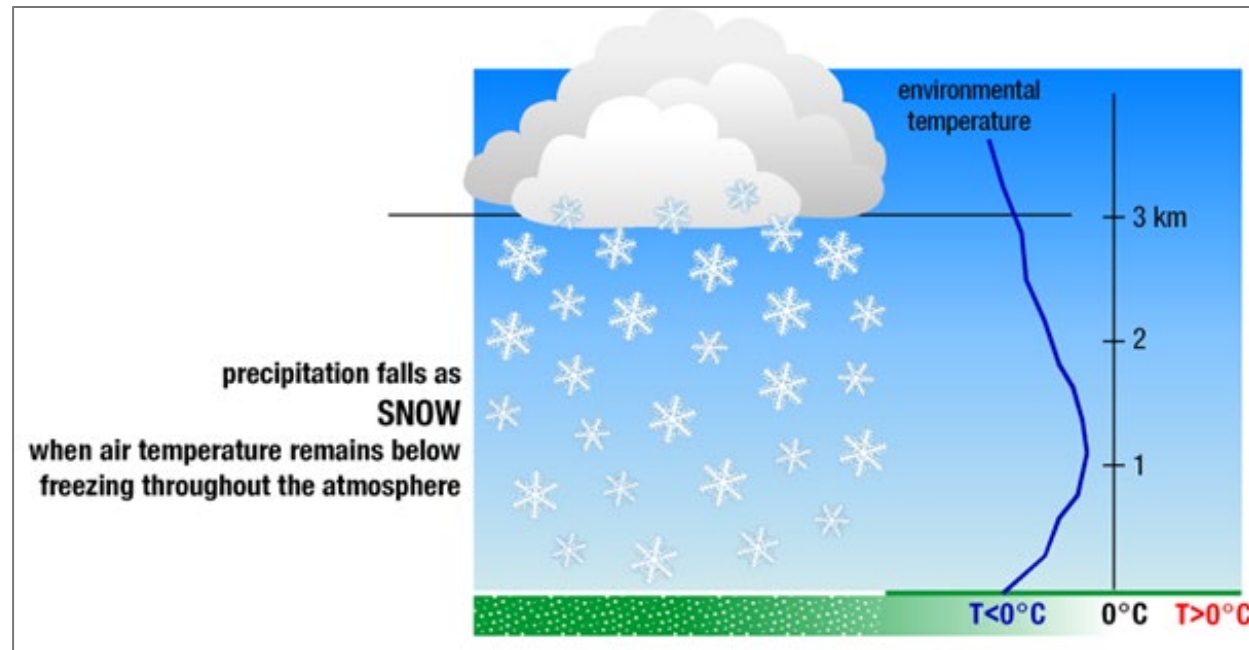
(100%)

The entire County is susceptible

Hazard Types

- Heavy Snow
- Blizzard
- Sleet
- Ice Storm
- Nor'easter

Formation of Snow



Notable Occurrences



The Blizzard of 1996 dropped roughly 30 inches of snow in parts of Burlington County on January 7, 1996. Property damage was in the millions and the storm resulted in one death.

Wildfire events in Burlington County typically occur toward the forested southeastern portions of the County in the Pinelands. Wildfires can have impacts on critical services, utilities, and properties, and may cause injury.

Population Exposed

6,406
(1.4%)

Of the County is susceptible

Building Replacement Cost Value

\$4,963,331,009

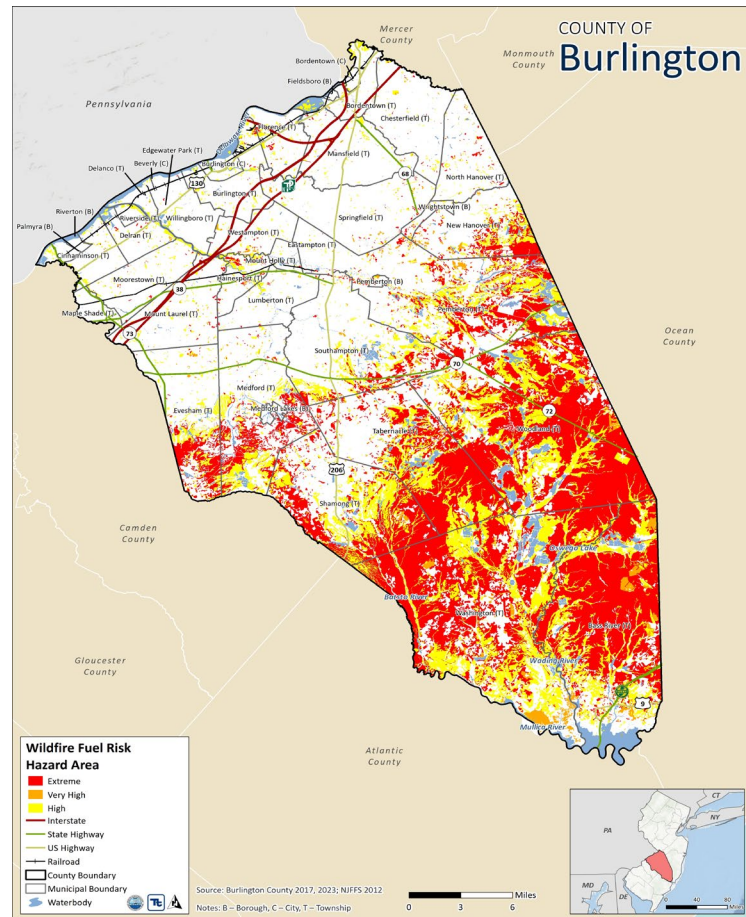
In Extreme, Very High, or High Wildfire Fuel Risk Hazard Area

Number of Buildings Exposed

2,140
(1.4%)

In Extreme, Very High, or High Wildfire Fuel Risk Hazard Area

Location



Notable Occurrences



On June 19-21, 2022 a wildfire was detected in a remote section of the Wharton State Forest in Mullica Twp. Unseasonably dry, windy conditions, combined with difficulty in accessing the initial fire location, led to rapid fire spread. When the fire was fully contained an estimated 14,983 acres had burned. This made it the largest wildfire in New Jersey since 2007.

Climate Change Impacts

Burlington County can expect warmer and drier conditions which may increase the frequency and intensity of wildfires. Higher temperatures are expected to increase the amount of moisture that evaporates from land and water. These changes have the potential to lead to more frequent and severe droughts, which, in turn, increases the likelihood of wildfires.



Hazard Rankings

Review the calculated hazard rankings and provide your feedback.

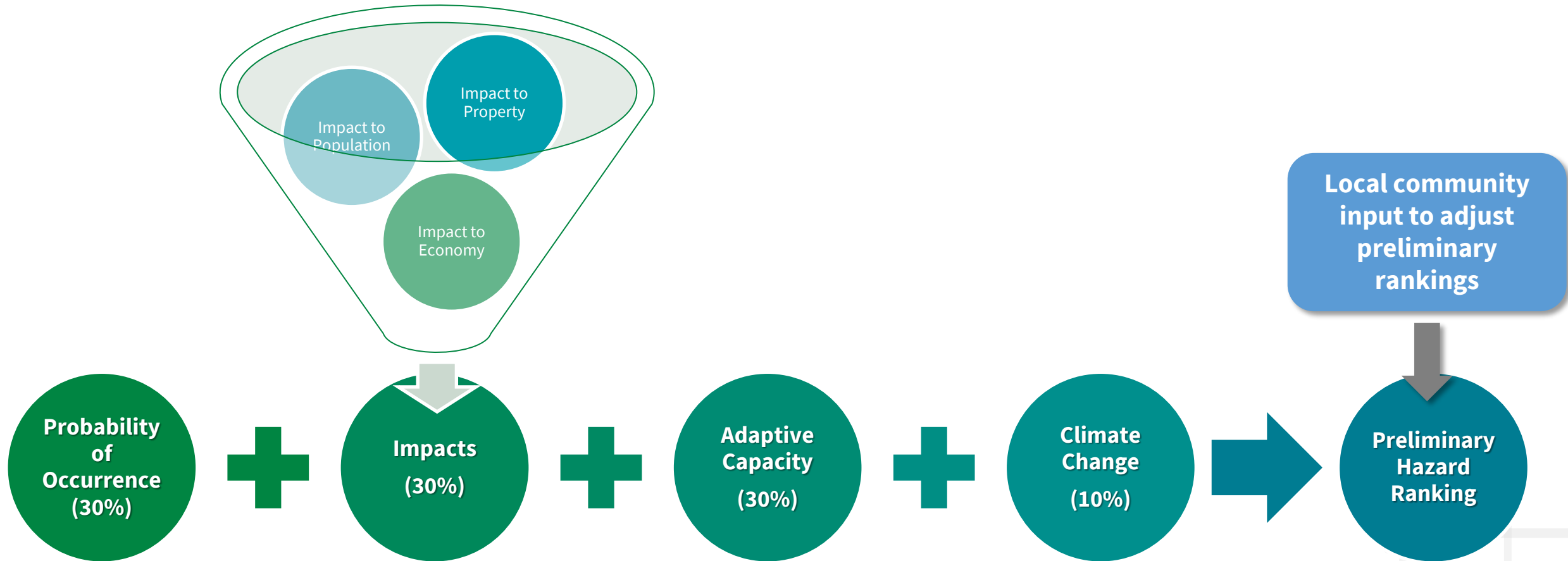
Preliminary Hazard Ranking Methodology



- 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.
- The degree to which existing capabilities (the ability of your community to respond to the hazard based on ordinances, mitigation strategies and procedures, and readiness) decrease overall risk.



Preliminary Hazard Ranking Formula



Risk Ranking



High

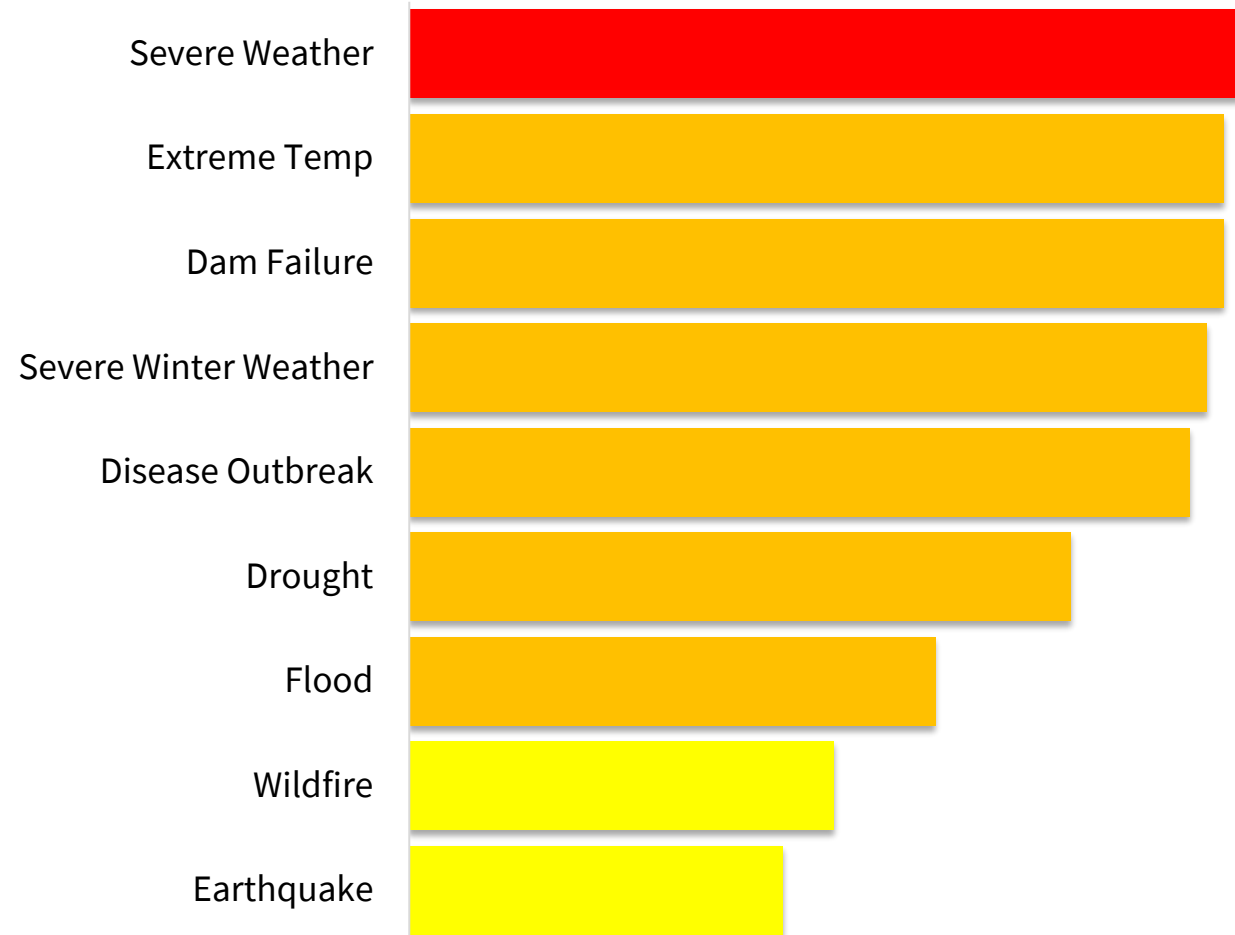
- Severe Weather

Medium

- Extreme Temperature
- Dam Failure
- Severe Winter Weather
- Disease Outbreak
- Drought
- Flood

Low

- Wildfire
- Earthquake





Meeting Wrap-Up

- Do you live in Burlington County? Consider taking the Public Survey!

- <https://bit.ly/45c7Gol>



- Do you work in Burlington County? Consider taking the Stakeholder Survey!

- <https://bit.ly/49lUeka>





Questions?

Burlington County Project Contact

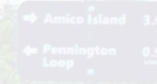
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Thank
You!