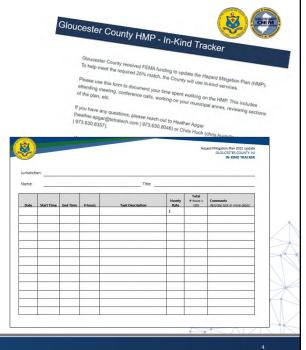


Agenda
Welcome and Opening Remarks
Project Status – where we are in the process
Risk Assessment Overview – draft results to date
SWOO (Strengths, Weaknesses, Obstacles and Opportunities)
Development of Problem Statements
In-Kind Tracking
Next Steps

### In-Kind Tracking Reminder

- Document your time working on the HMP (e.g., attend meetings, complete worksheets and surveys, emails, etc.)
- Use the Word tracker or online tracker <a href="https://www.surveymonkey.com/r/GCH">https://www.surveymonkey.com/r/GCH</a> MPInKindTracker



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### Project Schedule Review

/ April/May 2021 Kick-Off Meetings

/ April-June 2021 Data Collection

√ June 23, 2021 Risk Assessment Presentation to Steering Committee

☐ June 30, 2021 Risk Assessment Presentation to Planning Partnership – TODAY!

☐ April-June 2021 Update Hazard Profiles – *in progress* 

☐ June-July 2021 Develop Problem Statements with Municipalities and County

☐ July/August 2021 Mitigation Strategy Workshop (date TBD)

☐ July-September 2021 Plan Development

September 2021 Review Draft Plan

☐ October 2021 Plan Submitted to FEMA and NJOEM

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# Municipal Participation Status

- To date, we have received Letters of Intent to Participate (LOIP) from 14 out of 25 (see list to the right)
- Next Step for Annex Completion includes confirmation of Risk Ranking Assessment, status updates on previous mitigation projects from the 2016 HMP, identifying new projects for the 2021 Update and filling in the annexes.
- Upcoming steps include problem statement brainstorming and mitigation project identification.

Status (6/28/2021)					
Gloucester County	Following up with individual departments as needed				
Clayton (B)	Received all worksheets; annex in progress				
Deptford (Twp)	Received nearly all worksheets; annex in progress				
East Greenwich (Twp)	Received all worksheets; annex in progress				
Elk (Twp)	Received all worksheets; annex in progress				
Franklin (Twp)	No LOIP; no worksheets				
Glassboro (B)	No worksheets to date but Tetra Tech spoke to the Borough on 6/9				
Greenwich (Twp)	No LOIP; no worksheets				
Harrison (Twp)	Only received one worksheet to date				
Logan (Twp)	No worksheets to date				
Mantua (Twp)	No LOIP; Tt will be meeting with them to go over worksheets				
Monroe (Twp)	Received all worksheets; annex in progress				
National Park (B)	No LOIP; no worksheets				
Newfield (B)	No LOIP; no worksheets				
Paulsboro (B)	No LOIP; no worksheets				
Pitman (B)	Received all worksheets; annex in progress				
South Harrison (Twp)	No LOIP; no worksheets				
Swedesboro (B)	No worksheets to date				
Washington (Twp)	No LOIP; no worksheets				
Wenonah (B)	Received all worksheets; annex in progress				
West Deptford (Twp)	Received all worksheets; annex in progress				
Westville (B)	Received all worksheets; annex in progress				
Noodbury (C)	No LOIP; no worksheets				
Woodbury Heights (B)	No LOIP; no worksheets				
Woolwich (Twp)	No worksheets to date				
Rowan University	No LOIP: no worksheets				

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## Public Outreach and Engagement



- To date, we have received over 50 responses to the public survey
- We are currently developing a Story Map stay tuned!
- Public Engagement County and municipalities were sent different tools they can use to help – please continue to share!
  - HMP website https://www.gloucestercountynjhmp2021.com
  - Social Media announcements Facebook and Twitter
  - Let Tt know when you post about the HMP so we can include in the HMP



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# 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 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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- The calculated probability of a hazard occurring based on historical data
- Impacts to <u>people</u>, <u>property</u>, and the <u>economy</u> based on GIS data and analysis of exposure.
- The degree to which <u>climate change</u> 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.

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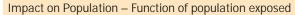
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### Hazard Ranking Input





- ✓ 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

- ✓ Low outdated policies; limited to no deployable resources; limited capabilities to respond; long recovery
- Medium minimum requirements; mitigation strategies identified but not implemented; moderate county capabilities
   High 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

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# **Preliminary Hazard Ranking**



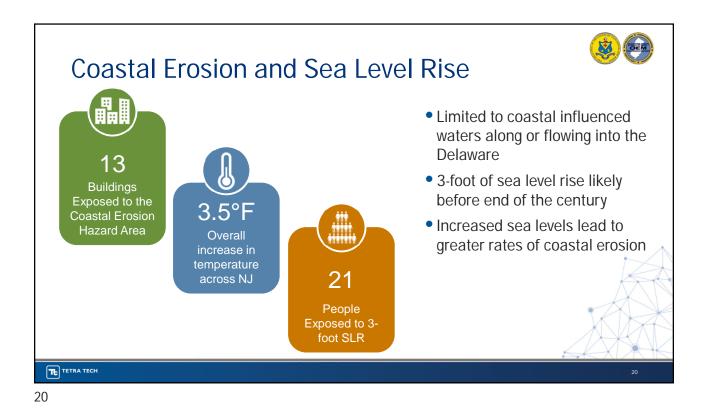


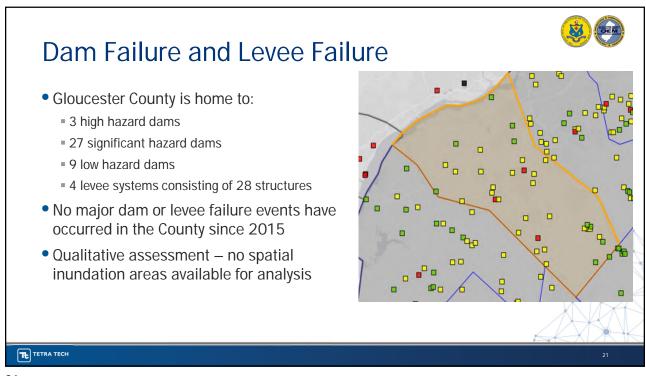
2021 Hazard Ranking																
Gloucester County Municipality	Coastal Erosion	Dam/ Levee	Disease Outbreak	Drought	Earthquake	Ext Temp	Flood	Geologic	Hazmat	Hurricane	Invasive	Nor'Easter	Severe Storm	Severe Winter Storm	Wildfire	Utility
Clayton (B)	Low	Low	Low	Medium	Low	Medium	Low	Low	Medium	Low	Low	Medium	High	Medium	Low	Medium
Deptford (Twp)	Low	Low	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Low	Medium
East Greenwich (Twp)	Low	Low	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Low	Medium
Elk (Twp)	Low	Medium	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Low	Medium
Franklin (Twp)	Low	Medium	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Medium	Medium
Glassboro (B)	Low	Low	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Low	Medium
Greenwich (Twp)	Low	Medium	Low	Medium	Low	Medium	Medium	Low	High	High	Low	Medium	High	Medium	Low	Medium
Harrison (Twp)	Low	Low	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Low	Medium
Logan (Twp)	Low	Medium	Low	Low	Low	Low	Low	Low	High	Medium	Low	Medium	High	Medium	Low	Medium
Mantua (Twp)	Low	Low	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Low	Medium
Monroe (Twp)	Low	Low	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Medium	Medium
National Park (B)	Low	Medium	Low	Medium	Low	Medium	Low	Low	High	High	Low	Medium	High	Medium	Low	Medium
Newfield (B)	Low	Low	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Medium	Medium
Paulsboro (B)	Low	Low	Low	Medium	Low	Medium	Low	Low	High	High	Low	Medium	High	Medium	Low	Medium
Pitman (B)	Low	Medium	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Low	Medium
South Harrison (Twp)	Low	Low	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Low	Medium
Swedesboro (B)	Low	Low	Low	Low	Low	Low	Low	Low	High	Low	Low	Medium	High	Medium	Low	Medium
Washington (Twp)	Low	Low	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Low	Medium
Wenonah (B)	Low	Low	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Low	Medium
West Deptford (Twp)	Low	Medium	Low	Medium	Low	Medium	Low	Low	High	Medium	Low	Medium	High	Medium	Low	Medium
Westville (B)	Low	Medium	Low	Medium	Low	Medium	Low	Low	High	High	Low	Medium	High	Medium	Low	Medium
Woodbury (C)	Low	Low	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Low	Medium
Woodbury Heights (B)	Low	Low	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Low	Medium
Woolwich (Twp)	Low	Low	Low	Medium	Low	Medium	Low	Low	High	Low	Low	Medium	High	Medium	Low	Medium
Gloucester County	Low	Medium	Medium	Medium	Low	Medium	Medium	Low	High	Medium	Medium	Medium	High	Medium	Medium	Medium
													#		XI 🐙	1

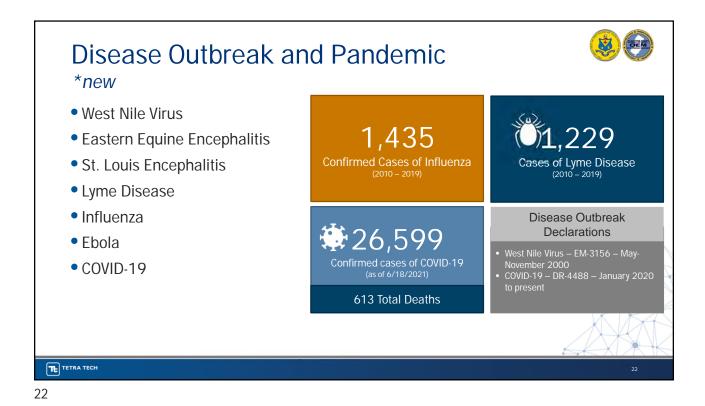
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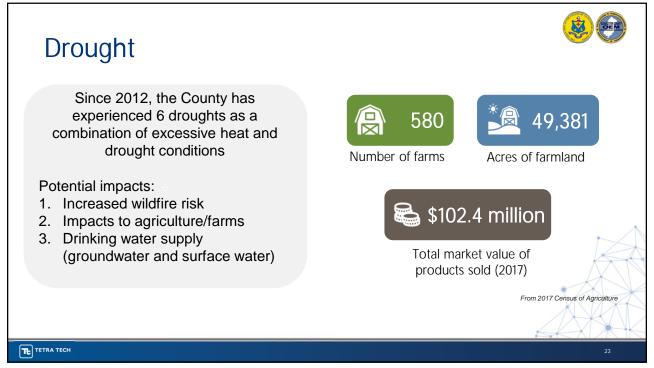
# Preliminary Ranking Overview Preliminary Low, Medium, High Frequency – unlikely to frequent Population – % population exposed to hazard area Property – % building stock exposed to hazard area Economy – % damage (Replacement Cost Value) for buildings exposed to hazard area Adaptative Capacity – low to high Climate Change – low to high Climate Change – low to high Adjustments Considered frequency of hazard event Considered overall impact to population, property, and/or economy Each municipality will review the ranking and adjust accordingly Every high ranked hazard will need a mitigation action

ı ıa	Zaru	ivai	nking Input Categories
Ca	itegory	Level / Category	Degree of Risk / Benchmark Values
	of Occurrence	Unlikely Rare Occasional Frequent	A hazard event is not likely to occur or is unlikely to occur with less than a 1% annual chance probability.  Between 1 and 10% annual probability of a hazard event occurring.  Between 10 and 100% annual probability of a hazard event occurring.  100% annual probability: a hazard event may occur multiple times per year.
		Low	14% or less of your population is exposed to a hazard with potential for measurable life safety impact, due to its extent and location.
	Population	Medium	15% to 29% of your population is exposed to a hazard with potential for measurable life safety impact, due to its extent and location.
		High	30% or more of your population is exposed to a hazard with potential for measurable life safety impact, due to its extent and location.
		Low	Property exposure is 14% or less of the total number of structures for your community.
Impact	Property	Medium	Property exposure is 15% to 29% of the total number of structures for your community.
		High	Property exposure is 30% or more of the total number of structures for your community.
		Low	Loss estimate is 9% or less of the total replacement cost for your community.
	Economy	Medium	Loss estimate is 10% to 19% of the total replacement cost for your community.
		High	Loss estimate is 20% or more of the total replacement cost for your community.
Capabilities Moderat (medium		Weak (low)	Weak/outdated/inconsistent plans, policies, codes/ordinances in place; no redundancies; limited to no deployable resources; limited capabilities to respond; long recovery.
		Moderate (medium)	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.
		Strong (high)	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	No local data is available; modeling projections 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; confidence level is medium to high (suggestive moderate evidence).
		High	Studies and modeling projections indicate exacerbated conditions/increased future risk due to climate change; very high confidence level (strong









### Earthquake

 Conducted assessment of 100-year and 500year probabilistic events





Replacement Cost Value (RCV) of building damages from a 500-year MRP event



Tons of structural debris from a 500-year MRP event



Estimated displaced households for 500-year MRP event



Individuals injured as a result of a 500-year MRP event (no causalities expected)

- Low frequency event but could have large impacts
- Low impact to life, high impact to property



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# Extreme Temperatures (heat and cold)



Reported events (1950 –2020)

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Population Exposed (<5 & 65+) 60,167

(20.7% of total population)



FEMA Disaster Declarations (1954 –2020)

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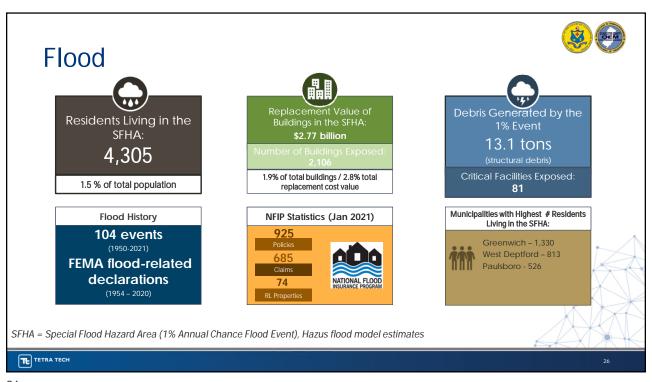
USDA Disaster Declarations

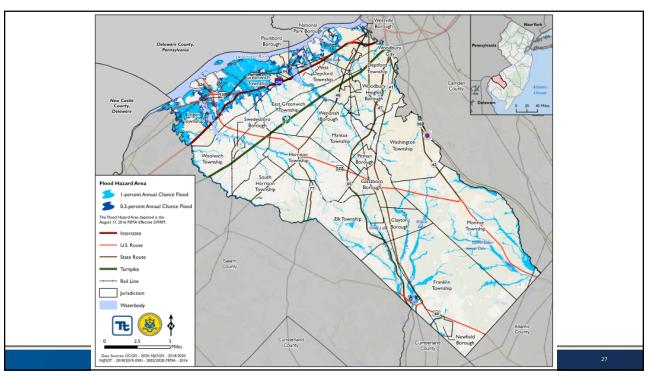
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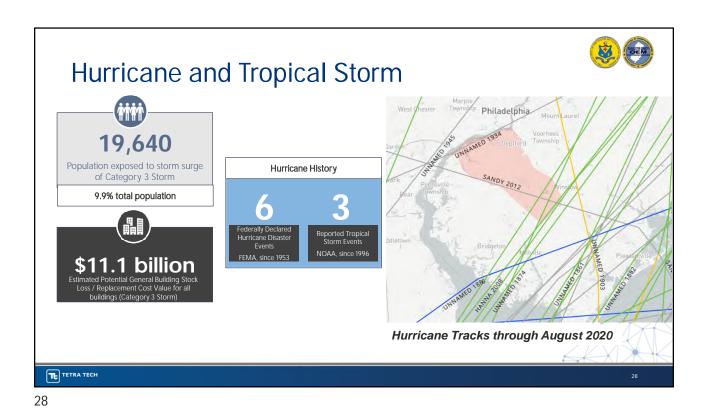


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Geological Hazards Landslides Historic landslides have occurred in the State with one FEMA disaster declarations involving a mudslide (2011), but Gloucester was not affected **™** 🚇 🛊 • 6,620 residents, or 2.3% of the County population live within the Steep Slope Hazard Area Subsidence/sinkholes Typically occur in areas within bands of carbonate bedrock 32,985 residents, or 11.3% of the County population live in Carbonate Rock Hazard Area TETRA TECH

### **Invasive and Nuisance Species**

- Emerald Ash Borer
  - Infests and kills North American ash trees
  - Trees die within 2-4 years of becoming infested
- Spotted Lanternfly
  - The insect is rapidly spreading throughout the northeast after first identified in 2014.
  - Could devastate agricultural areas
- Canada Geese
  - NJ has both resident and migratory geese
  - Geese feces damage property and pose a serious health threat due to presence of disease-causing organisms
  - Lead to agricultural damage







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### **Invasive and Nuisance Species**

- Harmful Algal Blooms
  - Impacts natural systems, recreation, drinking water supply
  - Impacted local waterbodies
- White-Tailed Deer
  - Deer populations have reached problematic numbers in numerous areas of the state.
  - Impacts on human health and safety include the spread of tick-borne diseases (Lyme Disease) and deer-vehicle collisions
  - From 2011-2012, more than 31,192 deer-vehicle collisions occurred in New Jersey

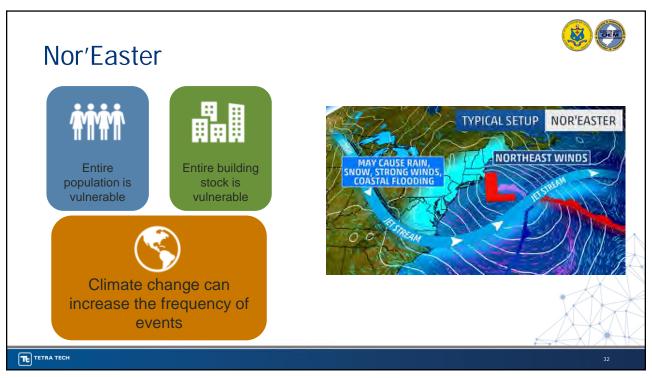


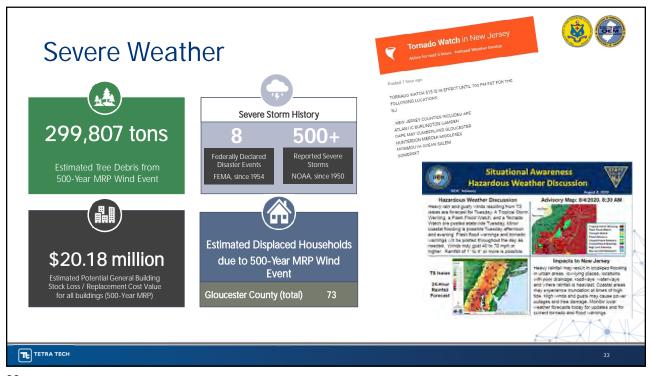


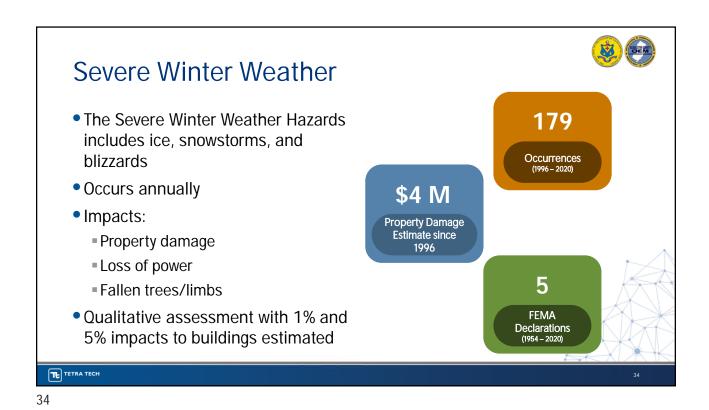


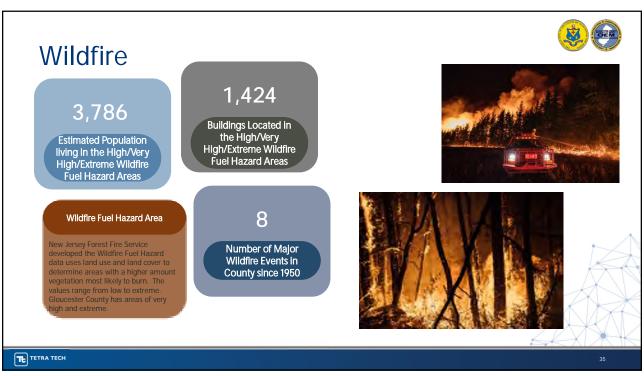
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## **Utility Failure**

- History
  - Primarily caused by other hazards
  - Power failure events common
- Impacts
  - HVAC failure
  - Communications failure
  - Food spoilage
  - Basement flooding
  - Carbon monoxide exposure from generators
  - Individuals' dependent on medical equipment
  - Access to potable water
  - High cost to government and community services

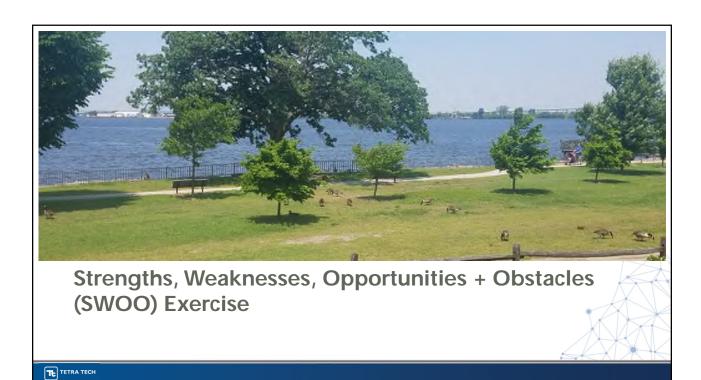




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# Strengths, Weaknesses, Obstacles, and Opportunities (SWOO)





	Hazard						
Strengths	Weaknesses						
What does the county and its communities do well in terms of:  > Plans and Regulations  > Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans  > Structure and Infrastructure Projects  > Natural Systems Protection  > Education and Awareness Programs  > Preparedness  > Others?	What can the county and its communities do better or what are the gaps in terms of:  Plans and Regulations Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans Structure and Infrastructure Projects Natural Systems Protection Education and Awareness Programs Preparedness Others?						

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

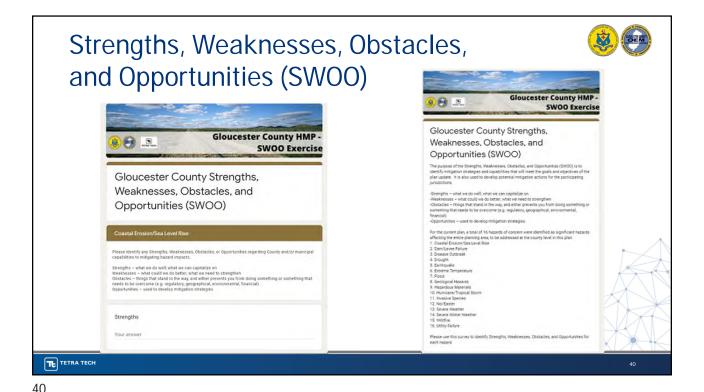




	Hazard						
Obstacles	Opportunities						
What is preventing the county and its communities to implement in terms of:  > Plans and Regulations  > Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans  > Structure and Infrastructure Projects  > Natural Systems Protection  > Education and Awareness Programs  > Preparedness  > Others?	What can the county and its communities implement terms of:  > Plans and Regulations > Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans > Structure and Infrastructure Projects > Natural Systems Protection > Education and Awareness Programs > Preparedness > Others?						

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Complete the On-line SWOO by July 7th



- https://forms.gle/2F1ecFNKhJrZ3ygh6
- Individual jurisdictions will be asked to complete the SWOO as well
- Important this informs the Mitigation Strategy development
  - We will use the responses to develop a mitigation catalog to help identify actions

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### 2021 HMP Goals and Objectives

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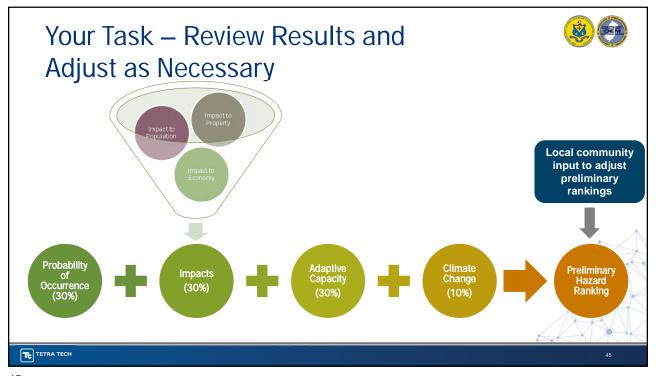


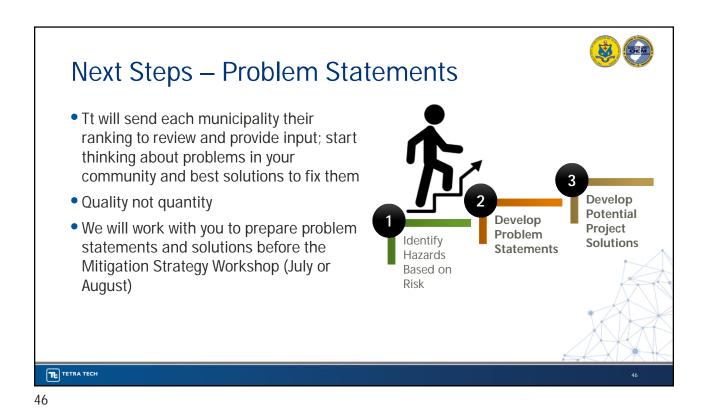
- Based on the input we received, the goals for the 2021 HMP are:
  - Goal 1 Protect Life
  - Goal 2 Protect Property
  - Goal 3 Improve education and outreach efforts regarding potential risk of natural hazards and appropriate mitigation measures that can be used to reduce risk
  - Goal 4 Improve data collection, use, and sharing to reduce the risk of natural hazards
  - Goal 5 Improve capabilities and coordination at municipal, county, and state levels to plan and implement hazard mitigation measures
  - Goal 6 Support Continuity of Operations Pre-, During, and Post-Hazard Events
  - Goal 7 Address Long-Term Vulnerabilities from High Hazard Dams

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Ouestions?

