LANCASTER COUNTY HAZARD MITIGATION PLAN UPDATE
Planning Team Risk Assessment Meeting – AGENDA
MEETING DATE/TIME: Monday, September 23 – 2:00 pm – 4:00 pm

In-Person at Lancaster County Public Safety Training Facility
(101 Champ Blvd., Manheim, PA 17545)

OR

Virtual Meeting via Teams
https://msteams.link/K5ME

1. **Welcome and Introductions**
2. **Project Status** - where we are in the process, public outreach
3. **Risk Assessment Overview**
    - Results of risk assessment for each hazard
    - Hazards of concern risk ranking
    - How will this information be used in the HMP?
4. **Preliminary Risk Assessment Results**
5. **Hazard Rankings**
6. **Review Preliminary Hazard Rankings**
7. **Next Steps**
8. **Questions/Discussion**

Lancaster County Project Contact
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Lancaster County, PA – Hazard Mitigation Plan 2025 Update
Planning Team Risk Assessment Meeting | Meeting Minutes

Purpose of Meeting:	Planning Team Risk Assessment Meeting
Location of Meeting:	Teleconference / In-Person @ Lancaster County Public Safety Training Facility (101 Champ Blvd., Manheim, PA 17545)
Date of Meeting:	September 23, 2024 @ 2:00 P.M.

Attendees:

- **Lancaster County Emergency Management Agency**
  - Ben Herskowitz, Deputy Director
  - Brooke Bowman, Community Resilience Coordinator & Volunteer Liaison
- **Lancaster County Chamber of Commerce**
  - Katharine DeSantis, Public Policy Coordinator
- **East Petersburg Borough**
  - Violet DeStefano, Emergency Management Coordinator
- **Lancaster City**
  - Chris DeLong, Deputy Chief, Lancaster City Bureau of Fire; Emergency Management Coordinator
- **Tetra Tech**
  - Jessica Stokes, Project Manager
  - Emily Vassallo, Lead Planner

Agenda Summary: The purpose of the meeting was to provide an overview of the hazard mitigation planning process, discuss public and stakeholder outreach efforts, review the risk assessment results, including the County hazard ranking, obtain feedback, introduce the hazard ranking worksheets, and review next steps.

Item No.	Description	Action item(s):
1	**Introductions**	-

2	**Project Status**
	• Municipal Participation Status
	• Public Outreach and Engagement
	  ○ Post links on social media and department/agency websites
	  ○ Stakeholder and neighboring municipalities surveys have been distributed
	  ○ Make efforts to reach out to:
	  ▪ General Public
	  ▪ Stakeholders
	  ▪ Neighbors
		Planning Team
		• Post links on social media and department/agency websites
		• Make efforts to reach out to public, stakeholders, neighbors, and socially vulnerable populations

3	**Risk Assessment Overview**
	• 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
		-

4	**Preliminary Risk Assessment Results**
	• Provided an overview of the results from the risk assessment for each hazard. Results were a combination of qualitative and quantitative data.
	  ○ Hazards:
	  ▪ Dam Failure
	  ▪ Drought
	  ▪ Earthquake
	  ▪ Environmental Hazards:
		-

	▪ Gas and Pipeline ▪ Environmental Hazards: Hazardous Materials ▪ Flood, Flash Flood, Ice Jam ▪ Hailstorm ▪ Invasive Species ▪ Nuclear Incident • TMI is intending on reopening under a new name. Adjust hazard profile to include note about this. Include in hazard profile the Salem Nuclear Power Plant (County in 50-mile EPZ) and the Susquehanna Steam Electric Station, whose 50-mile EPZ ends only 0.5 miles from the County bounty. ▪ Pandemic and Infectious Disease ▪ Radon Exposure ▪ Subsidence, Sinkhole ▪ Tornado, Windstorm ▪ Transportation Accident ▪ Utility Interruption ▪ Wildfire ▪ Winter Storm	
5	**Hazard Rankings** • 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. • Ranking: ○ High: Subsidence, Sinkhole; Hailstorm ○ Medium: Utility Interruption; Winter Storm; Wildfire; Transportation Accident; Tornado, Windstorm; Flood, Gas and Liquid Pipelines; Nuclear Incident; Dam Failure; Hazardous Materials; Drought ▪ Discussion about potentially changing flood due to increased frequency and fatalities in recent years. ○ Low: Invasive Species; Earthquake; Pandemic; Radon Exposure	-
6	**Review Preliminary Hazard Rankings** • Complete Table 1 in the worksheet by indicating whether the preliminary hazard ranking is agreed with. If you would like to change the ranking, please identify the desired new ranking and a justification for the adjustment. • Complete Table 2 in the worksheet by indicating whether the preliminary adaptive capacity ranking is agreed with. If you would like to change the ranking, please identify the desired new ranking and a justification for the adjustment.	**Planning Team** • Complete preliminary rankings worksheet by October 7
7	**Next Steps** • Share information about the HMP Update via social media, community groups, and networks • Complete Preliminary Rankings worksheet • Stay tuned for the Steering Committee Risk Assessment and Mitigation Strategy Workshop meetings	**Planning Team** • Send final email inquiring on completed worksheets; final submission by October 4

8	**Questions/Discussion**
	• Brooke Bowman - Question of meetings coming up from Brooke due to election time coming up
	  ○ Jessica Stokes and Brooke Bowman will follow up to determine these
	• Violet DeStefano - Do they have to submit these worksheets to participate?
	  ○ Not submitting does not bar them from participating, but it certainly helps
	• Ben Herskowitz is continuing to call and attempting to get the participation
	  ○ County advised people to look at previous plan for help, most did not have anything in the plan relevant to them
	• Brooke Bowman - Question on participation requirements for the plan. Is it attending meeting AND worksheet?
	  ○ Jessica Stokes to double check these requirements
		-

TETRA TECH

County of Lancaster ~ Pennsylvania ~ Founded May 10, 1729

Lancaster County Hazard Mitigation Plan 2025 Update

Planning Team Risk Assessment Meeting

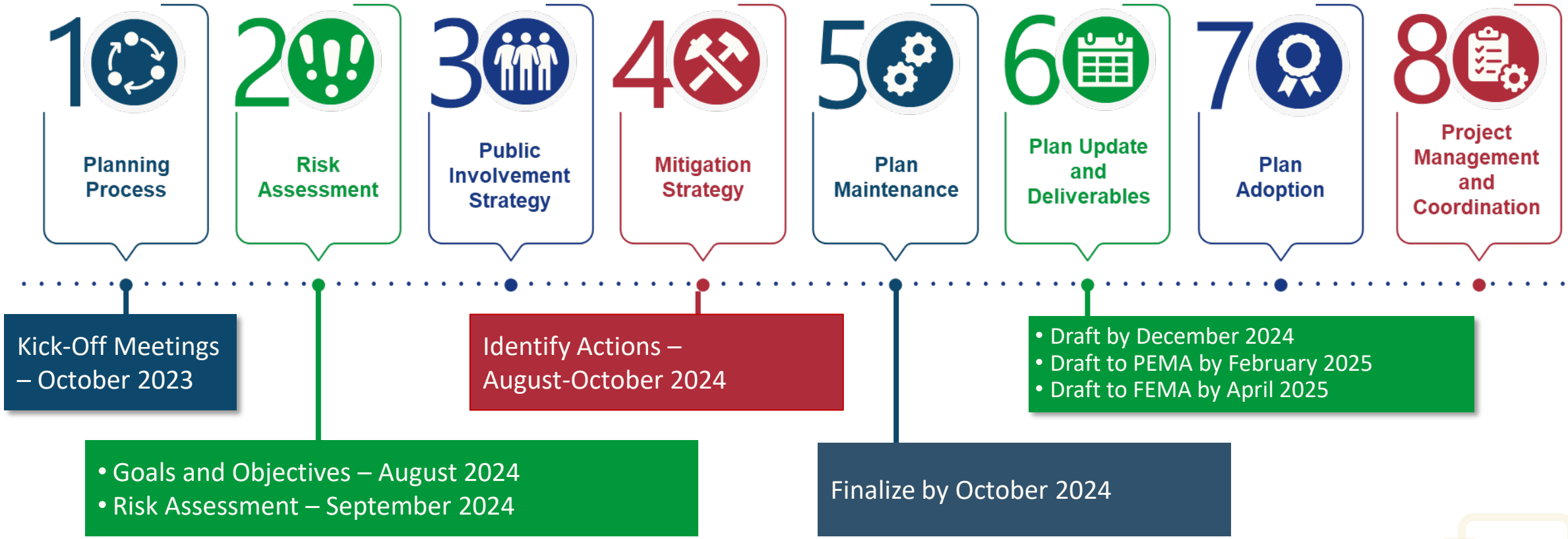
September 23, 2024

Today's Agenda

1. Welcome and Introductions
2. Project Status
3. Risk Assessment Overview
4. Preliminary Risk Assessment Results
5. Hazard Rankings
6. Review Preliminary Rankings
7. Next Steps
8. Questions/Discussion

Project Status

Schedule


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
Kick-Off Meetings – October 2023
• Goals and Objectives – August 2024
• Risk Assessment – September 2024
Identify Actions – August-October 2024
Finalize by October 2024
• Draft by December 2024
• Draft to PEMA by February 2025
• Draft to FEMA by April 2025

Municipal Participation Status

To date, we have not received all municipal worksheets. The worksheets should be submitted as soon as possible. Please submit worksheets to (HMP@lancastercountypa.gov).

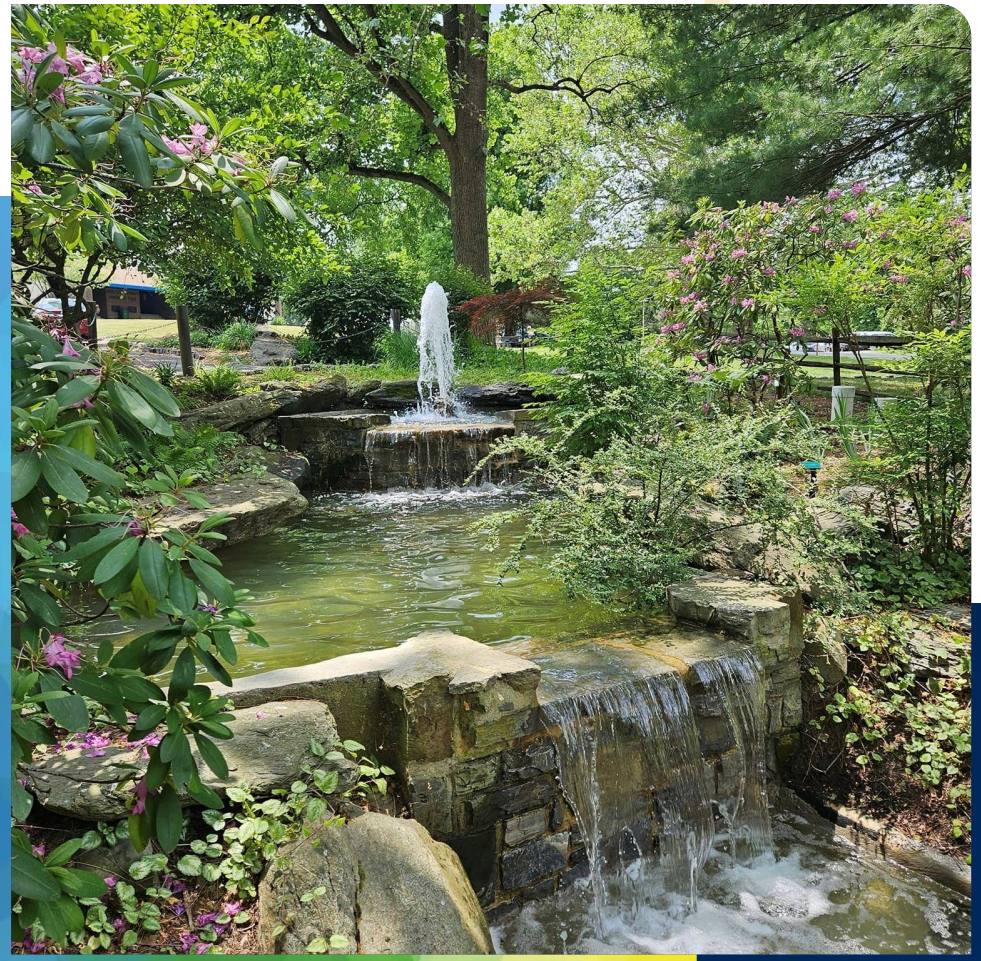
Municipality	Worksheets
Adamstown (B)	HE, CA, NFIP
Brecknock (Twp)	MS
East Drumore (Twp)	MS
East Earl (Twp)	HE, CA, NFIP, MS
Fulton (Twp)	HE, CA, NFIP
Millersville (B)	CA

Municipality	Worksheets
Mountville (B)	HE, CA, NFIP, MS
Paradise (Twp)	HE, CA, NFIP, MS
Pequea (Twp)	CA, NFIP, MS
Salisbury (Twp)	HE, CA, NFIP, MS
Terre Hill (B)	HE, CA, NFIP, MS
West Lampeter (Twp)	NFIP

(HE) – Hazard Evaluation; (CA) – Capability Assessment; (NFIP) – National Floodplain Insurance Program; (MS) – Mitigation Strategy

Public Outreach

- Public Outreach Toolkit
  - Social media templates and posts
  - Press release templates
  - Printable materials
- Surveys
  - Stakeholders
  - Neighboring communities
  - Public
- County Website
- StoryMap



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 Lancaster 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

84

- 7 High Hazard

Impacts

- Dam failure can cut evacuation routes, limit emergency access, and/or create isolation issues.
- Severe flooding 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 Failure Event

Source: Times Union 2021

Climate Change Impacts

Lancaster County is expected to experience increased precipitation and more frequent, intense storms. Excessive rainfall can cause a dam to overflow since these structures are designed partly based on assumptions about river flow and precipitation patterns. More frequent and intense precipitation leads to more intense dam overtopping, potentially affecting a larger area and producing stronger water velocities that exacerbate damages to general building stock and critical facilities.

Drought

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

Population Exposed

552,984

The entire County is susceptible

Climate Change Impacts

Short-term seasonal droughts lasting weeks or months could increase, especially in the summer. This is because of precipitation falling in more intense bursts with longer dry spells in between and higher temperatures in the summer causing more water to evaporate. The potential increase of short-term droughts may impact water systems, resulting in water shortages.

Drought Damaged Field

Source: New York Times 2012

Hazard Types

Meteorological

Hydrological

Agricultural

Socioeconomic

Earthquake

Earthquakes in Lancaster 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.

Commercial buildings are the most impacted structure type in terms of incurred damages, followed by residential buildings.

Population Exposed

552,984

The entire County is susceptible

Hazard Types

Surface Faulting

Ground Motion

Liquefaction

Tectonic Deformation

Number of Buildings Exposed

285,764

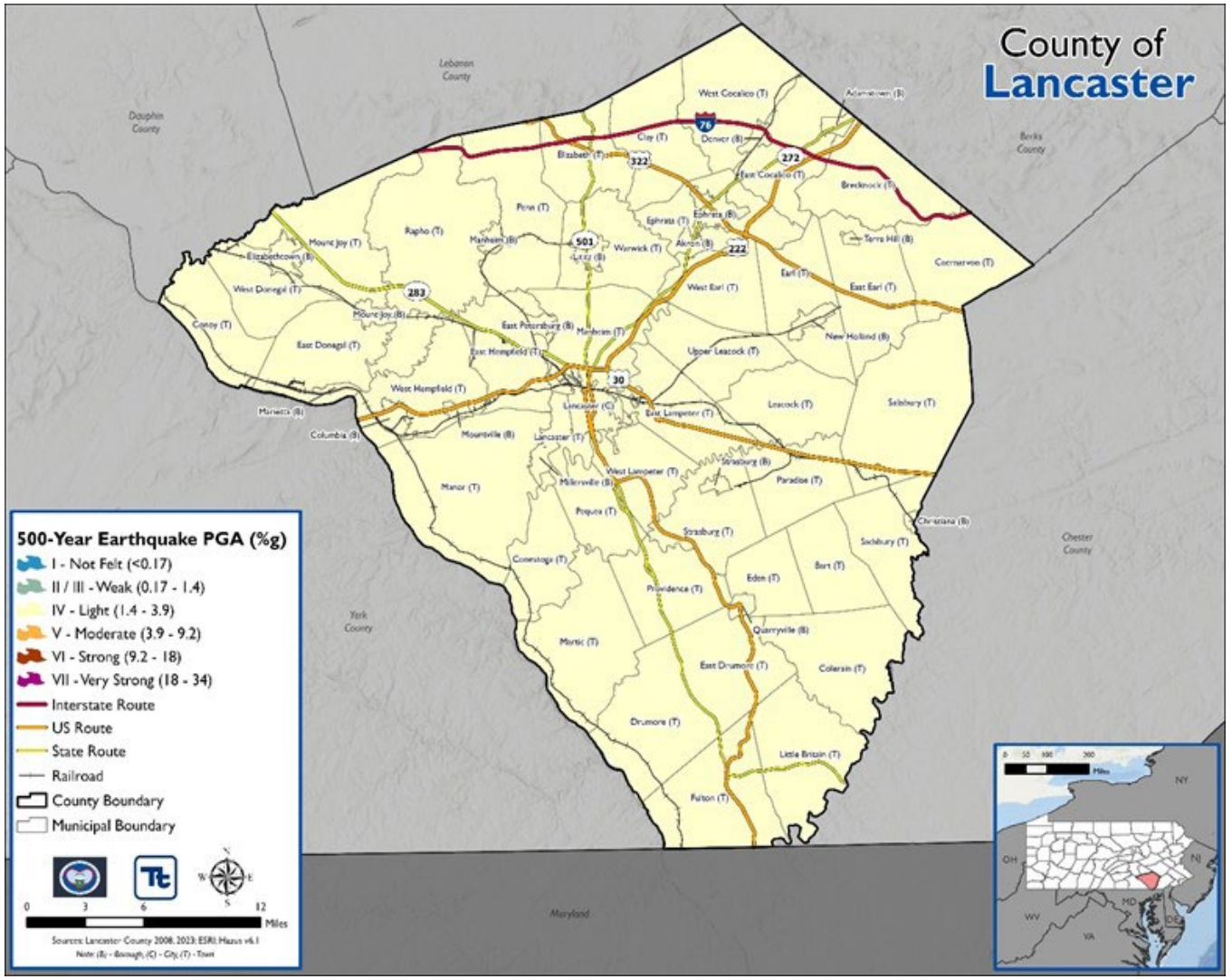
all buildings are exposed

Building Replacement Cost Value

$69,743,412

for impacted buildings

500-Year Peak Ground Acceleration in Lancaster County



Environmental Hazard

Gas and Pipelines

Gas and liquid pipelines run across Lancaster County, particularly in across the County's northern point and it's mid- and lower-regions. Incidents involving gas and liquid pipelines can immediately and adversely impact the general population, causing effects ranging from inconvenient evacuations to personal injury and even death.

Environmental Impacts

Contamination of soil, surface water, and groundwater can result in many direct impacts on surrounding populations (water, food sources) and ecosystems.

Population Exposed

38,496

Within 0.25 miles of a pipeline

Community Lifelines Exposed

538

Within 0.25 miles of a pipeline

Number of Buildings Exposed

18,340

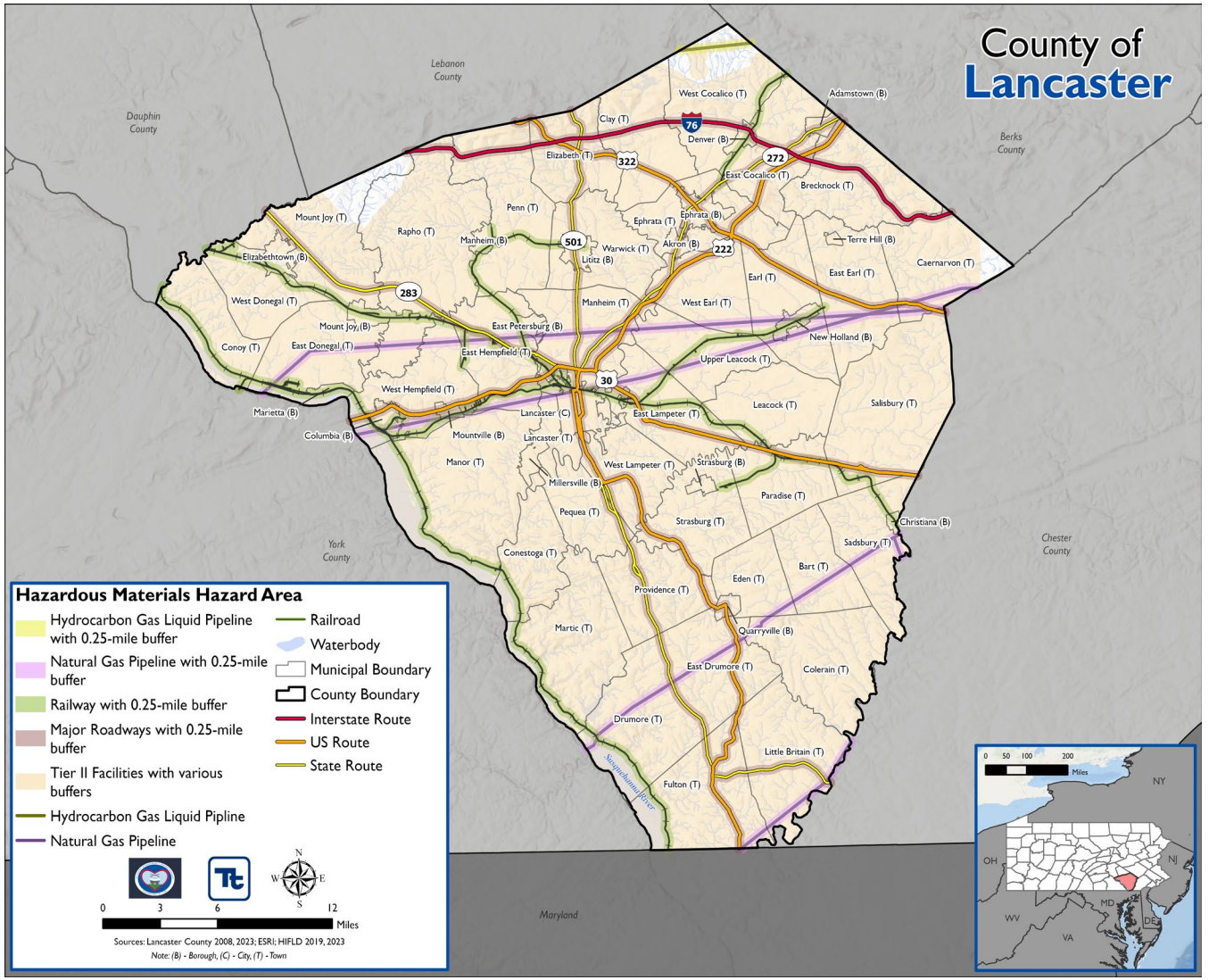
Within 0.25 miles of a pipeline

Building Replacement Cost Value

$30,572,094,336

Within 0.25 miles of a pipeline

Hazardous Materials Hazard Areas in Lancaster County



Environmental Hazard

Hazardous Materials

A hazardous materials incident may occur in transit or at a fixed facility. Release of certain products can adversely impact the general population, ranging from evacuations to personal injury and even death. Moreover, any release can compromise the local environment through contamination of soil, groundwater, or local flora and fauna.

Population Exposed

104,577

Within 0.25 miles of a major highway

57,263

Within 0.25 miles of a rail line

551,061

Unique radius for SARA Type II Facilities

Number of Buildings Exposed

52,535

Within 0.25 miles of a major highway

32,924

Within 0.25 miles of a rail line

283,655

Unique radius for SARA Type II Facilities

Community Lifelines Exposed

1,783

Within 0.25 miles of a major highway

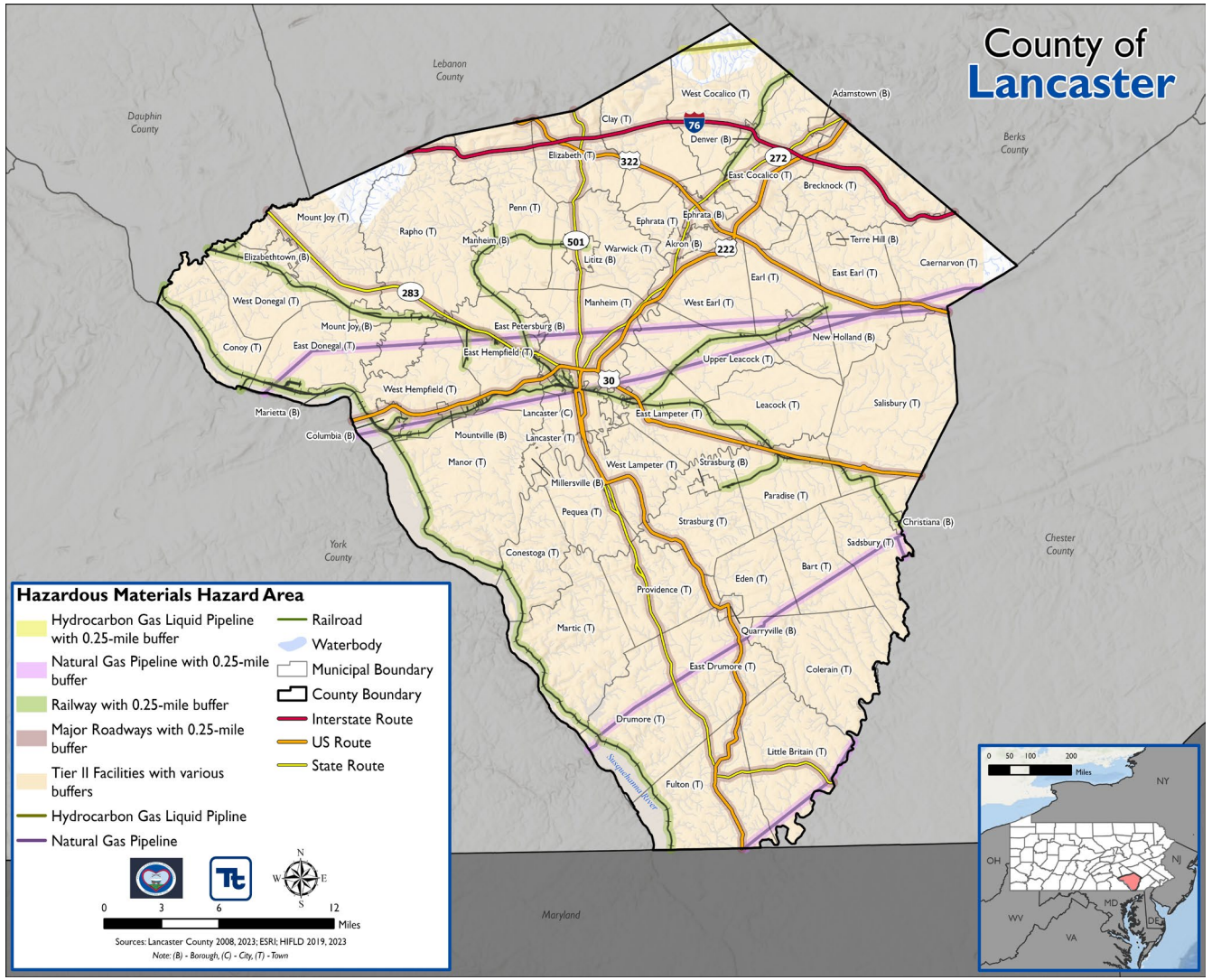
1,143

Within 0.25 miles of a rail line

6,450

Unique radius for SARA Type II Facilities

Hazardous Materials Hazard Areas in Lancaster County



Flood, Flash Flood, Ice Jam

Floods can happen almost anywhere in County but tend to occur in and around areas near existing bodies of water. Sloped land in the County results in flowing water moving down steeper gradients and being naturally or artificially channelized through valleys and gullies.

Climate Change Impacts

An increase in variability of temperature and precipitation may lead to increased frequency and/or severity of events. Summer floods are projected to increase because of increased variability in precipitation. Winter precipitation may increasingly fall as rain rather than snow due to higher temperatures.

Hazard Types

Riverine | Flash Flood | Ice Jam

Number of Buildings Exposed

3,808

In 1% Annual Chance Flood Area

6,260

In 0.2% Annual Chance Flood Area

Population Exposed

3,906

In 1% Annual Chance Flood Area

8,234

In 0.2% Annual Chance Flood Area

Flood Building Replacement Cost Value

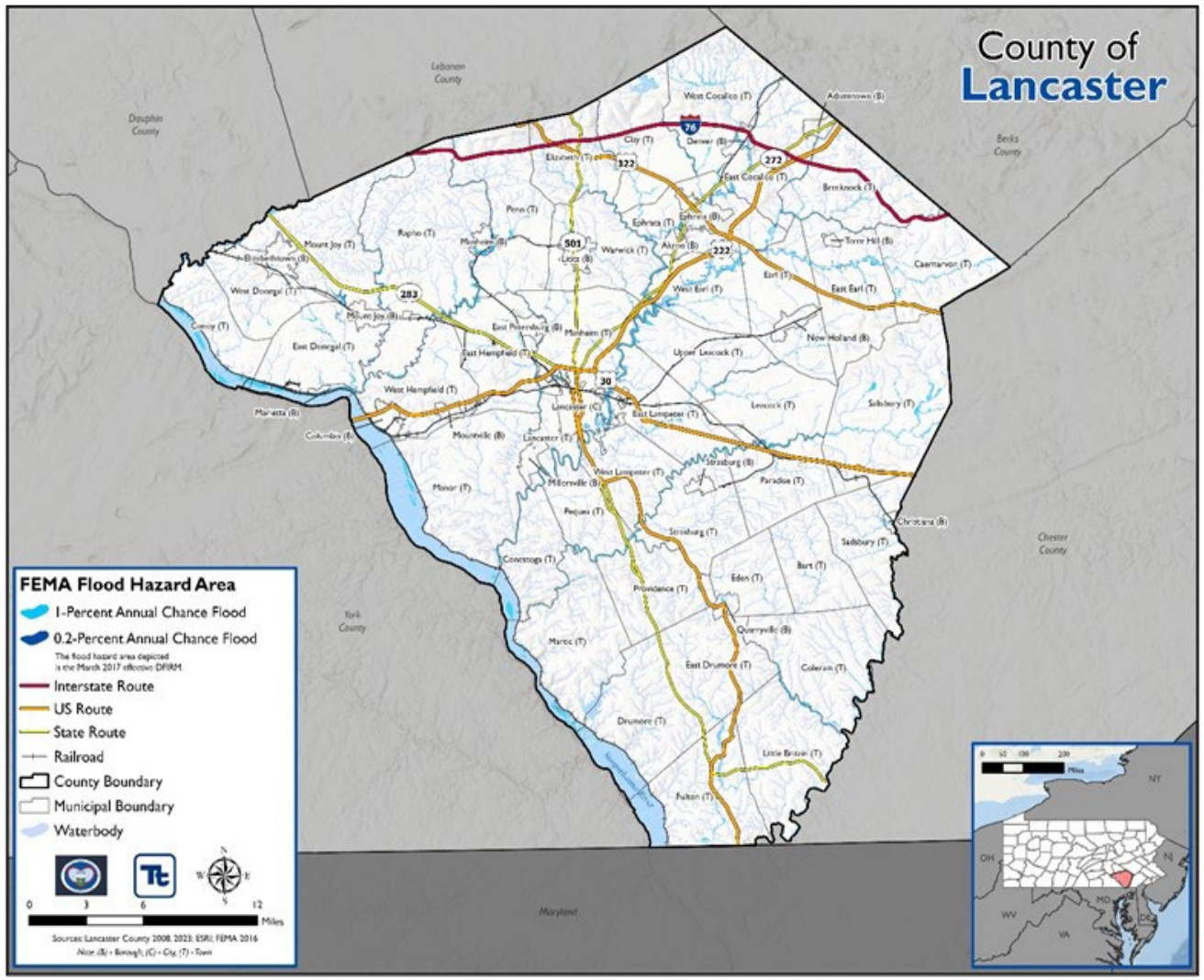
$6,121,756,102

In 1% Annual Chance Flood Area

$8,842,252,425

In 0.2% Annual Chance Flood Area

FEMA Flood Hazard Areas



Hailstorm

A hailstorm is a storm accompanied by hail, which is precipitation in the form of small balls or lumps of clear ice or compact snow. The size of hailstones is directly related to the size and severity of the storm. Damage to crops and vehicles is typically the most significant impact of hailstorms.

Agriculture Exposure

378,574	4,680
Acres of farmland	Farms

Population Exposed

552,984

The entire County is susceptible

Vulnerable Populations

People outdoors (for example, pursuing recreational activities and farming) are considered most vulnerable to the hazard because they ordinarily would receive little to no warning, and shelter may not be available.

Climate Change Impacts

An increase in variability of temperature and precipitation may lead to increased frequency and/or severity of events. An increase in severe storm events can lead to more instances of hail development.

Pile of Fallen Hailstones

Source: WGAL 2017

Invasive Species

Some invasive species are not considered agricultural pests and do not harm humans. Other invasive species can cause significant changes in the composition of County's ecosystems. Invasive species have the potential to impact over 378,574 acres of agricultural land in Lancaster County, which has the market value of $1,854,419,000.

Agriculture Exposure

378,574	4,680
Acres of farmland	Farms

Population Exposed

552,984

The entire County is susceptible

Environmental Impacts

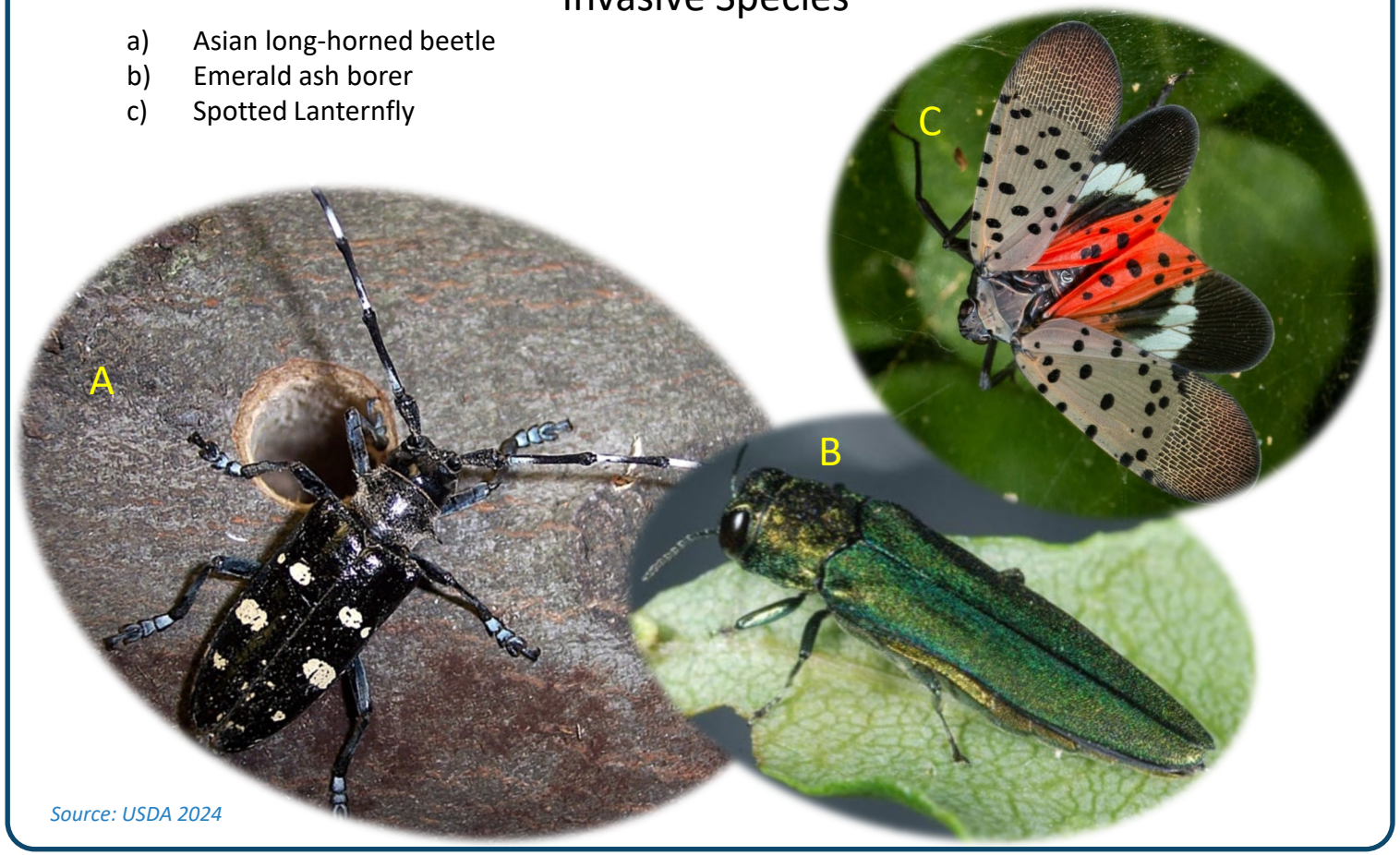
The aggressive nature of many invasive species can cause reductions in biodiversity by crowding out native species. This can affect the health of individual organisms and the overall well-being of the affected ecosystem.

Climate Change Impacts

Changing weather patterns could create a change in the migration patterns for when species move into and out of Lancaster County. If the species have a more prolonged existence in the County, there may also be a greater number of infestation events, or a higher value of loss tied to infestation.

Invasive Species

a) Asian long-horned beetle
b) Emerald ash borer
c) Spotted Lanternfly



Source: USDA 2024

Nuclear Incident

Nuclear incidents are a low-probability and high-consequence event. A nuclear incident can have devastating impacts on the County. Nuclear hazards and incidents generally refer to incidents involving a release of significant levels of radioactive materials or exposure of workers or the general public to radiation.

Population Exposed

Peach Bottom		Limerick
60/60 jurisdictions	5/60 jurisdictions	54/60 jurisdictions
50-Mile EPZ	**10-Mile EPZ**	**50-Mile EPZ**

Primary Concerns

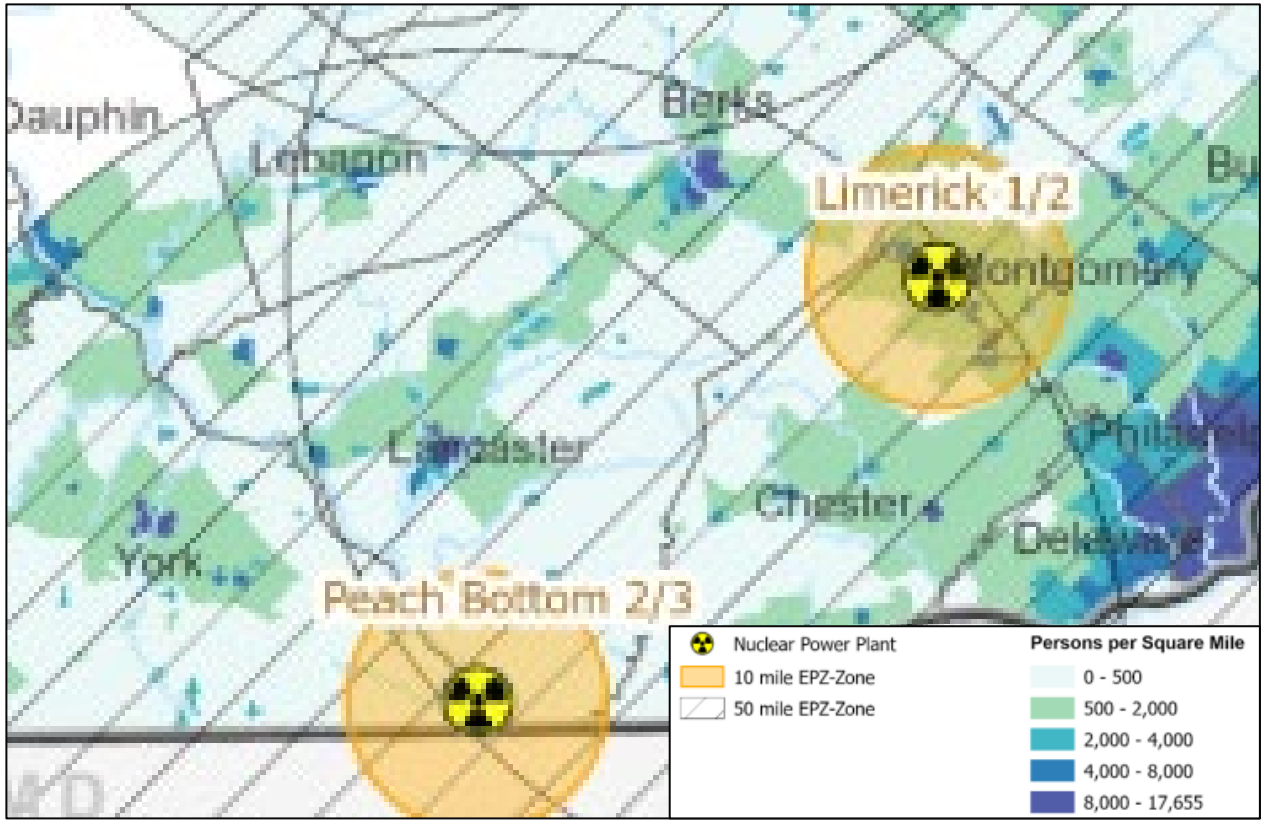
Primary concerns following a nuclear incident or accident are the impact on public health from:

- direct exposure to a radioactive plume
- ingestion of contaminated food, water, and milk
- inhalation of radioactive materials
- long-term exposure to deposited radioactive materials in the environment that may lead to either acute or chronic health effects

Notable Occurrence

The March 28, 1979 incident at the Three Mile Island nuclear facility, which is no longer in operation, led to the development of a 14-year cleanup and scientific effort. Despite the severity of the damage, no injuries due to radiation exposure occurred. However, numerous studies were conducted to determine the measurable health effects related to radiation and/or stress.

EPZ-Zones Inclusive of Lancaster County



Source: PEMA 2023

Pandemic and Infectious Disease

Pandemics and infectious diseases can impact the entirety of Lancaster 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

552,984

The entire County is susceptible. As population density increases in the County, so too will the probability of a disease outbreak event to occur. When there is a significant change in a circulating strain of a virus, more of the population is susceptible and the strain could rapidly spread from person to person.

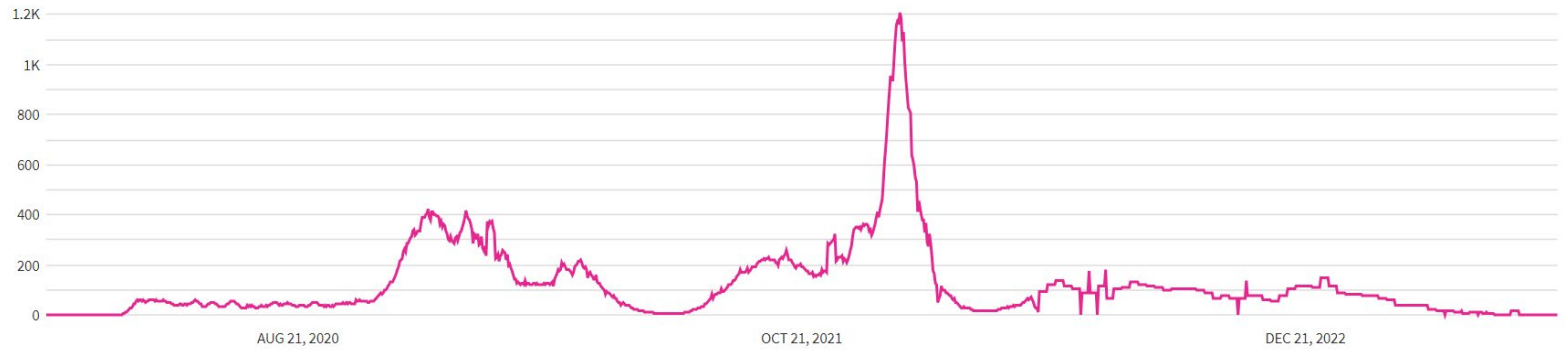
Vulnerable Populations

- Healthcare providers and first responders have an increased risk of exposure due to their frequent contact with infected populations.
- The elderly and immunocompromised individuals may have increased vulnerability to becoming infected or experience exacerbated impacts depending upon the disease.

Climate Change Impacts

There has been discussion that rising temperatures will increase the number of mosquitoes that can transmit disease among humans. Furthermore, the increase in projected precipitation may lead to larger areas of pooling water, creating a more favorable environment for mosquito habitats.

COVID-19 Cases Per Day in Lancaster County, January 2020 – July 2023



COVID-19 Deaths Per Day in Lancaster County, January 2020 – July 2023

Radon Exposure

Radon is a natural gas that cannot be seen, smelled, or tasted. According to the EPA, radon is estimated to cause more than 20,000 lung cancer deaths per year, second only to smoking as the leading cause of lung cancer. An estimated 40 percent of homes in Pennsylvania are believed to have elevated radon levels.

Primary Influential Factors

1. Radon content of the soil
2. Pressure differential between the interior of the home and the soil
3. Air exchange rate for the home
4. Moisture content surrounding the home
5. Presence and size of entry pathways

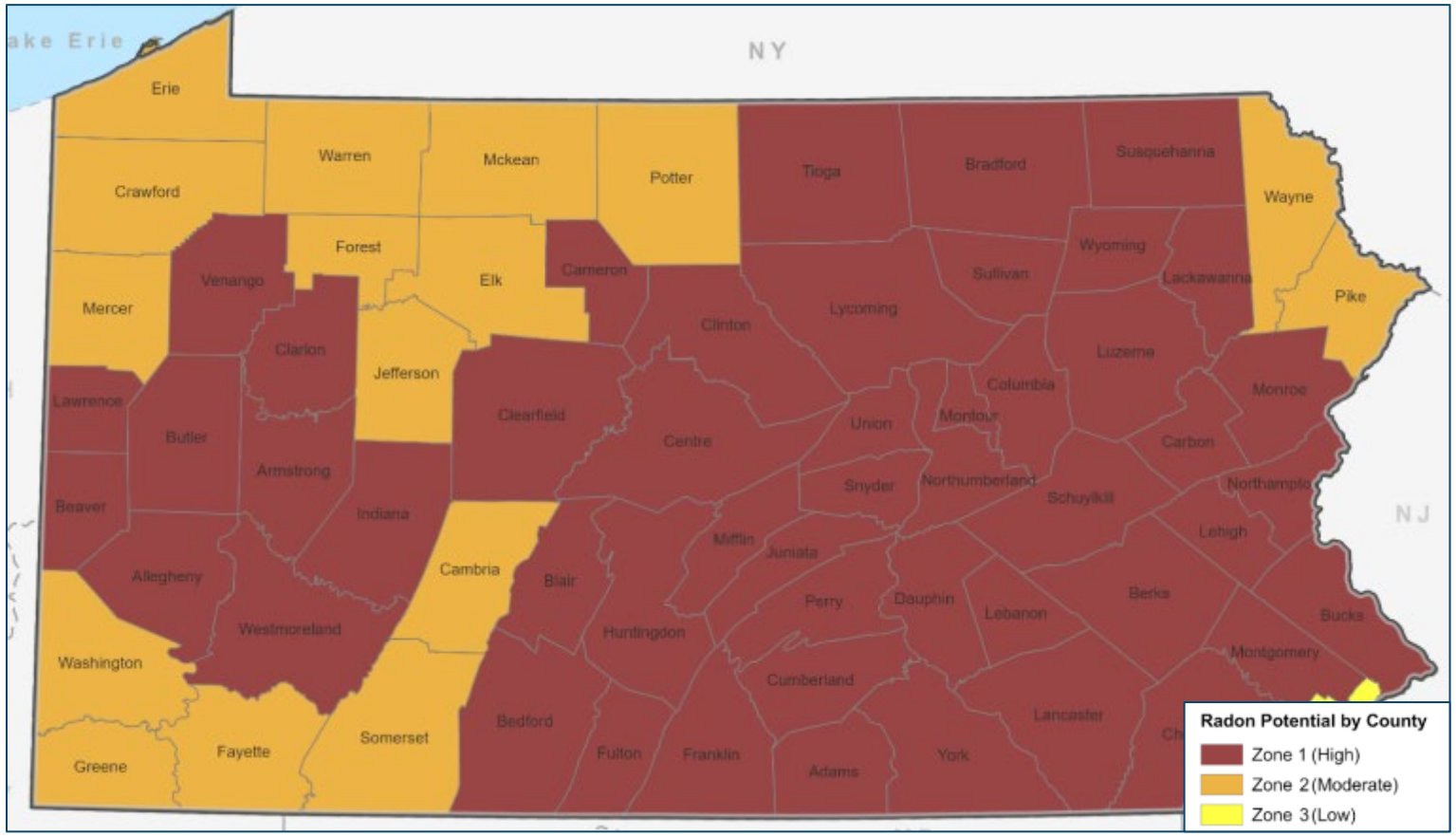
Population Exposed

552,984

The entire County is susceptible

The Pennsylvania Department of Environmental Protection Bureau of Radiation Protection will publish radon testing results if a zip code has had at least 30 tests conducted. The Bureau collected enough radon results from residences in 4 out of 8 zip codes within Lancaster County. For basement tests only, zip code (17601) recorded the highest maximum result (403 pCi/L), with a total recorded number of 13,373 tests. Zip code (17604) recorded the highest average result (10.7 pCi/L), with a total recorded number of 44 tests.

Radon Potential in Lancaster County



Source: PEMA 2023

Subsidence, Sinkhole

Subsidence and sinkholes are common in the Commonwealth. Of particular concern is mine subsidence due to the number of underground coal and clay mines. The karst topography, including limestone bedrock, makes Lancaster County susceptible to subsidence and sinkholes.

Climate Change Impacts

Extended growing seasons, higher temperatures, and the possibility of more intense and less frequent summer rainfall may lead to changes in water availability. Changes to the water balance of an area (including over-withdrawal of groundwater, diverting surface water, and drilling new water wells) will cause sinkholes. These actions can also accelerate the natural processes of bedrock degradation, which can have a direct impact on sinkhole creation.

Number of Buildings Exposed

105,107

Subsidence/Sinkhole Hazard Area

Population Exposed

238,693

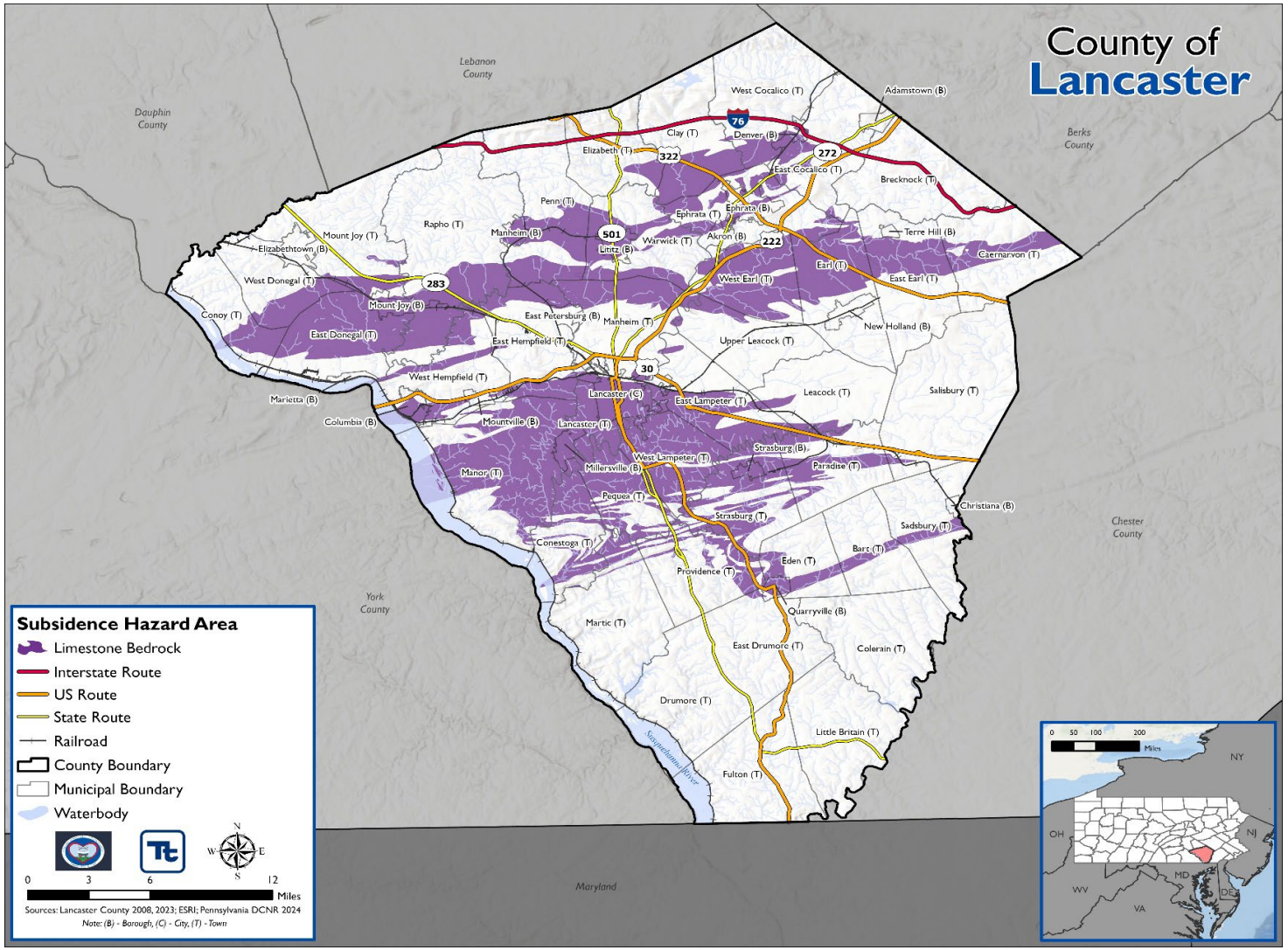
Subsidence/Sinkhole Hazard Area

Building Replacement Cost Value

$191,708,236,807

Subsidence/Sinkhole Hazard Area

Subsidence and Sinkhole Hazard Area in Lancaster County



Tornado, Windstorm

Tornadoes and windstorms can occur throughout Lancaster County, though events are usually localized. It is critical for the community to prepare and be aware of forecasts in their local jurisdictions.

Population Exposed

552,984

The entire County is susceptible

500-Year MRP Event

28	16
Displaced Households	Persons Seeking Shelter

Potential Impacts

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

Debris Production (tons)

60,464	46	253,415
Brick and Wood	Concrete and Steel	Tree

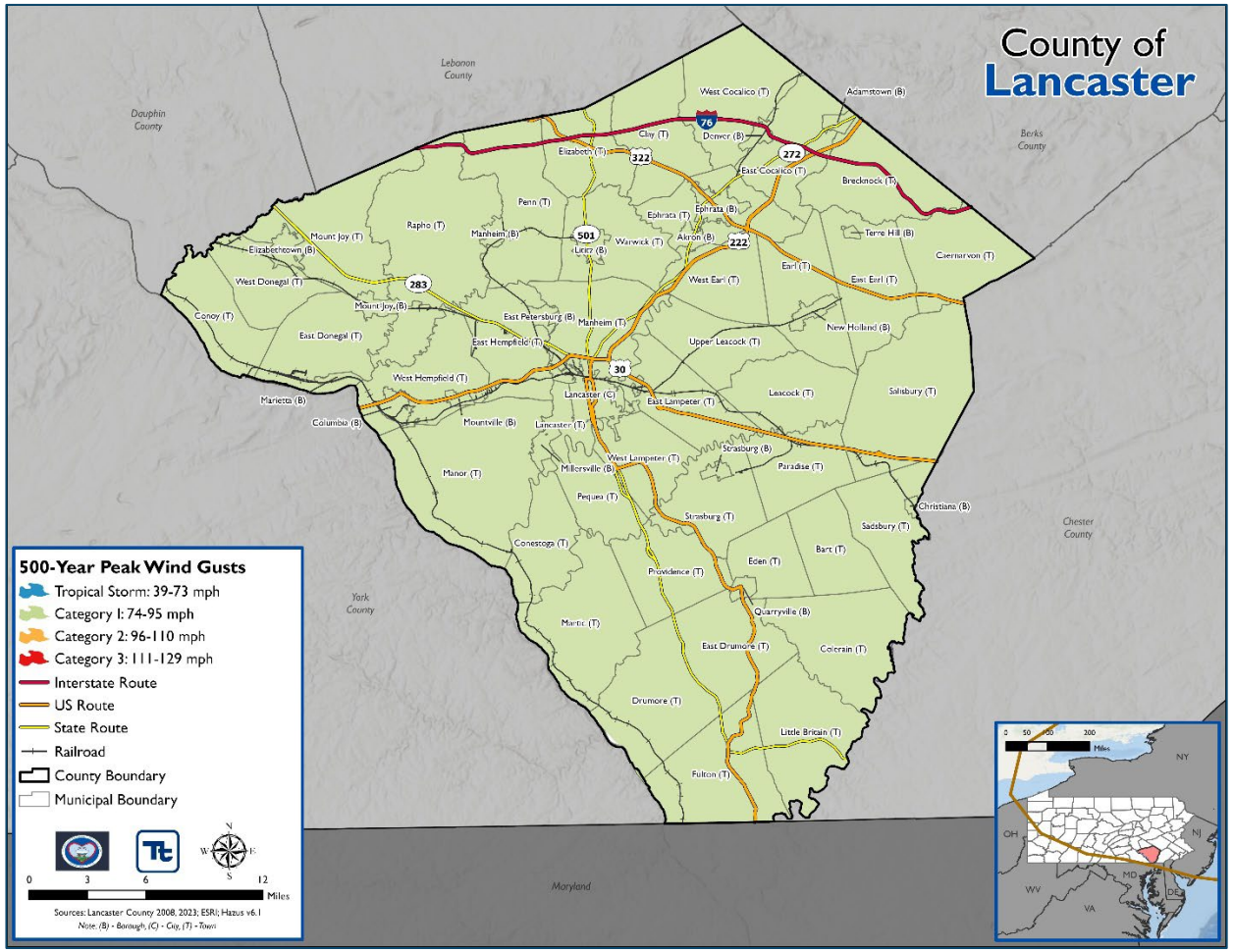
Building Damages from the 500-Year MRP Event

41	352	3,143	14,077
Destruction	Severe Damage	Moderate Damage	Minor Damage

Total Estimated Building Losses from the 500-Year MRP Event

$232,858,929	$181,188,253	$8,074,963	$32,649,738
Residential	Commercial	Industrial	All Other Occupancies

500-Year MRP Peak Wind Gusts in Lancaster County



Transportation Accident

Transportations accidents can occur anywhere in the County at any time. Transportation accidents are defined as incidents involving highway, air, and rail travel, resulting in death, serious injury, extensive property loss or damage or situations that cause delay or closure.

Population Exposed

552,984

The entire County is susceptible

Hazard Types

- Vehicular
- Aviation
- Rail

Miles of Road

Interstate Highway	30.6
Freeways/Expressways	20.0
Principal Arterials	99.7
Minor Arterials	291.2
Major Collectors	456.7
Minor Collectors	234.3
Local Road: State-Owned	143.7
Local Road: Municipal-Owned	2,586.6
Total	**3,896.8**

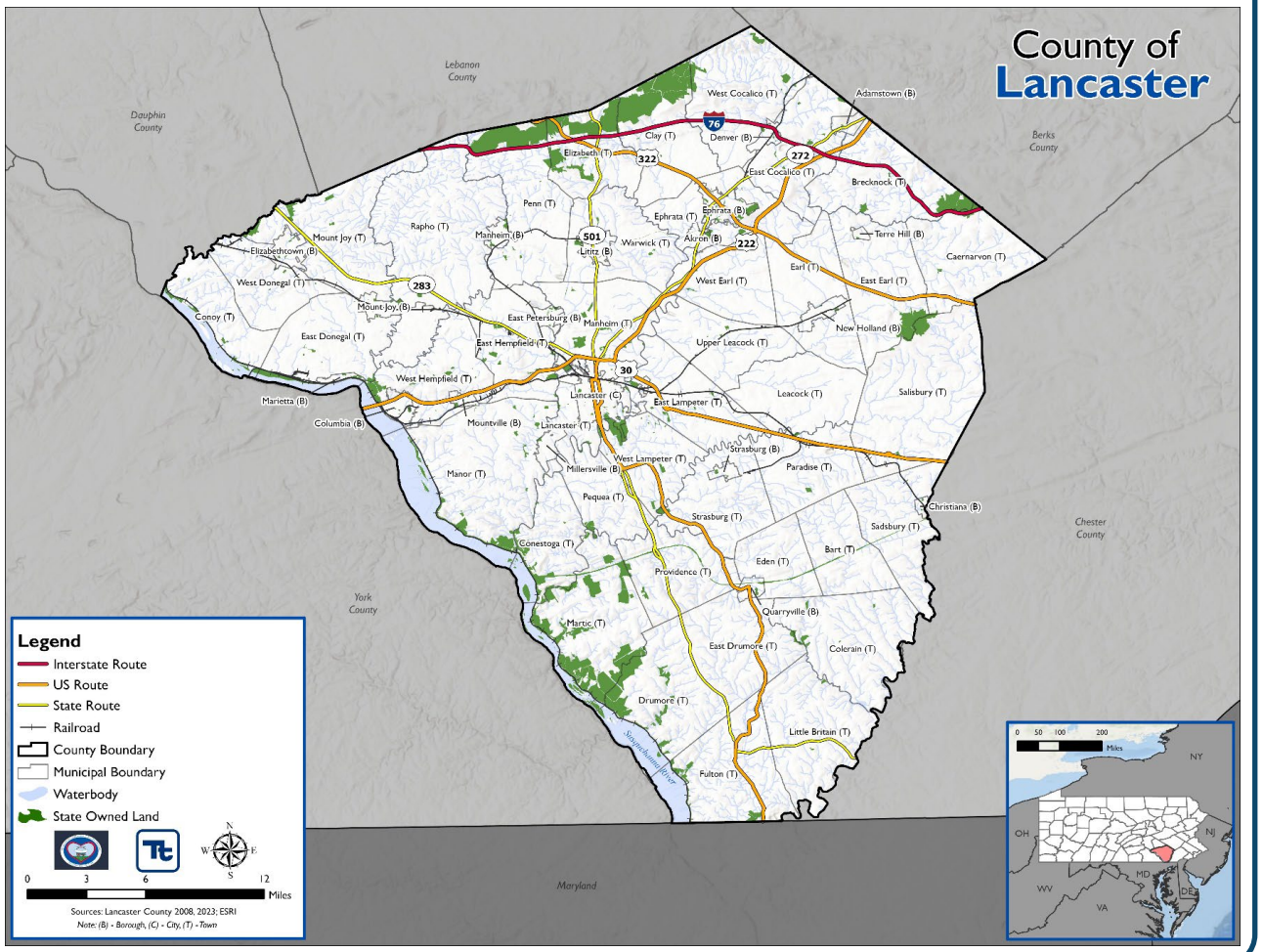
2023 Transportation Fatalities

Vehicle	Aviation	Rail
49	0	0

2023 Transportation Accidents

Vehicle	Aviation	Rail
5,573	3	0

Transportation Routes in Lancaster County



Utility Interruption

Utility interruption can occur anywhere in the County and has the potential to be life-threatening. It is critical for the community to prepare and be aware of forecasts in their local jurisdictions which may result in utility interruptions.

Population Exposed

552,984

The entire County is susceptible

Vulnerable Populations

Utility interruptions most severely affect individuals with access and functional needs (such as children, the elderly, and individuals with special medical needs). Special medical equipment will not function without power.

Climate Change Impacts

The Commonwealth has warmed more rapidly than the national average, and winter is warming faster than other seasons. Evidence shows that hot days are happening more often, and multiday heat waves are expected to occur more often and last longer in the upcoming decades which may impact utilities in the County.

Power Restoration in Lancaster County

Source: WGAL 2014

Cascading Impacts

- Fires
- Temperature-Related Illnesses
- Traffic Accidents
- Loss of Food, Water, and Medical Resources
- Wastewater and Potable Water Utility Interruption

Wildfire

Wildfires can occur at any time of the year but are most likely in Lancaster County during a drought, and can occur in fields, grass, and brush as well as in the forest itself. Under dry conditions or droughts, wildfires have the potential to burn forests as well as croplands. Wildfires can have impacts on critical services, utilities, and properties, and may cause injury.

Population Exposed

27,594

WUI Interface Hazard Area

29,090

WUI Intermix Hazard Area

Number of Buildings Exposed

19,028

WUI Interface Hazard Area

19,801

WUI Intermix Hazard Area

Building Replacement Cost Value

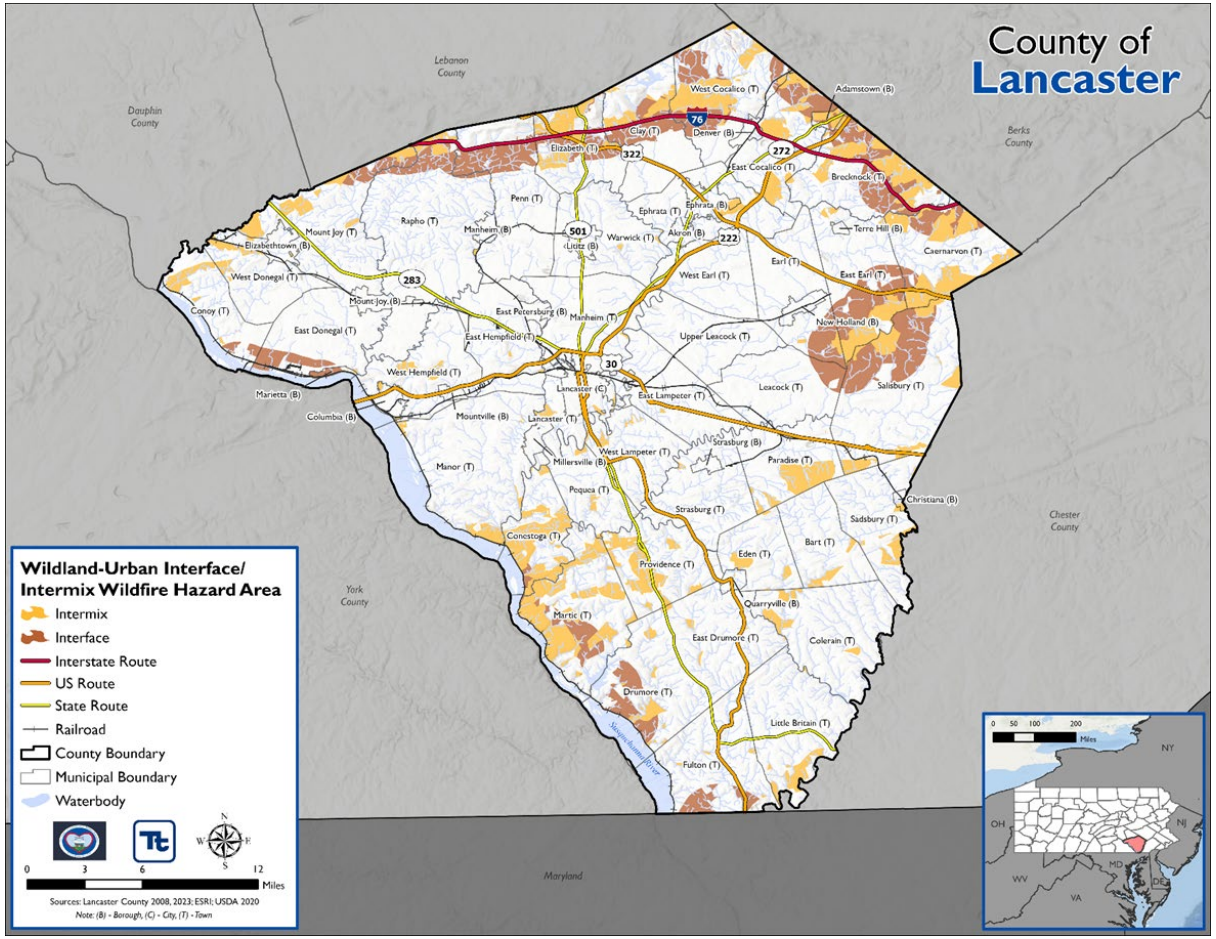
$12,682,104,639

WUI Interface Hazard Area

$12,410,047,128

WUI Intermix Hazard Area

Wildfire Urban Intermix/Interface for Lancaster County



Lifelines Exposed

288

WUI Interface Hazard Area

252

WUI Intermix Hazard Area

Climate Change Impacts

Lancaster 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, may increase the likelihood of wildfires.

Winter Weather

Severe winter weather can occur anywhere in Lancaster County and has 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

552,984

The entire County is susceptible

Buildings Exposed

285,764

The entire County is susceptible

Hazard Types

Heavy Snow	Blizzard	Sleet
Freezing Rain	Ice Storm	Nor'easter

Climate Change Impacts

Snowfall is likely to become less frequent, with the season decreasing in length. As winters continue to warm, ice is projected to become rarer, which may lead to more snow in the short term. Over the long term, however, more of this is likely to fall as rain.

Notable Occurrence

A winter storm in 1993 resulted in reports of nearly 3 feet of snow across Lancaster County. There were two fatalities and an estimated $5 million in property damage.

Plow Truck Clears Road in Lancaster County

Source: LancasterOnline

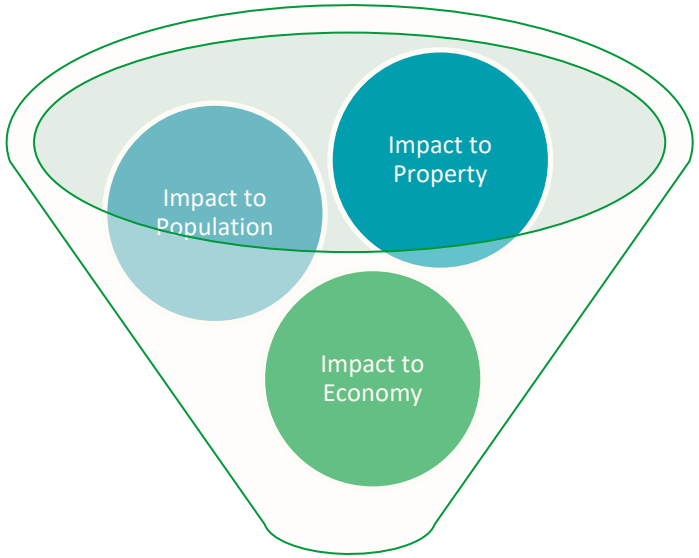
Hazard Rankings

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



Probability of Occurrence (30%) + Impacts (30%) + Adaptive Capacity (30%) + Climate Change (10%) → Preliminary Hazard Ranking

Local community input to adjust preliminary rankings

Preliminary Risk Ranking (County)

High

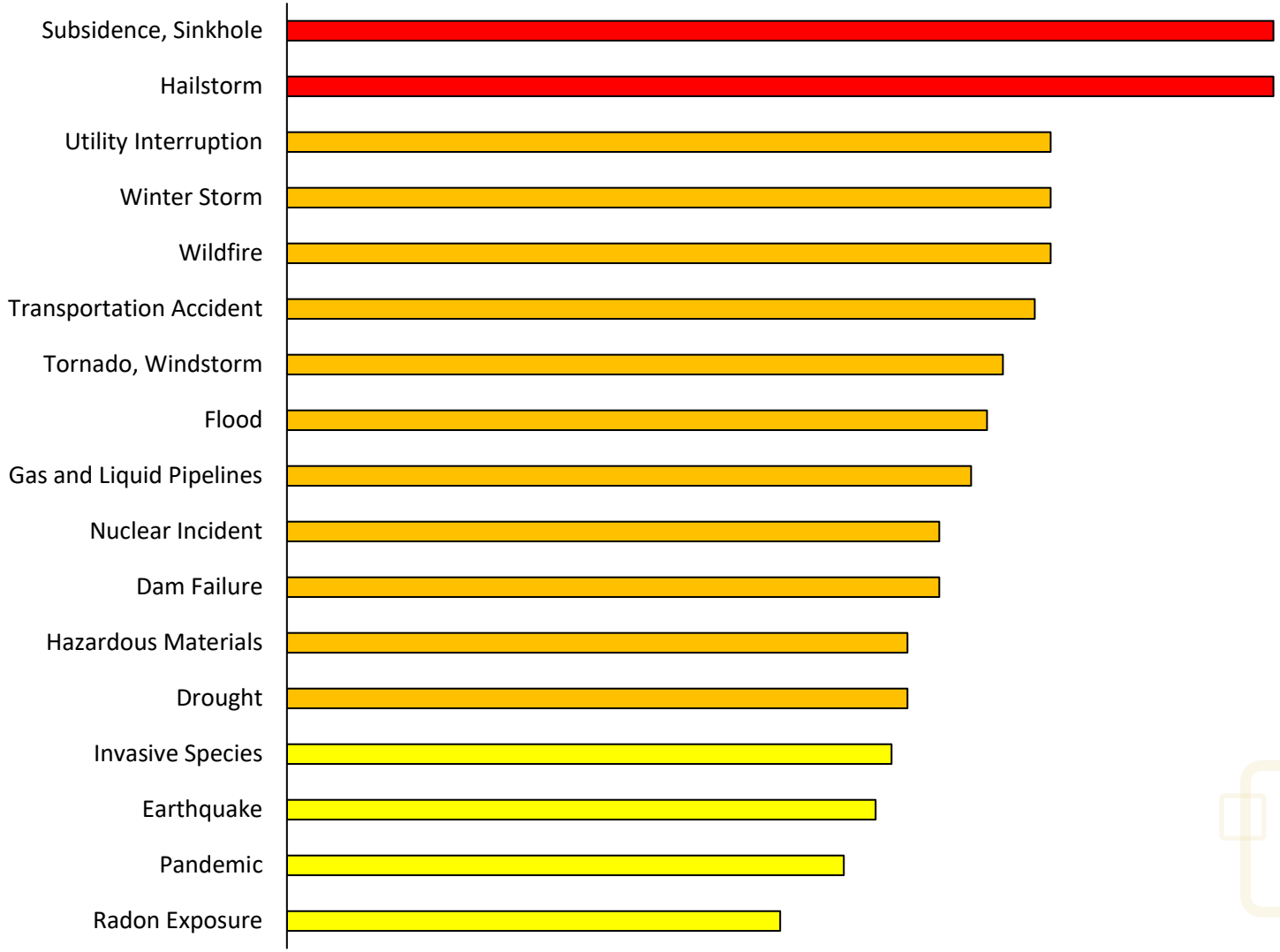
- Subsidence, Sinkhole
- Hailstorm

Medium

- Utility Interruption
- Winter Storm
- Transportation Accident
- Tornado, Windstorm
- Flood
- Gas and Liquid Pipelines
- Nuclear Incident
- Dam Failure
- Hazardous Materials
- Drought

Low

- Invasive Species
- Earthquake
- Pandemic
- Radon Exposure



Review Preliminary Rankings

Review Preliminary Rankings

Complete this worksheet and return to Jessica Stokes (jessica.stokes@tetratech.com) by Monday, October 7

Jurisdiction: County of Lancaster

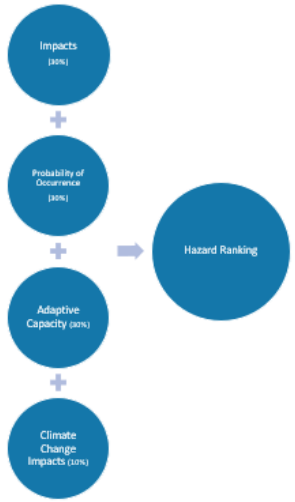
Name/Title of Individual Completing Worksheet:

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:

1. The calculated probability of a hazard occurring based on historical data.
2. Impacts to people, property, and the economy based on GIS data and analysis of exposure.
3. The degree to which climate change will affect future occurrences based on best available data.
4. 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.*

Continued on next page.

Lancaster County | Hazard Mitigation Plan 2025 Update
Preliminary Hazard Ranking Review

What are the hazards we need to address?

FEMA requires each participating jurisdiction include at least one mitigation action for each of the hazards of concern. If your jurisdiction does not incur impacts or has determined it does not endure risks from an identified hazard(s), please indicate so. For the Lancaster County 2025 Hazard Mitigation Plan update, the hazards of concern are as follows:

Table 1. Hazard Ranking

Hazard	Preliminary Ranking	Agree with preliminary ranking (Y/N)? If No, indicate preferred ranking.	What local information or conditions have resulted in the adjustment in hazard ranking?
Dam Failure	Medium		
Drought	Medium		
Earthquake	Low		
Environmental Hazards: Gas and Pipeline	Medium		
Environmental Hazards: Hazardous Materials	Medium		
Flood, Flash Flood, Ice Jam	Medium		
Hailstorm	High		
Invasive Species	Low		
Nuclear Incident	Medium		
Pandemic and Infectious Disease	Low		
Radon Exposure	Low		
Subsidence, Sinkhole	High		
Tornado, Windstorm	Medium		
Transportation Accident	Medium		
Utility Interruption	Medium		
Wildfire	Medium		
Winter Storm	Medium		

Lancaster County | Hazard Mitigation Plan 2025 Update
Preliminary Hazard Ranking Review

What is Adaptive Capacity?

Adaptive capacity describes a jurisdiction's current ability to protect from or withstand a hazard event.

- **Weak** adaptive capacity means the jurisdiction does not have the capability to effectively respond, which leads to an increase in vulnerability. Examples include weak/outdated/inconsistent plans, policies, codes/ordinances in place; no redundancies; limited to no deployable resources; limited capabilities to respond; long recovery.
- **Moderate** adaptive capacity means minimum requirements are in place; moderate capabilities; mitigation measures are identified but not implemented widespread; jurisdiction can recover but needs outside resources.
- **Strong** adaptive capacity means the jurisdiction does have the capability to effectively respond, plans/policies exceed minimum requirements; deployable resources all of which decreases vulnerability.

Table 2. Adaptive Capacity

Hazard	Preliminary Ranking	What should we indicate for your community's adaptive capacity for each hazard?
Dam Failure	Moderate	
Drought	Moderate	
Earthquake	Moderate	
Environmental Hazards:	Moderate	
Gas and Pipeline	Moderate	
Environmental Hazards: Hazardous Materials	Moderate	
Flood, Flash Flood, Ice Jam	Moderate	
Hailstorm	Moderate	
Invasive Species	Moderate	
Nuclear Incident	Moderate	
Pandemic and Infectious Disease	Moderate	
Radon Exposure	Moderate	
Subsidence, Sinkhole	Moderate	
Tornado, Windstorm	Moderate	
Transportation Accident	Moderate	
Utility Interruption	Moderate	
Wildfire	Moderate	
Winter Storm	Moderate	

*Note: *Adaptive capacity was assumed Moderate for all hazards.*

Next Steps

- Continue public outreach efforts via social media, in-person events and meetings, and through other contacts
- Submit Preliminary Hazard Ranking Worksheet by Monday, October 7.
- Risk Assessment Meeting with Steering Committee is Wednesday, October 16 from 4:00PM – 6:00PM
  - Room 100 at the Lancaster County Public Safety Training Facility (101 Champ Blvd., Manheim, PA 17545).
- Mitigation Strategy Workshop with Steering Committee is TBD

Questions?

Lancaster County Project Contact

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Tetra Tech Project Contact

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Thank You!