



APPENDIX C. MEETING DOCUMENTATION

Appendix C includes meeting agendas, sign-in sheets and minutes (where applicable and available) for meetings convened during the development of the Putnam County Hazard Mitigation Plan Update.

DRAFT



PUTNAM COUNTY HAZARD MITIGATION PLAN UPDATE
Steering Committee #1 – AGENDA
MEETING DATE/TIME: March 18, 2020 – 1:00 pm - 2:30pm



- 1. Background and Introductions**
- 2. Hazard Mitigation Plan Overview**
 - Purpose and Expected Outcomes of the Hazard Mitigation Plan
 - 2020 enhancements
- 3. Project Organization**
 - Key Agencies
 - Municipal Participants
 - Internal and External Stakeholders
- 4. Hazard Mitigation Planning and Update Overview**
- 5. Steering Committee Composition and Ground Rules**
- 6. Schedule**
 - Overview and Milestones
 - Meeting Schedule
- 7. Data Collection Status**
- 8. Confirmation of Mission Statement, Goals, and Objectives**
- 9. Hazards of Concern Identification**
- 10. Public and Stakeholder Outreach**
 - Strategy – press releases, social media posts, capture of miscellaneous outreach
 - Tracking
- 11. In-Kind Services Tracking**
- 12. Project Contacts**

Putnam County Project Contacts

Robert Lipton, Deputy Commissioner
Putnam County Bureau of Emergency Services
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Putnam Hazard Mitigation Plan Update 2020

Steering Committee Kick-Off Meeting | April 1, 2020

1

Agenda

- 1 Welcome and Introductions
- 2 Benefits of Hazard Mitigation
- 3 Project Organization
- 4 Hazard Mitigation Planning Overview
- 5 Identifying Hazards of Concern
- 6 Goals and Objectives
- 7 Public Engagement
- 8 NYS DHDES Requirements
- 9 In-Kind Services Tracking
- 10 Schedule
- 11 Next Steps



2

Introductions

- Tell us...
 - What's your name?
 - Where you are from?
 - What is your mitigation experience?
 - What do you want to focus on during this process or what is your area of expertise?
 - What are your *resilience concerns* for Putnam County?



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3

Hazard Mitigation – What is it?

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).



4

Hazard Mitigation – What’s at Risk?

- FEMA Disaster Declaration history in Putnam County

- 7 Hurricane
- 4 Severe Storm(s)
- 4 Snow
- 3 Flood
- 2 Other
- 1 Drought
- 1 Fire



Year of Declaration Date	Title	Disaster Number
1965		
1991	WATER SHORTAGE	2014
1992	SEVERE STORMS & FLOODING	311
1993	STORMS, RAINS, LANDSLIDES & FLOODING	487
1993	SEVERE WINTER STORM	701
1994	SEVERE BLIZZARD	3162
1999	ICE STORM OF 60 HOURS (NOV. STORM)	1085
	SEVERE STORMS AND FLOODING	3149
	HURRICANE FLOYD EMERGENCY DECLARATIONS	1204
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2000	WEST NILE VIRUS	3155
2001	FIRES AND EXPLOSIONS	1391
2003	POWER OUTAGE	3186
2004	SEVERE STORMS AND FLOODING	3184
	SNOW	1334
2005	HURRICANE KATRINA EVACUATION	3292
	SEVERE STORMS AND FLOODING	1689
2007	SEVERE STORMS AND ISLAND AND COASTAL FLOODING	1692
2008	SEVERE STORMS AND FLOODING	1204
	SEVERE STORMS AND FLOODING	3202
	SEVERE STORMS AND FLOODING	1091
2005	HURRICANE KATRINA EVACUATION	1672
	SEVERE STORMS AND ISLAND AND COASTAL FLOODING	3277
2007	SEVERE STORMS AND FLOODING	3228
2008	SEVERE WINTER STORM	4170
2011	HURRICANE IRIS	3351
	HURRICANE IRIS	4005
2012	HURRICANE SANDY	

Source: NYSDHSES MitigateNY <https://mitigateny.avialabs.org/>



Why Update?

- The mitigation plan update will:
 - Help the County prepare for and mitigate the effects of disasters
 - Continue to allow the county and participating partners to be eligible for pre- and post-disaster mitigation funding
 - Support CRS participation/rating of municipalities
- What is at risk in Putnam County?

Hazard	Losses
Avalanche	\$0
Coastal Storm	\$0
Cold wave	\$0
Drought	\$0
Earthquake	\$0
Flooding	\$1.9 million
Hail	\$0
Heat Wave	\$0
Hurricane	\$633,000
Ice Storm	\$0
Landslide	\$0
Lightning	\$575,000
Snow Storm	\$6 million
Tsunami/Seiche	\$0
Tornado	\$350,000
Volcano	\$0
Wildfire	\$0
Wind	\$2.43 million
TOTAL	

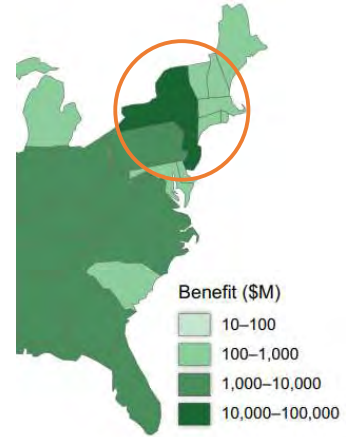


Hazard Mitigation Works!

- According to the January 2019 National Institute of Building Sciences Natural Hazard Mitigation Saves: 2018 Interim Report, federal mitigation grants save \$6 for every \$1 spent!

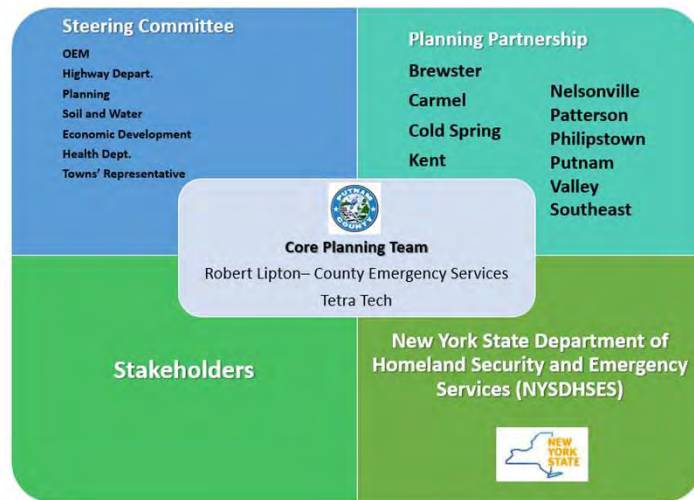
Mitigation saves in every in state!
New York State has saved at least \$10 billion in benefits.

National Benefit-Cost Ratio Per Peril		Federally Funded
<small>*BCR numbers in this study have been rounded</small>		6:1
Overall Hazard Benefit-Cost Ratio		
Riverine Flood		7:1
Hurricane Surge		Too few grants
Wind		5:1
Earthquake		3:1
Wildland-Urban Interface Fire		3:1



7

Project Organization



8

Hazard Mitigation Committee Composition

Steering Committee Members

- OEM
 - Commissioner Ken (Clair)
 - Deputy Commissioner Bob Lipton
- HIGHWAY DEPT
 - Commissioner Fred Penna
 - Deputy Commissioner John Tully
- PLANNING
 - Vinny Tamagna
 - Barbara Barosa
- Soil and Water
 - Lauri Taylor
- Economic Dev./Real property
 - Lisa Johnson
- Dept. of Health
 - Commissioner Dr. Mike Nesheiwat
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- Rep of Towns
 - Supervisor Rich Williams

Ground Rules

- What is the Steering Committee's role?
 - Guide the Planning Partnership through the HMP update process
 - Oversee the planning process from start to finish
- Chair
- Attendance
- Quorum
- Alternates
- Decision making
- Recommendations
- Spokespersons
- Staffing
- Public Involvement
- Courtesy
- Meetings



Hazard Mitigation Planning Overview

- What is hazard mitigation?
- How does this support resiliency and recovery?
- Why update the plan?
- What is the process?

- ✓ 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



Critical Facilities and Lifelines

- Review 2015 CF inventory to ensure complete
- Identify lifelines and add to inventory

Critical Facilities are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard. As defined for this HMP, critical facilities include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous material facilities.

Essential facilities are a subset of critical facilities that include those facilities that are important to ensure a full recovery following the occurrence of a hazard event. For the County risk assessment, this category was defined to include police, fire, EMS, schools/colleges, shelters, senior facilities, and medical facilities.

Lifelines provide indispensable service that enables the continuous operation of *critical business* and *government functions*, and is critical to *human health and safety*, or *economic security*



Update Risk Assessment

- Update Assets
- Examine Previous Impacts
- Analyze Risks
- Review with Steering Committee
- Risk Assessment Meeting - open to the public



EXERCISE – Identifying Hazards of Concern

- **The 2015 plan included:**
 - Earthquake
 - Extreme Temperature
 - Flood (riverine, coastal)
 - Land Failure (landslide, subsidence/sinkholes)
 - Severe Storm (hail, wind, lightning, thunderstorm, tornado, hurricane, tropical storm)
 - Severe Winter Storm (cold, sleet/freezing rain, Nor'Easter, snow, blizzard)
 - Wildfire
- **In review...**
 - Have additional hazards impacted the County since 2015?
 - Have hazard been mitigated and no longer cause damage?
 - Should hazards be regrouped to align with the 2019 State HMP?
 - Should additional hazards be included?
- **Quick Survey!**
 - Go here (<https://forms.gle/se2qaKy8rR5GxXW8A>) to answer a few questions about the Hazards of Concern

Thinking back over the last few years...

- Have additional hazards impacted Putnam County since 2015?
- Have hazards been mitigated and no longer cause damage or put the County at risk?
- Should hazards be regrouped to align with the draft 2020 State HMP?

2019 State HMP	Identified Hazard in the 2015 Putnam HMP	2019 Putnam HMP Ranking	Has the frequency, severity, or location of the hazard changed in your community? Yes = No Change, 1 = Increase, 2 = Decrease	2020 Putnam HMP Priority: None, Moderate, or Other Hazard, or provide comments, for any changes?
	Aviation	No		
	Coastal Hazard	No		
	Collisions	Yes - included in former Temperature	Medium	
	Drought	No		88 Term (increase of 24% from 2012) market value of production and 5.12 million
	Earth	Yes - Earthquake	Low	Four earthquakes since 2013, ranging from magnitude 3.3 to 2.4

Please identify any other hazards that you believe should be considered in the 2020 update of the Putnam County Hazard Mitigation Plan (e.g. landslides, wildfires, invasive species, etc.)

What are the natural hazards that present the most risk to your jurisdiction today?

- Climate Change
- Dam Failure
- Drought
- Earthquake
- Extreme Temperature (heat and cold)
- Flood (riverine, dam failure, heavy rain)
- Geologic (landslide, subsidence/sinkhole)
- Severe Weather (high wind, tornado, thunderstorm, hail)
- Severe Winter Weather (heavy snow, blizzard, ice)
- Wildfire
- Hazardous Materials (road site, in transit)
- Invasive Species
- Other: _____



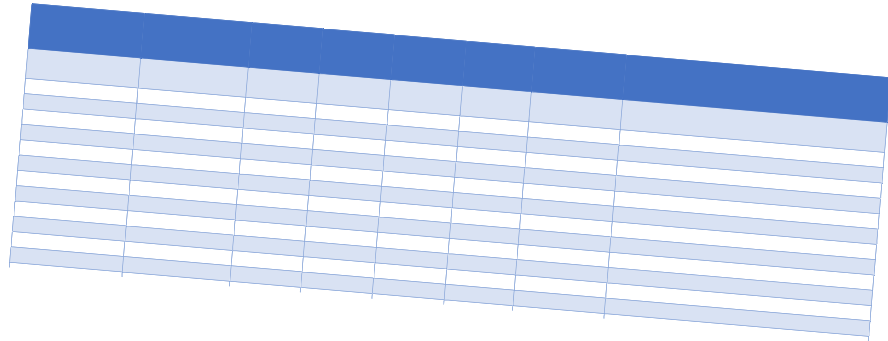
Goals, and Objectives

Goal #	Goal Statement	Modify, add, or Remove Goal
G-1	Identify and implement mitigation actions and initiatives that address life-safety issues.	
G-2	Protect property, including public and private property, critical facilities and infrastructure. (Modified from NYS 2014 HMP – Goal 2)	
G-3	Increase education and awareness, and promote relationships with stakeholders, citizens, elected officials, and property owners to develop opportunities for mitigation of natural hazards. (Modified from NYS 2014 HMP – Goal 3)	
G-4	Encourage the development and implementation of long-term, cost-effective, and resilient mitigation projects to preserve or restore the functions of natural systems. (NYS 2014 HMP – Goal 4)	
G-5	Enhance or develop programs to build regional, county and local mitigation and related emergency management capabilities.	
G-6	Support comprehensive county and local mitigation through the integration of hazard mitigation planning into related county and local plans and programs.	
Additional Goals?		



Public and Stakeholder Outreach

- Strategy
- Tracking



NYS DHSES Requirements

- Establish Jurisdictional Teams
- Assess Critical Facilities
- Plan for Displaced Residents
 - Intermediate (Temporary Housing) and Long-Term (Permanent Housing)
- Plan for Evacuation and Sheltering
- Document Past Mitigation Accomplishments
- Include Jurisdictional Annexes
- Develop Mitigation Actions (minimum of 2 projects)
- Plan for Climate Change



Schedule

- Overview and Milestones
 - Planning Process
 - Steering Committee Kick-Off – TODAY!
 - Planning Partnership Kick-Off – To be advised
 - Currently working on reviewing plans, studies, and codes/ordinances
 - Update Risk Assessment
 - Data collection is underway; Confirm building and critical facility inventory
 - Confirm hazards of concern; once confirmed, begin vulnerability assessment for each
 - Public Involvement Strategy – ongoing throughout the planning process
 - Mitigation Strategy
 - Begin working with the municipalities after the Planning Partnership kick-off
 - Mitigation Strategy Workshop with FEMA and NYS DHSES – TBD
 - Draft Plan to Steering Committee by late summer/early fall
 - Final draft plan to NYS DHSES and FEMA by November 2020

17

Data Collection Status

- Letters of Intent to Municipalities – Email to to all supervisors, mayors, and clerks *pending*
- Critical Facility Inventory (County has provided initial data)
- Reports and Plans – Tt has begun compiling reports, plans, and codes available online (see handout)
- Regulatory Flood Maps: FEMA 2013 DFIRMs
- Template Data Gathering/Update Tools and Annex Template Approach
- Municipal Information Sheets
- Capability Assessments
- Mitigation Strategy Updates
- BAToolSM



18

In-Kind Services

Name of Team Member: _____

Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/Sign In?	Notes (Include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting	2/26/2020				Yes - sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting	3/9/2020	7:00 pm	9:00 pm	2		Discussed the HMP update
Phone Call	Town of ?? phone call	3/10/2020			1	No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting	3/12/2020	6:30 pm			Yes - agenda	

HMP Project Schedule



Next Steps

- Attend Planning Partnership Meeting
- Determine Hazards of Concern to include in the HMP
- Review Hazard Profiles
- Review Risk Assessment Results
- Identify Problems and Problem Areas
- Develop Mitigation Strategy
- Review Draft Plan
- Submit Draft Plan for NYSDHSES/FEMA Review
- Adopt FEMA-Approved Plan
- Implement Projects and Maintain the Plan → Increase Resilience!



21

21

Questions?



22



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Thank you



PUTNAM COUNTY HAZARD MITIGATION PLAN UPDATE
Steering Committee #1 – AGENDA
MEETING DATE/TIME: May 20, 2020 – 1:00 pm - 2:30pm



- 1. Background and Introductions**
- 2. Hazard Mitigation Plan Overview**
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 - 2020 enhancements
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Putnam County Hazard Mitigation Plan Update Minutes of Meeting



Purpose of Meeting: Steering Committee Meeting #1
Location of Meeting: Remote Skype call with Powerpoint presentation and handout
Date/Time of Meeting: 5/20/2020; 1:00 pm – 2:30 pm

Attendees:
<ul style="list-style-type: none"> Bob Lipton-Deputy Commissioner, OEM Shannon Clarke Lisa Johnson-Economic Development / Real Property Shawn Rogan- Department of Health, Director of Environmental Health Rich Williams- Supervisor, Town of Patterson, Representative of Towns Peter Dandreano- Councilman, Town of Patterson (845) 808-4020 (Unknown Number) (845) 808-1390 (Putnam County Health Department) Cynthia Addonizio-Bianco, Tetra Tech Heather Apgar, Tetra Tech Brian Kempf, Tetra Tech

Agenda Summary:	Meet the project team, review roles and responsibilities of the Committee, timeline and key items in the process, discuss hazards of concern, benefits of mitigation planning for funding and project implementation.
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Item No.	Description	Action By:
1.	Welcome and Introductions – <ul style="list-style-type: none"> • Tetra Tech welcomed everyone and went around the room for introductions. - Concerns about utility provision during storms, sheltering concerns. • Tetra Tech gave an overview of why a Steering Committee is needed and what benefits there are in participating in the HMP update. 	-
2.	Hazard Mitigation Planning and Overview – <ul style="list-style-type: none"> • Tetra Tech gave an overview of the DMA 2000 and stated that the County needs to follow FEMA and NYS DHSES requirements in developing the HMP update. • Once we understand what is at risk, we can start identifying projects and solutions to reduce or eliminate the risk • Questions about snow events contributing to damage totals. Two years ago, the County was hit with a major snowstorm, and then six weeks later the County experienced a tornado. Since the last plan, there has been significant snow and wind. Power outages due to storms are on everyone’s mind. • There were back-to-back nor’easters in March 2018 that brought damage. • Damages reported to NOAA NCEI and NWS does not represent actual costs/damages. • Tt planners have been reviewing documents. Risk assessment is very important. • Tt to use BAToolSM for implementing plan. 	Tt to seek and County to provide damage estimates
3.	Project Organization Steering Committee Composition and Ground Rules – <ul style="list-style-type: none"> • Tetra Tech will work with B. Lipton as a contact and to clarify key decision points. • Require both a quorum and straight majority for decisions. • Steering Committee members are responsible for reviewing the plan, assisting with public and stakeholder outreach, and making decisions on the planning process. • Planning Partnership- nine municipalities. Stakeholders not identified yet. Looking at Red Cross, watershed associations. • Ken and Bob will be co-chairs. • There will be six Steering Committee meetings. There will be a OneDrive. • Corresponding mainly by e-mail and phone. There will be online surveys/forms. • Schedule will be tight and expedited. 	Steering Committee to assist with developing stakeholders. Tt to send emails regarding lifelines data.



Putnam County Hazard Mitigation Plan Update Minutes of Meeting



	<ul style="list-style-type: none"> To save time, will crosswalk lifelines (now to include critical business functions) for BRIC 	
4.	<p>Data Collection Status</p> <ul style="list-style-type: none"> Tt does not think that there need to be new risk assessments. Don't have a big change in vulnerability. There are no new flood maps or new topography. Will redirect resources from assessment to build up mitigation strategies Critical Facility Inventory – Tetra Tech working with B. Lipton on get GIS information. Template Data Gathering/Update Tools 	Steering Committee to provide any relevant plans to Tt
5.	<p>Hazards of Concern Identification – Tetra Tech worked with the Steering Committee to identify hazards of concern to include in the 2020 Update. HOC ID survey showed increase in frequency/severity location for severe storms.</p> <ul style="list-style-type: none"> Disease outbreak to be included (particularly COVID-19) Some concern about including drought- concern about how widespread well drawdowns are. Some split in surveys about HABs. If there are incidences of HABs, may need to be considered. Lake Carmel was closed last summer. Almost every lake in the County has been impacted by blooms. PC had 46% of state closures for recreation. Some concern about bridge collapse- be clear on types of actions resulting from bridge collapses (e.g. maintenance/structural may not qualify for funds) 	Finalize list of hazards of concern
6.	<p>Goals and Objectives. Tt did not have mission statement in the last plan. Helps to have a mission statement.</p> <p>Existing goals linked to 2014 NYS HMP.</p>	<p>Tt to send out potential mission statements and review goals and objectives for review.</p> <p>Committee to consider goals and objectives.</p>
7.	<p>Public and Stakeholder Outreach –</p> <ul style="list-style-type: none"> County has list of residents who want to have more information about the plan County Bureau of Emergency Services has Facebook page Residents attend legislative meetings, town boards Critical that each municipal representative has each town know they need to adopt Are there any virtual town gatherings? Virtual cable Inactive LAPC Countywide supervisors, highway meetings? 	Committee to identify additional outreach opportunities and distribute messages related to the HMP
8.	<p>Schedule –</p> <ul style="list-style-type: none"> Overview and Milestones Meeting Schedule Draft plan due in December to State, to Committee by late summer/early fall <p>Planning Partnership Kickoff May 27th</p>	<p>Tetra Tech to send list of plans</p> <p>County to indicate if there are any missing plans</p>
9.	<p>In-Kind Services Tracking</p> <ul style="list-style-type: none"> This tool will be used to keep track of hours spent working on the HMP update. This will help with meeting the 25% local match. Tetra Tech put together an excel tracker; will work with B. Lipton on updating and keeping track 	B. Lipton to show that in-kind services are provided, particularly outside meetings
10.	<p>Next Steps</p> <ul style="list-style-type: none"> Tetra Tech will reach out as needed Attend the May 27th Planning Partnership meeting 	-



Putnam Hazard Mitigation Plan Update 2020

Steering Committee Kick-Off Meeting | May 20, 2020

1

Agenda

1 Welcome and Introductions	7 Public Engagement
2 Benefits of Hazard Mitigation	8 NYS DHDES Requirements
3 Project Organization	9 In-Kind Services Tracking
4 Hazard Mitigation Planning Overview	10 Schedule
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6 Goals and Objectives	



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Introductions

- Tell us...
 - What's your name?
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Hazard Mitigation – What is it?

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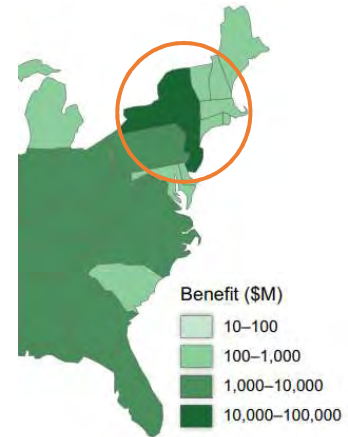
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Why Update?

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Hazard Mitigation Committee Composition

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- What is the Steering Committee's role?
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Update Risk Assessment

- Update Assets
- Examine Previous Impacts
- Analyze Risks
- Review with Steering Committee
- Risk Assessment Meeting - open to the public



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EXERCISE – Identifying Hazards of Concern

- **The 2015 plan included:**
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- Have hazards been mitigated and no longer cause damage or put the County at risk?
- Should hazards be regrouped to align with the draft 2020 State HMP?

2015 State HMP	Identified Hazard in the 2015 Putnam HMP	2015 Putnam HMP Ranking	Has the frequency, severity, or location of the hazard changed in your community? N/C - No Change, I = Increase, D = Decrease	2020 Putnam HMP Priority: None, Moderate, or High Hazard, or provide comments, for any changes?
	Avalanche	No		
	Coastal Hazard	No		
	Drought	Yes - included in former Temperature	Medium	
	Earthquake	Yes	Low	88 items (increase of 24% from 2015); market value of production added \$ 51.2 million
	Extreme Temperature	Yes	Low	Four earthquakes since 2015, ranging from magnitude 3.3 to 2.4
	Flood	Yes	Low	In streambed flooding on road; does not fit the Roughness and appearance Rating?

Please identify any other hazards that you believe should be considered in the 2020 update of the Putnam County Hazard Mitigation Plan (e.g. landslides, wildfires, invasive species, etc.)

What are the natural hazards that present the most risk to your jurisdiction today?

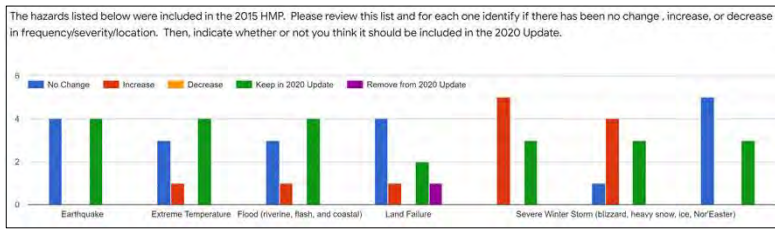
- Climate Change
- Dam Failure
- Drought
- Earthquake
- Extreme Temperature (heat and cold)
- Flood (riverine, dam failure, heavy rain)
- Geologic (landslide, subsidence/sinkhole)
- Invasive Species
- Other: _____



Hazards of Concern – Survey Results!

Looking at the hazards from the last plan...

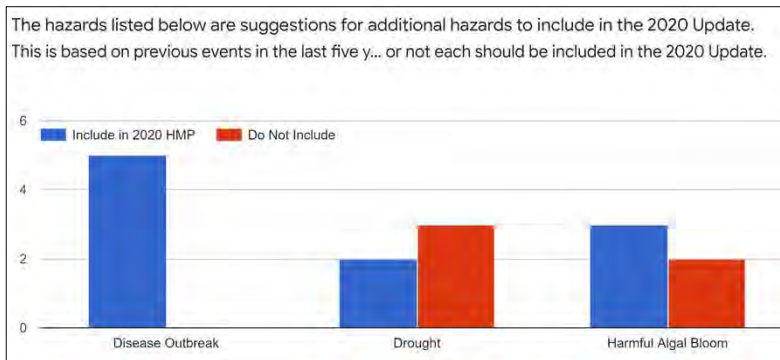
- **Earthquake**
 - Majority indicated no change in frequency/severity/location
 - Majority want to keep in the 2020 Update
- **Extreme Temperature**
 - Majority indicated no change in frequency/severity/location; one stated an increase in frequency/severity/location
 - Majority want to keep in the 2020 Update
- **Flood**
 - Majority indicated no change in frequency/severity/location; one stated an increase in frequency/severity/location
 - Majority want to keep in the 2020 Update
- **Land Failure**
 - Majority indicated no change in frequency/severity/location; one stated an increase in frequency/severity/location
- **Severe Storm**
 - One suggested to remove from the 2020 Update; two suggested to keep in the 2020 Update
- **Severe Winter Storm**
 - Majority indicated an increase in frequency/severity/location and want to keep in the 2020 Update
- **Wildfire**
 - Majority indicated an increase in frequency/severity/location and want to keep in the 2020 Update



Hazards of Concern – Survey Results!

How about new hazards? Anything new we should be looking at?

- Everyone who took the survey thinks we should include **Disease Outbreak**
- Majority thinks **Drought** should not be included
- There is a split whether or not **Harmful Algal Bloom** should be included



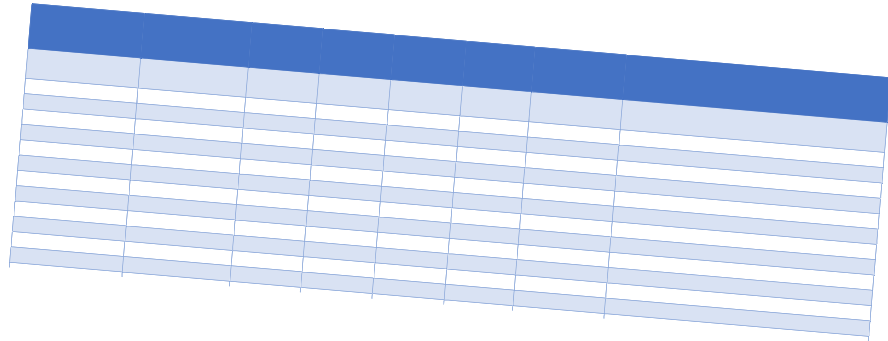
Goals and Objectives

Goal #	Goal Statement	Modify, add, or Remove Goal
G-1	Identify and implement mitigation actions and initiatives that address life-safety issues.	
G-2	Protect property, including public and private property, critical facilities and infrastructure. (Modified from NYS 2014 HMP – Goal 2)	
G-3	Increase education and awareness, and promote relationships with stakeholders, citizens, elected officials, and property owners to develop opportunities for mitigation of natural hazards. (Modified from NYS 2014 HMP – Goal 3)	
G-4	Encourage the development and implementation of long-term, cost-effective, and resilient mitigation projects to preserve or restore the functions of natural systems. (NYS 2014 HMP – Goal 4)	
G-5	Enhance or develop programs to build regional, county and local mitigation and related emergency management capabilities.	
G-6	Support comprehensive county and local mitigation through the integration of hazard mitigation planning into related county and local plans and programs.	
Additional Goals?		



Public and Stakeholder Outreach

- Strategy
- Tracking



NYS DHSES Requirements

- Establish Jurisdictional Teams
- Assess Critical Facilities
- Plan for Displaced Residents
 - Intermediate (Temporary Housing) and Long-Term (Permanent Housing)
- Plan for Evacuation and Sheltering
- Document Past Mitigation Accomplishments
- Include Jurisdictional Annexes
- Develop Mitigation Actions (minimum of 2 projects)
- Plan for Climate Change



Schedule

- Overview and Milestones
 - Planning Process
 - Steering Committee Kick-Off – TODAY!
 - Planning Partnership Kick-Off – May 27th
 - Currently working on reviewing plans, studies, and codes/ordinances
 - Update Risk Assessment
 - Data collection is underway; Confirm building and critical facility inventory
 - Confirm hazards of concern; once confirmed, begin vulnerability assessment for each
 - Public Involvement Strategy – ongoing throughout the planning process
 - Mitigation Strategy
 - Begin working with the municipalities after the Planning Partnership kick-off
 - Mitigation Strategy Workshop with FEMA and NYS DHSES – TBD
 - Draft Plan to Steering Committee by late summer/early fall
 - Final draft plan to NYS DHSES and FEMA by December 2020

Data Collection Status

- Letters of Intent to Municipalities – Email to to all supervisors, mayors, and clerks *pending*
- Critical Facility Inventory (County has provided initial data)
- Reports and Plans – Tt has begun compiling reports, plans, and codes available online (see handout)
- Regulatory Flood Maps: FEMA 2013 DFIRMs
- Template Data Gathering/Update Tools and Annex Template Approach
- Municipal Information Sheets
- Capability Assessments
- Mitigation Strategy Updates
- BAToolSM



In-Kind Services

Name of Team Member: _____

Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/Sign In?	Notes (Include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting	2/26/2020				Yes - sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting	3/9/2020	7:00 pm	9:00 pm	2		Discussed the HMP update
Phone Call	Town of ?? phone call	3/10/2020			1	No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting	3/12/2020	6:30 pm			Yes - agenda	



HMP Project Schedule



Next Steps

- Attend Planning Partnership Meeting
- Determine Hazards of Concern to include in the HMP
- Review Hazard Profiles
- Review Risk Assessment Results
- Identify Problems and Problem Areas
- Develop Mitigation Strategy
- Review Draft Plan
- Submit Draft Plan for NYSDHSES/FEMA Review
- Adopt FEMA-Approved Plan
- Implement Projects and Maintain the Plan → Increase Resilience!



23

23

Questions?



24



Putnam County Project Contact

Robert Lipton, Deputy Commissioner
845-808-4000 | Robert.Lipton@putnamcountyny.gov

Tetra Tech Project Contacts

Cynthia Addonizio-Bianco, AICP, CFM
(973) 630-8044 | cynthia.bianco@tetrattech.com

Heather Apgar, CFM
(973) 630-8046 | heather.apgar@tetrattech.com

Thank
You!



PUTNAM COUNTY HAZARD MITIGATION PLAN UPDATE
Planning Partnership #1 – AGENDA
MEETING DATE/TIME: May 27, 2020 – 1:00 pm - 2:30pm



- 1. Welcome and Introductions**
- 2. Hazard Mitigation Plan Overview**
 - Purpose and Expected Outcomes of the Hazard Mitigation Plan
 - 2020 enhancements
- 3. Hazard Mitigation Planning Process**
- 4. Participation and Schedule**
 - Why participate?
 - Overview and Milestones
 - Meeting Schedule
- 5. Hazards of Concern Identification**
- 6. Updating Sections of the HMP**
- 7. Staying Engaged and Involved**
- 8. Updating Jurisdictional Annexes**
- 9. Next Steps and Questions**
- 10. Project Contacts**

Putnam County Project Contacts

Robert Lipton, Deputy Commissioner
Putnam County Bureau of Emergency Services
Tel. 845-808-4000
Email: Robert.Lipton@putnamcountyny.gov

Tetra Tech Project Contacts

Cynthia Addonizio-Bianco, CFM
6 Century Drive, Parsippany, NJ 07054
(973) 630-8044 | cynthia.bianco@tetrattech.com

Heather Apgar, CFM
6 Century Drive, Parsippany, NJ 07054
(973) 630-8046 | heather.apgar@tetrattech.com



Putnam County Hazard Mitigation Plan Update Minutes of Meeting



Purpose of Meeting: Planning Partnership Meeting #1
Location of Meeting: Virtual
Date/Time of Meeting: May 27, 2020 1:00-2:20 PM EST

Attendees: Bob Lipton – Putnam County BES, Deputy Commissioner Heidi Zatkovich- Putnam County BES, Confidential Secretary (845 808-4000) Richard Franzetti – Carmel, Town Engineer (845-628-1500) Sam Oliverio – Putnam Valley, Supervisor (845-526-2121) Karen Kroboth – Putnam Valley, Secretary to the Supervisor (845 526 2121) Maureen Fleming – Kent, Supervisor (845 306 5620) Unidentified Participant (518 605 6296) Shannon Clarke, NYS DHSES Lisa Johnson – Putnam County Real Property (845 808 1090) Shawn Rogan- Putnam County Health Department (845-808-1390) Barbara Barosa- Putnam County Planning (845 878 3480) Richard Williams—Patterson, Supervisor Cynthia Bianco, Tetra Tech Heather Apgar, Tetra Tech Brian Kempf, Tetra Tech

Agenda Summary: • Purpose and Expected Outcomes of the Hazard Mitigation Plan; 2020 enhancements; Expectations and assignments for moving forward.

Item No.	Description	Action By:
1.	Welcome and Introductions – <ul style="list-style-type: none"> • Tetra Tech welcomed everyone and went around the room for introductions. • Tetra Tech gave an overview of why a Steering Committee is needed and what benefits there are in participating in the HMP update. 	Recorded meeting to be distributed to Town Reps not in attendance Move to Microsoft Teams or Zoom for next meeting
2.	Hazard Mitigation Planning and Overview – <ul style="list-style-type: none"> • FEMA Disaster Declarations- there have been a number of disasters/declared disasters in the County. • Mitigation Savings- As of Oct 2018, Disaster Recovery Reform Act re-tooled funding available. New program “BRIC” created, rolling out this summer. HMP update positions County/municipalities for future funding and maintains eligibility • NYS has saved \$1b in mitigation benefits • Why Update? For example, snowstorms caused \$6m in damage, flooding caused \$2m in damage. These represent conservative estimates of damage. • Risks in Putnam County- Is there a change in vulnerability or frequency? If there hasn’t been much of a change, we won’t update the assessment. • Planning Process- completely public process. Will have at least two public meetings. • Weak point of planning process is that approved plan is forgotten until update is required. It sets up a plan maintenance strategy. 	
3.	Project Organization and Update <ul style="list-style-type: none"> • Project Organization – eight phases of an HMP update • NYS Requirements- NYS has higher standards than the 	Tetra Tech (Brian) to contact towns for help



Putnam County Hazard Mitigation Plan Update

Minutes of Meeting



	<p>government. Need to assess critical facility for specific actions to be operable after a flood event.</p> <ul style="list-style-type: none"> • Updates- Stronger connection between risk assessment and mitigation strategy. Integration of HMP into local plans and decision-making. • Schedule: More aggressive than 2015 Hazard ID and Risk Assessment (May-June 2020) Risk Assessment Presentation (July 2020) Mitigation Workshop (July-August 2020) Draft Plan Presentation (Oct. 2020) Final Draft Development (Nov. 2020) • For annexes, 2-4 weeks due date may be too aggressive because everybody is just getting back to work • County is willing to go along with what towns and municipalities want to do in terms of timing. • Note on annexes: need data through the present, not through 2018 	<p>See annexes back within a month (ideally within two weeks)</p> <p>Tetra Tech to revisit timelines in light of municipality availability during the pandemic.</p>
4.	<p>Planning Teams</p> <ul style="list-style-type: none"> • Municipal Planning Partnership • Participation • Mitigation Team <p>Town of Carmel presenting LOI tonight at work meeting, will have it by next week</p>	<p>Municipalities: Submit letters of intent</p>
5.	<p>Hazards of Concern Identification and Risk Assessment – Tetra Tech worked with the Steering Committee & Partnership to identify hazards of concern to include in the 2020 Update. HOC ID survey released and is available (https://forms.gle/se2gaKy8rR5GxXW8A)</p> <ul style="list-style-type: none"> - Results available- discussion of disease outbreak vs. drought vs. HABs - Additional hazards: bridges, power outages, communication disruption, dam failure, gas pipelines, water quality. Can't fix bridge as mitigation project. - Adding disease outbreak. Drought- more than half said to remove it. HABs- to be added - Drought to be discussed with the Steering Committee - Regarding drought-- some wells have run dry and have had to truck in water from somewhere else. Precipitation/water patterns are changing. - HABs should be discussed in terms of water supply impacts, not recreation. NYSDHSES has seen HABs in a number of plans. Issues can be formalized in the plan. - Funding has not followed HABs action plans. 	<p>Tt to review HAB Action Plan issue</p> <p>Tt to work on risk assessments</p>
6.	<p>Assessments</p> <ul style="list-style-type: none"> - Risk Assessment - Critical Facilities and Lifelines- water and sewer treatment are part of critical facilities. Mapped sewer system generally not added, but pump stations, etc. are likely considered water treatment systems - Capability Assessment- understand where gaps are. 	<p>Municipalities to review list of critical facilities and review/modify based on Tt categorization</p> <p>Municipalities to identify lifelines and add to inventory</p>
7.	<p>Mitigation Strategy and Progress</p> <ul style="list-style-type: none"> - Goals/Actions/Action Plan - Connection between vulnerability and proposed mitigation strategies 	<p>Municipalities to review problem areas, recurring issues, facilities in floodplains</p> <p>Tt to develop problem statements</p>



Putnam County Hazard Mitigation Plan Update Minutes of Meeting



		<p>Municipalities to confirm reported progress on actions in 2015 plan</p> <p>Municipalities to brainstorm new mitigation actions</p> <p>Tt will send Planning Partnership the lifeline factsheet</p>
8.	<p>Public and Stakeholder Outreach</p> <ul style="list-style-type: none"> • Engagement information available • Update jurisdictional annex 	<p>Municipalities to update webpage and link to County website— documenting outreach process</p> <p>County to update their website</p> <p>Municipalities to begin updating jurisdictional annex</p> <p>Municipalities to provide list of stakeholders who Tt will send surveys to and ask to review plan</p>
9.	<p>Next Steps</p> <ul style="list-style-type: none"> • Determine HOCs • Review hazard profiles/risk assessment results • Identify problems/problem areas 	<p>Bob to personally call municipalities to underscore importance of participation.</p> <p>Bob to initiate Zoom meeting for subsequent meetings.</p> <p>Counties to collect RSVPs</p>



Putnam Hazard Mitigation Plan Update 2020

Planning Partnership Kick-Off Meeting | May 27, 2020

Agenda

- 1 Welcome and Introductions
- 2 Hazard Mitigation Overview
- 3 Planning Process
- 4 Why Participate?
- 5 Schedule
- 6 Identifying Hazards of Concern
- 7 Updating Sections of the HMP
- 8 Staying Engaged
- 8 Jurisdictional Annexes
- 8 Wrap-Up



Introductions

- Tell us...
 - What's your name?
 - Where you are from?
 - What is your mitigation experience?
 - What do you want to focus on during this process or what is your area of expertise?
 - What are your *resilience concerns* for Putnam County?



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Hazard Mitigation Planning and Overview

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).



Key Components of Hazard Mitigation

3 KEY COMPONENTS
THAT CONTRIBUTE
TO NATURAL HAZARD
MITIGATION PLANNING



Hazard Mitigation – What’s at Risk?

- FEMA Disaster Declaration history in Putnam County

7 Hurricane

4 Severe Storm(s)

4 Snow

3 Flood

2 Other

1 Drought

1 Fire



Source: NYSDHSES MitigateNY <https://mitigateny.availabs.org/>






Year of Declaration Date	Title	Disaster Number
1965	WATER SHORTAGE	204
1971	SEVERE STORMS & FLOODING	311
1975	STORMS, RAINS, LANDSLIDES & FLOODING	487
1987	SEVERE WINTER STORM	001
1993	SEVERE BLIZZARD	3107
1996	BLIZZARD OF 96 (SEVERE SNOW STORM)	1083
1999	SEVERE STORMS AND FLOODING	1095
	HURRICANE FLOYD EMERGENCY DECLARATIONS	3149
	HURRICANE FLOYD MAJOR DISASTER DECLARATIONS	1296

Year of Declaration Date	Title	Disaster Number
2000	WEST NILE VIRUS	3155
2001	FIRES AND EXPLOSIONS	1391
2003	POWER OUTAGE	3186
	SNOW	3184
2004	SEVERE STORMS AND FLOODING	1534
2005	HURRICANE KATRINA EVACUATION	3262
	SEVERE STORMS AND FLOODING	1589
2007	SEVERE STORMS AND INLAND AND COASTAL FLOODING	1692
2008	SEVERE WINTER STORM	3328

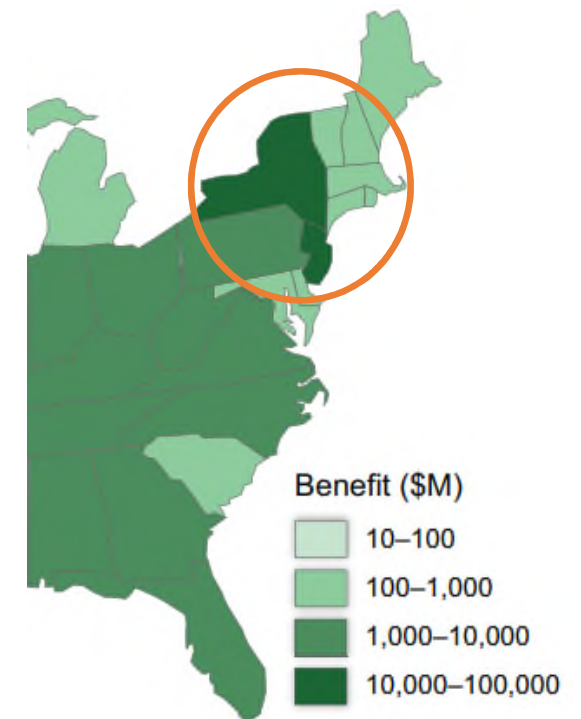
Year of Declaration Date	Title	Disaster Number
2009	SEVERE STORMS AND FLOODING	1534
2009	HURRICANE KATRINA EVACUATION	3262
2005	SEVERE STORMS AND FLOODING	1589
	SEVERE STORMS AND INLAND AND COASTAL FLOODING	1692
2007	SEVERE STORMS AND INLAND AND COASTAL FLOODING	3299
2008	SEVERE WINTER STORM	4020
2011	HURRICANE IRENE	3351
2012	HURRICANE SANDY	4005

Hazard Mitigation Works!

- According to the January 2019 National Institute of Building Sciences Natural Hazard Mitigation Saves: 2018 Interim Report, federal mitigation grants save \$6 for every \$1 spent!

National Benefit-Cost Ratio Per Peril <small>*BCR numbers in this study have been rounded</small>		Federally Funded
Overall Hazard Benefit-Cost Ratio		6:1
 Riverine Flood		7:1
 Hurricane Surge		Too few grants
 Wind		5:1
 Earthquake		3:1
 Wildland-Urban Interface Fire		3:1

Mitigation saves in every in state!
New York State has saved at least \$10 billion in benefits.



Why Update?

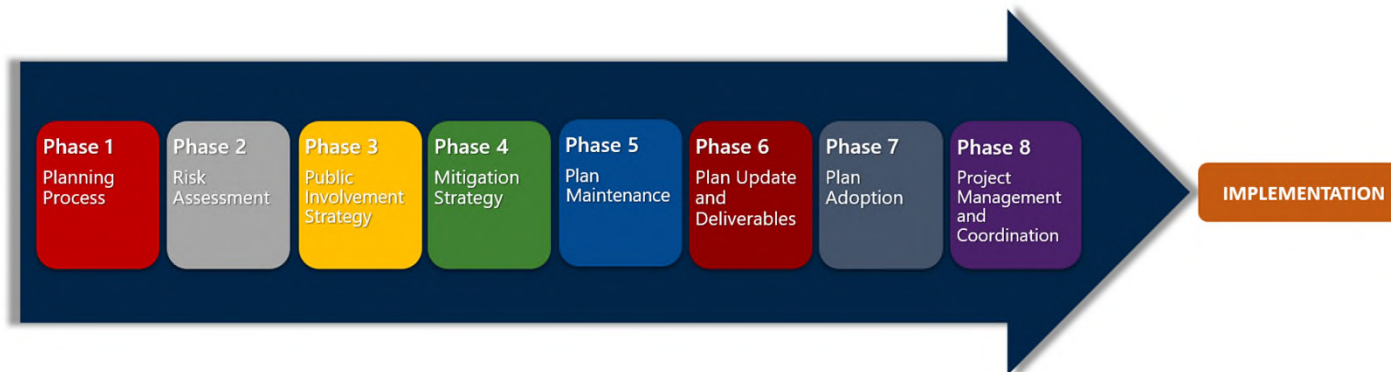
- The mitigation plan update will:
 - Help the County prepare for and mitigate the effects of disasters
 - Continue to allow the county and participating partners to be eligible for pre- and post-disaster mitigation funding
 - Support CRS participation/rating of municipalities
- What is at risk in Putnam County?

Hazard	Losses
Avalanche	\$0
Coastal Storm	\$0
Cold wave	\$0
Drought	\$0
Earthquake	\$0
Flooding	\$1.9 million
Hail	\$0
Heat Wave	\$0
Hurricane	\$633,000
Ice Storm	\$0
Landslide	\$0
Lightning	\$575,000
Snow Storm	\$6 million
Tsunami/Seiche	\$0
Tornado	\$350,000
Volcano	\$0
Wildfire	\$0
Wind	\$2.43 million
TOTAL	

Hazard Mitigation Planning Process

- What is hazard mitigation?
- How does this support resiliency and recovery?
- Why update the plan?
- What is the process?

- ✓ 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





Putnam County and DMA 2000

The mitigation plan update will:

- Help the County prepare for and mitigate the effects of disasters
- Continue to allow the county and participating partners to be eligible for pre- and post-disaster mitigation funding
- Support CRS participation/rating of municipalities

A **Local Mitigation Plan** demonstrates the jurisdiction's commitment to reducing risk and serves as a guide for decision makers as they commit resources to minimize the effects of natural hazards.



Requirements for Local Mitigation Plan Updates

- Include the opportunity for public comment and for relevant agency and stakeholder involvement
- **Updated** Risk Assessment - a factual basis for activities proposed in the Mitigation Strategy section include:
 - Overview of hazards (type, location, probability)
 - Vulnerability analysis (impact on buildings, infrastructure, economy, development trends)
 - Multiple jurisdictions (specific to each town/borough/city)
- **Updated** Mitigation Strategy – a blueprint for reducing losses identified in the risk assessment
- Plan Maintenance and Adoption Processes

NYS DHSES Requirements

- Establish Jurisdictional Teams
- Assess Critical Facilities
- **Plan for Displaced Residents**
 - Intermediate (Temporary Housing) and Long-Term (Permanent Housing)
- **Plan for Evacuation and Sheltering**
- Document Past Mitigation Accomplishments
- Include Jurisdictional Annexes
- Develop Mitigation Actions (minimum of 2 projects)
- Plan for Climate Change



What is the focus for the 2020 Update?

- Clearer communication of risk
- Stronger connection between the risk assessment and mitigation strategy (e.g. projects)
- Integration of the HMP into local and county plans, policies, procedures, and decision making





Schedule

- Overview and Milestones
 - Planning Process
 - Steering Committee Kick-Off – May 20, 2020
 - Planning Partnership Kick-Off – TODAY!
 - Currently working on reviewing plans, studies, and codes/ordinances
 - Update Risk Assessment
 - Data collection is underway; Confirm building and critical facility inventory
 - Confirm hazards of concern; once confirmed, begin vulnerability assessment for each
 - Public Involvement Strategy – ongoing throughout the planning process
 - Mitigation Strategy
 - Begin working with the municipalities after the Planning Partnership kick-off
 - Mitigation Strategy Workshop with FEMA and NYS DHSES – TBD
 - Draft Plan to Steering Committee by late summer/early fall
 - Final draft plan to NYS DHSES and FEMA by December 2020

HMP Project Schedule



Organizing the Planning Team

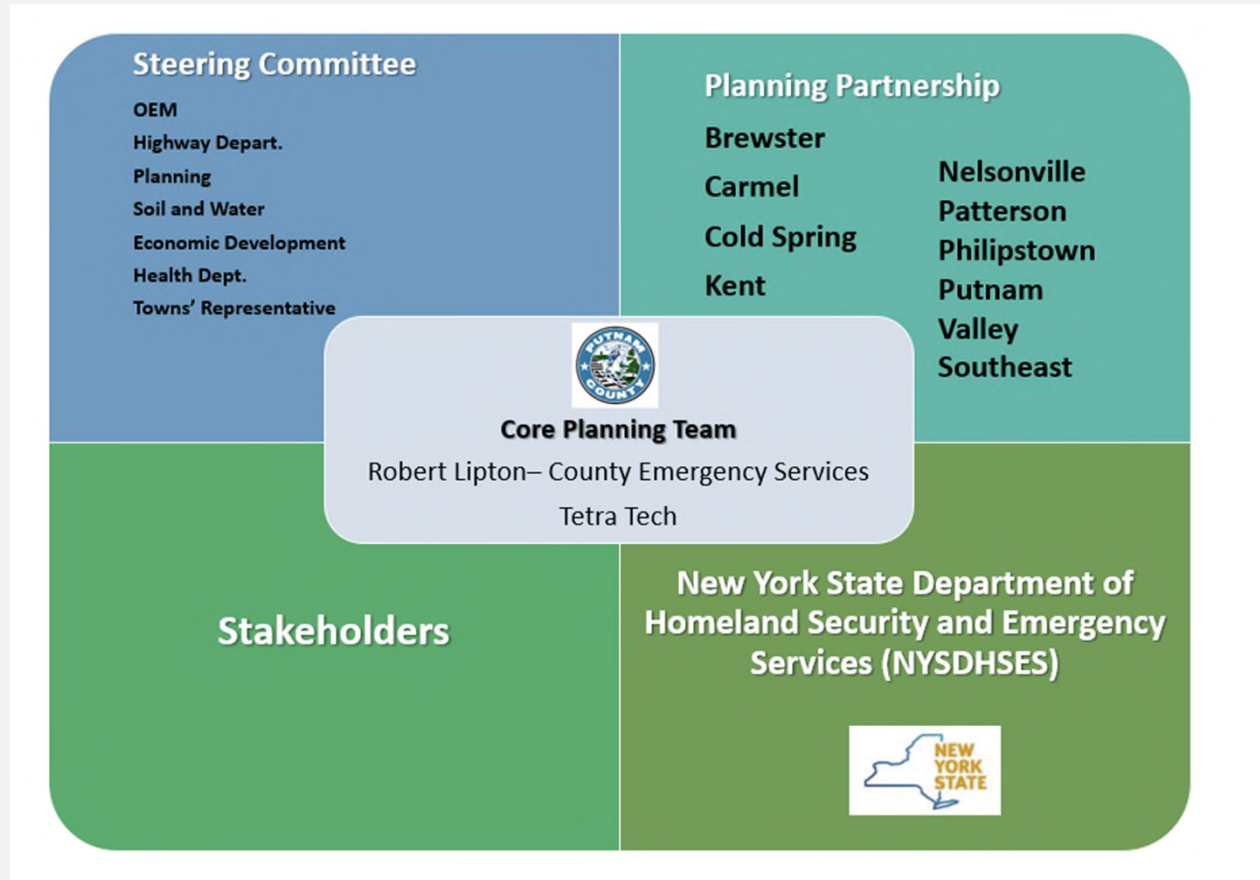
- County Lead (Bureau of Emergency Services)
- Contract Consultant (Tetra Tech)
- Steering Committee
- Planning Committee – that's you!
- Stakeholders
- General Public



An effective planning process is essential in developing and maintaining a good plan.

44 CFR §201.4(b)

Project Organization



Municipal Planning Partnership

- All municipalities are encouraged to participate (and continue to be covered by the Countywide HMP)
- FEMA has greatly expanded their scrutiny of “participation” ...

Municipalities are required to actively participate

- All municipalities who wish to join the update process must formally provide a letter of intent to participate.

Letters of Intent to Participate

Your Letter of Intent to Participate for your community is due ASAP
to Bob Lipton

Copies will be included in the HMP.

How Do You Participate?

- Attend planning partnership meetings/workshops
- Provide data and information in a timely manner
- Support public and stakeholder outreach in your jurisdiction
- Assist with the development of your jurisdictional annex
- Review and provide feedback on Draft and Final Plan documents
- Facilitate the adoption process – governing body must pass an Adoption Resolution
- Implement and Maintain the Plan



Assemble Your Mitigation Team!

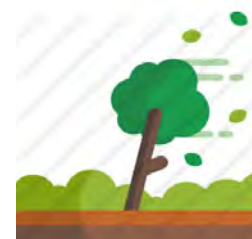
Who should help with developing your annex?

- NFIP Floodplain Administrator
- Building Code Official
- Engineer
- Land Use Planner
- Clerk
- Mayor/Administrator
- Municipal CFO/Fiscal Representative
- Public Works Superintendent/Director
- Police/Fire Official



Hazards of Concern for Putnam County

- Review of Hazards of Concern for the 2020 Update:
 - Earthquake
 - Extreme Temperature
 - Flood (riverine, coastal)
 - Land Failure (landslide, subsidence/sinkholes)
 - Severe Storm (hail, wind, lightning, thunderstorm, tornado, hurricane, tropical storm)
 - Severe Winter Storm (cold, sleet/freezing rain, Nor'Easter, snow, blizzard)
 - Wildfire



EXERCISE – Identifying Hazards of Concern

Write down a few notes...

- ✓ Identify vulnerable areas in your municipality
- ✓ Are there impacts occurring in your municipality that happen often due to small events or considered a nuisance that needs addressing?
- ✓ Include: type of hazard event, location, and impacts

Please identify any other hazards that you believe should be considered in the 2020 update of the Putnam County Hazard Mitigation Plan (e.g. landslides, wildfires, invasive species, etc.)

What are the natural hazards that present the most risk to your jurisdiction today?

- Climate Change
- Dam Failure
- Drought
- Earthquake
- Extreme T...
- Severe Weather (high wind, tornado, ... hail)

Why do these hazards present the most risk?

Has this changed since the 2015 HMP?

Please identify any specific vulnerabilities that you are aware of in your community (e.g. flood-prone areas or specific properties, critical facilities that lack backup power, etc.). Include susceptible areas that have a single point of entry, that may experience evacuation issues during a hazard event.

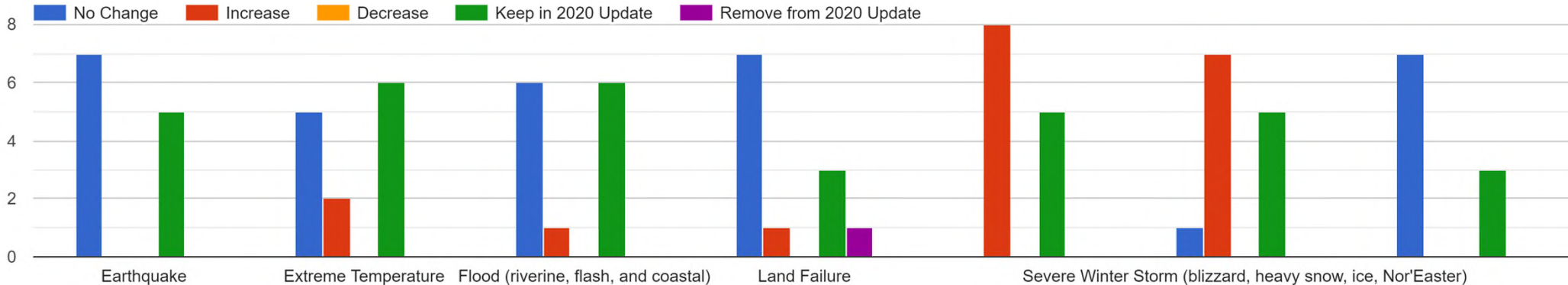
Hazards of Concern – Survey Results!

Looking at the hazards from the last plan...

- **Earthquake**
 - Majority indicated no change in frequency/severity/location
 - Majority want to keep in the 2020 Update
- **Extreme Temperature**
 - Majority indicated no change in frequency/severity/location; two stated an increase in frequency/severity/location
 - Majority want to keep in the 2020 Update
- **Flood**
 - Majority indicated no change in frequency/severity/location; one stated an increase in frequency/severity/location
 - Majority want to keep in the 2020 Update
- **Land Failure**
 - Majority indicated no change in frequency/severity/location; one

stated an increase in frequency/severity/location

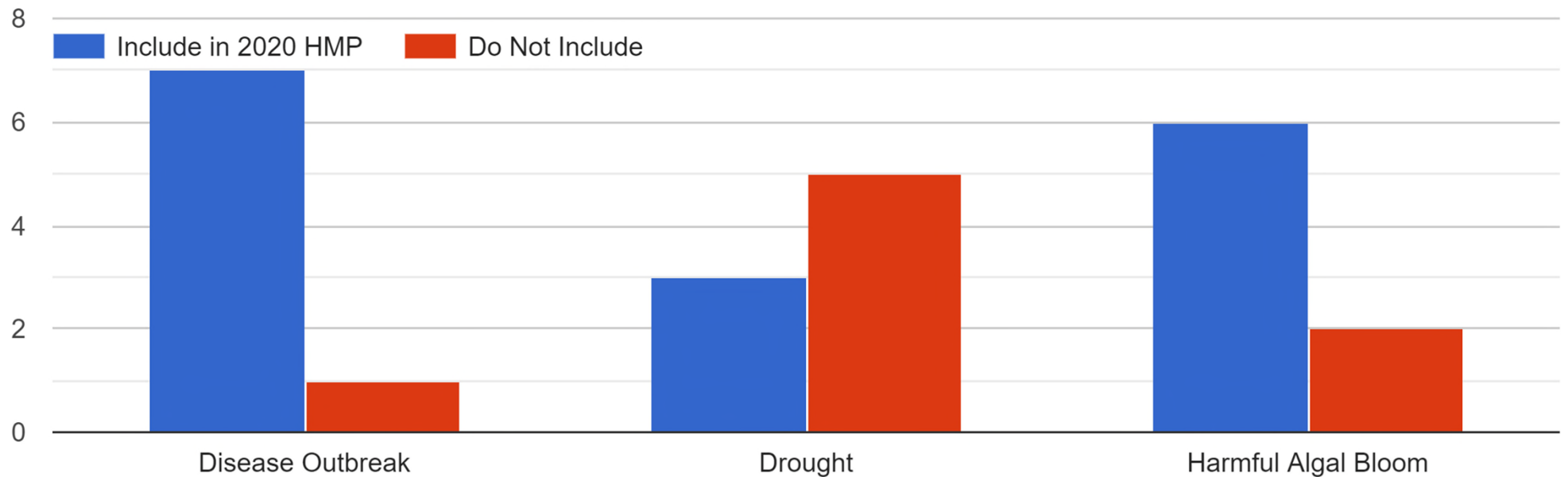
- One suggested to remove from the 2020 Update; three suggested to keep in the 2020 Update
- **Severe Storm**
 - Majority indicated an increase in frequency/severity/location and want to keep in the 2020 Update
- **Severe Winter Storm**
 - Majority indicated an increase in frequency/severity/location and want to keep in the 2020 Update
- **Wildfire**
 - Majority indicated no change in frequency/severity/location and want to keep in the 2020 Update



Hazards of Concern – Survey Results!

How about new hazards? Anything new we should be looking at?

- All but one who took the survey thinks we should include **Disease Outbreak**
- Five responses believe **Drought** should not be included; three said to include
- Six responses said **Harmful Algal Bloom** should be included and two said to not include





Additional Hazards to Consider

Based on the survey results...some of you said we should consider the following:

- Bridges – many are in poor condition and limited funds to make the needed repairs
- Bridge collapse
- Power outages
- Communication disruption
- Dam failure (this is included in the flood profile)
- Gas pipelines
- Water quality

Update the Risk Assessment

- Update assets
- Look at previous impacts
- Analyze risks
- Review with the Steering Committee
- Risk Assessment Meeting



Critical Facilities and Lifelines

- **Review 2015 CF inventory to ensure complete** – each municipality will be provided a list of critical facilities to review, modify and/or update
- **Identify lifelines and add to inventory**

***Critical Facilities** are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard. As defined for this HMP, critical facilities include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous material facilities.*

***Essential facilities** are a subset of critical facilities that include those facilities that are important to ensure a full recovery following the occurrence of a hazard event. For the County risk assessment, this category was defined to include police, fire, EMS, schools/colleges, shelters, senior facilities, and medical facilities.*



What are FEMA Lifelines?

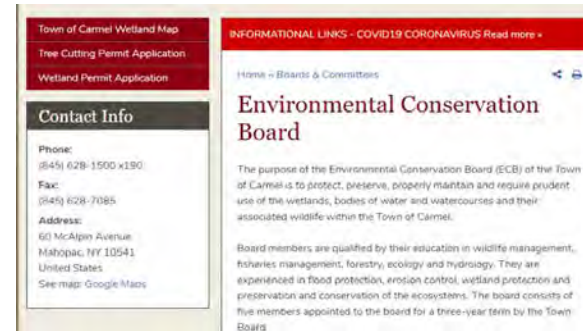
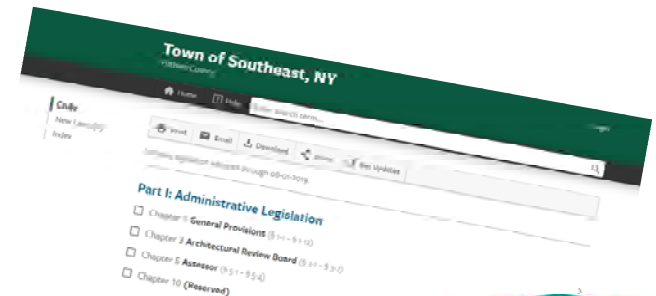
*Lifelines provide indispensable service that enables the continuous operation of **critical business and government functions**, and is critical to **human health and safety**, or **economic security***

- What does this mean?
 - Lifelines are critical interdependent systems that enable continuous operation of government functions and critical business, and are essential to human health and safety or economic security.
 - FEMA's lifeline concept helps stabilize communities after a disaster by preventing lifelines from being disrupted
- How will lifelines be used?
 - Enhances situational awareness
 - Prioritizes focus areas for each operational period during response
 - Exposes destabilization factors
 - Unifies ability to standardize plans and unmet needs

Update the Capability Assessment

Authorities, laws, policies, programs, staff, funding and other resources available to Putnam County to support hazard mitigation

- Planning and Regulatory Capability
- Building Code
- Administrative and Technical Capability
- Fiscal Capability
- Education and Outreach
- Adaptive Capacity



Mitigation Strategy

- Goals
 - What outcomes do you want to achieve?
- Actions
 - What specific actions will be taken to reduce hazard risk?
- Action Plan
 - How will the actions be prioritized and implemented?



Connection to the Mitigation Strategy

- Need a clear connection between vulnerability and proposed mitigation actions.
- Use the capability assessment to provide insight into challenges/opportunities for the mitigation strategy as well.
- Provide a factual basis for activities proposed in the mitigation strategy.



Update the Mitigation Strategy

- Review Goals and Objectives
- Determine Status of 2015 Mitigation Actions
- Start with Problems
 - **Areas that have been impacted**
 - **Recurring issues**
 - **Critical/Lifeline facilities in the floodplain**
 - **RL/SRL properties need mitigating?**
- Identify New Mitigation Actions/Projects
- Conduct Mitigation Strategy Workshop
- Conduct Public Meeting





Update Progress on 2015 Actions

- Confirm reported progress made on mitigation actions identified in 2015 plan.
- If an action wasn't completed, why not?
 - Detailed information is required
 - Indicating no funding was available requires more details as to why mitigation funding was not pursued.
 - Do you want to include in the 2020 update?
- If you completed the action, NYS wants to know...
 - Summary of original problem
 - Cost to complete
 - Level of protection of project
 - Benefits/avoided losses of project

New Mitigation Actions for the 2020 HMP Update

- Opportunity to add new mitigation actions
- This includes all in-progress grant applications (HMGP generators, CDBG acquisitions, etc.)
- Tips for the 2020 update:
 - Quality NOT quantity
 - Specific not general
 - What can realistically be accomplished in 5 years?



Types of Mitigation Actions



Plans and regulations include government authorities, policies, or codes that encourage risk reduction, such as building codes and state planning regulations. This may also include planning studies.



Structure and infrastructure projects involve modifying existing structures and infrastructure or constructing new structures to reduce the impact of hazards.



Natural systems protection projects minimize losses while also preserving or restoring the function of natural systems.



Education and awareness programs include long-term, sustained programs to inform and educate citizens and stakeholders about hazards and mitigation options. This category could also include training.



Other Sections of the HMP

- County Profile
- Planning Process
 - Documenting the update process
- Plan Maintenance
 - Incorporation into other plans, as well as identifying how other plans will be incorporated in the updated HMP



We Need YOU Engaged and Involved!

- Update your Municipal webpage and link to County's HMP website
- Social Media Blasts – we will provide content and graphics
- Local Announcements of HMP Update
- Local public meetings
- Informational Brochure – we will provide to you
- Draft Plan Review




Update Your Jurisdictional Annex

- Annexes have been pre-populated with information from the 2015 HMP. We need you to review and update.
- On May 1st, Tetra Tech sent each municipality their annex along with instructions on how to complete each section of the annex.
- Tetra Tech is here to help! Please reach out if you have any questions with updating the annex.




Next Steps

- Attend Planning Partnership Meeting – TODAY!
- Determine Hazards of Concern to include in the HMP
- Review Hazard Profiles
- Review Risk Assessment Results
- Identify Problems and Problem Areas
- Develop Mitigation Strategy
- Review Draft Plan
- Submit Draft Plan for NYSDHSES/FEMA Review
- Adopt FEMA-Approved Plan
- Implement Projects and Maintain the Plan  Increase Resilience!

Questions?





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Thank you



PUTNAM COUNTY HAZARD MITIGATION PLAN UPDATE
Steering Committee #2 – AGENDA
MEETING DATE/TIME: June 24, 2020 – 1:00 pm - 2:30pm



- 1. Welcome**
- 2. Project Status**
 - Where are we in the process/schedule
 - Municipal engagement
 - Public outreach
 - Tracking in-kind hours
- 3. Confirmation of Hazards of Concern**
- 4. Critical Facilities Identification/Confirmation**
 - Definition
 - Lifeline Crosswalk
- 5. Update/Revise Mission Statement and Goals/Objectives**
- 6. SWOO (Strengths, Weaknesses, Obstacles and Opportunities) Exercise**
- 7. Schedule**
- 8. Next Steps**
- 9. Other Items and Questions - All**
- 10. Project Contacts**

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Putnam County Hazard Mitigation Plan Update Minutes of Meeting



Purpose of Meeting: Steering Committee Meeting #1
Location of Meeting: Remote Teams call with PowerPoint presentation and handout
Date/Time of Meeting: 6/24/2020; 1:00 pm – 2:30 pm

Attendees: <i>Bob Lipton-Deputy Commissioner, OEM</i> <i>Heidi Zatkovich, Confidential Secretary to Commissioner</i> <i>Lisa Johnson-Putnam County Economic Development / Real Property</i> <i>Shawn Rogan- Department of Health, Director of Environmental Health</i> <i>Rich Williams- Supervisor, Town of Patterson, Representative of Towns</i> <i>Lauri Taylor- Soil and Water</i> <i>Barbara Barossa- Putnam County Planning</i> <i>Cynthia Addonizio-Bianco, Tetra Tech</i> <i>Brian Kempf, Tetra Tech</i>

Agenda Summary: Provide project status update, address action items, confirmation of hazards of concern, review critical facilities, review and update plan goals, facilitate SWOO exercise.

Item No.	Description	Action By:
1.	Welcome and Introductions	Troubleshoot known issues with Microsoft Teams or facilitate Zoom meetings if needed for future meetings
2.	Project Status <ul style="list-style-type: none"> Currently between Phase 2 and 3 of the project. Tt is providing an online survey to the public and for stakeholders. Data Collection, Risk Assessment, Critical Facilities inventory are in progress. Plan Collection and County update of General Building Stock are complete. Tt broached concern of aligning with County policies/plans. Due to lack of County planning documents, Tt was advised to examine municipal documents. Tt is launching an HMP website that will list all information in one place. Any meetings convening folks from across the County would be a great opportunity. Five of nine LOIPs have been received. Four municipal annex meetings have been held. 	Bob to send CEMP to Tetra Tech (Tt) for review. Tt to review local plans. Lisa to contact Jen Maher; Kathleen Abels w/r/t economic development concerns. SC to distribute outreach documents to professional circles. SC to track in-kind hours.
3.	Confirmation of Hazards of Concern: <ul style="list-style-type: none"> Disease outbreak, drought, earthquake, extreme temperatures, flood, HABs, severe storm, severe winter storm, wildfire 	Tt to include disease outbreak as a hazard of concern
4.	Critical Facilities Identification/Confirmation <ul style="list-style-type: none"> Facilities should be added to the list only if they are critical. There are a number of dams listed, but only the high-hazard dams should be included. There is some concern about the Microsoft Word formatting – it may be easier to have the lists in Excel so it is easier to sort. Concern was raised about including farms as critical 	Tt to discuss with Cold Spring about criticality of boat launches and examine Tilly Foster Farm as well as all food production farm facilities for inclusion on the CF list Tt to distribute Excel copies of CF lists to municipalities upon requests.



Putnam County Hazard Mitigation Plan Update Minutes of Meeting



	<p>facilities. FEMA considers them lifelines.</p>	<p>Limit parks and recreation facilities to larger open space where floodplain management facilities or locating temporary housing</p> <p>Lauri Taylor to ID list of food producing farms.</p>
<p>5.</p>	<p>Update/Revise Mission Statement and Goals/Objectives</p> <ul style="list-style-type: none"> • Identified recommendation to create a mission statement and objectives to frame the plan and the need to revise goals • A sample mission statement was thematically acceptable. SC comments wanted to reflect themes such as “return to normalcy” and “rebuild and improve” in the wake of disasters. • The reduction of business/economic disruptions will also be noted • Example: “Protecting life...reducing interruptions/impacts caused by natural hazards to ensure resilient community.” • Tt will create new goals by synthesizing the 2015 goals and the 2019 NYS HMP goals 	<p>SC to complete Goals and Objectives worksheet</p> <p>Tt to draft initial goals and objectives and modify to include 2019 NYS goals</p> <p>Tt to Incorporate received feedback</p>
<p>6.</p>	<p>SWOO (Strengths, Weaknesses, Obstacles and Opportunities) Exercise</p> <ul style="list-style-type: none"> • Tetra Tech led the group in a sample SWOO exercise (flood) and requested the Committee to similarly address the other hazards of concern by filling out the online SWOO form. Tetra Tech will consolidate the input and provide the results to the committee for further review, enhancement, and consideration to form a basis for the development of a focused mitigation strategy. • Identified strengths include: <ul style="list-style-type: none"> ○ The ability to complete mitigation projects. For example, a flooding issue on Manitou Road near Cold Spring was mitigated since the last plan. The project was unilaterally funded by the Town, which was unsuccessful in getting grants. ○ An Asset Manager in the Highway Department regularly examines culvert projects. ○ A culvert project on Mill Street in Putnam Valley was built to withstand the 100-year storm. ○ Municipalities have stormwater regulations and activities, including education/outreach on MS4 such as citizen preparedness meetings • One weakness identified was the lack of documentation of stormwater flooding. 	<p>Committee members to complete SWOO form</p> <p>Tt to review and consolidate feedback</p>



Putnam County Hazard Mitigation Plan Update Minutes of Meeting



7.	Schedule <ul style="list-style-type: none">• A planning partnership meeting is anticipated for July 29th.• Work is ongoing to complete the Risk Assessment, and work on the Public Involvement Strategy is similarly ongoing.• A mitigation strategy workshop is planned for August 2020.• A draft plan will be released to the Steering Committee in October.	
8.	Conclusion The meeting was adjourned at 2:29=5 pm.	



Tompkins County Resiliency and Recovery Plan

Hazard Mitigation Plan Update Component

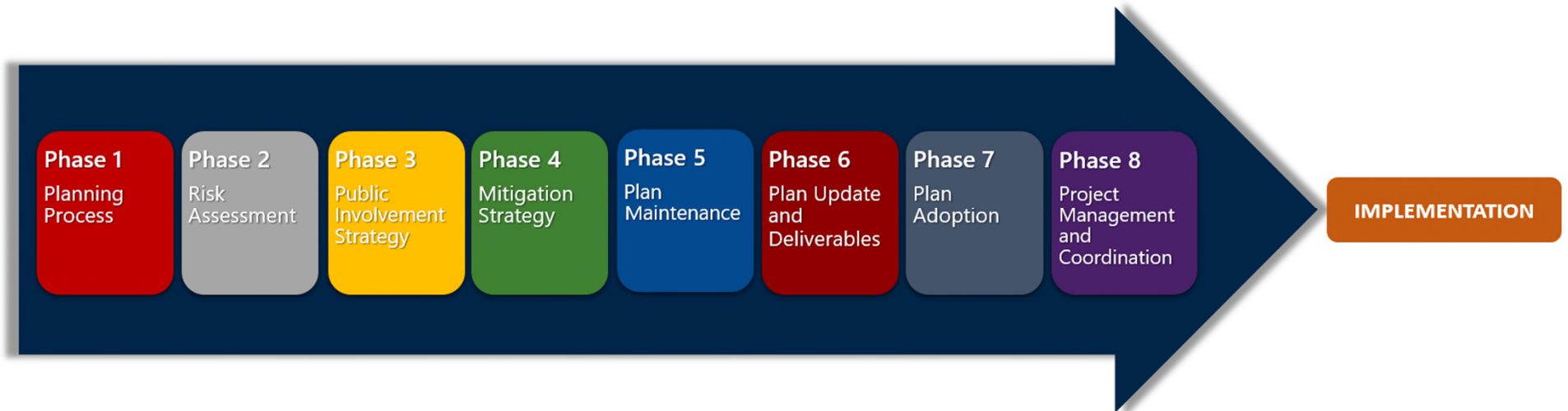
Steering Committee #2 Meeting | June 30, 2020

Agenda

- Welcome
- Project Status
- Hazards of Concern
- Confirm Critical Facility Types and Lifelines
- Mission Statement, Goals, and Objectives
- Strengths, Weaknesses, Obstacles and Opportunities Exercise (SWOO)
- Next Steps



Project Status





Data Collection Status

- **NFIP Data Request Approved and Awaiting Data**
- **Critical Facility Inventory and Lifelines – currently being reviewed by community**
- **Reports and Plans – No feedback on list of plans collected**
- **Template Data Gathering/Update Tools and Annex Template Approach**
 - **Most municipalities have had in person meetings with the County or Tetra Tech to go over the annex**
 - **Expected to complete all annex revisions in July.**

Local Municipal Annex Support Status

- To date, we have received Letters of Intent to Participate (LOIP) from all municipalities (though 2 are in paper form and need to be digitalized by the county). Annex assistance status is as follows:

Municipality Name	Responsible Party	Annex Meeting Status
Caroline, T	Tetra Tech	Annex Meeting Complete
Cayuga Heights, V	Tetra Tech	Meeting Scheduled for 6/30
Danby, T	Tetra Tech	Annex Meeting Complete
Dryden, T	Tompkins County	Annex Communication Complete
Dryden, V	Tompkins County	Annex Communication Complete
Enfield, T	Tetra Tech	Meeting Scheduled for 7/3
Freeville, V	Tompkins County	Annex Meeting Complete
Groton, T	Tetra Tech	Annex Meeting Complete
Groton, V	Tetra Tech	Annex Meeting Complete
Ithaca, C	Tompkins County	Annex Communication Complete
Ithaca, T	Tompkins County	Annex Communication Complete
Lansing, T	Tompkins County	Annex Communication Complete
Lansing, V	Tompkins County	STATUS UNKNOWN
Newfield, T	Tetra Tech	Annex Meeting Complete
Trumansburg, V	Tetra Tech	Annex Meeting Complete
Ulysses, T	Tetra Tech	Annex Meeting Complete

What's the Status?

- **Data Collection**

- ✓ Plan Collection - Complete
- ✓ General Building Stock – Complete
- ✓ Critical Facility Inventory - In Progress

- **Risk Assessment - In Progress**

- ✓ Hazard Profile Drafts – In Progress
- Next Step: Vulnerability Assessment

- **Public Involvement - In Progress**

- Requesting individual communities to encourage public involvement

- **Mitigation Strategy**

- Confirm Goals And Objectives - In Progress with conducting survey
- SWOO - In Progress via Survey link
- Municipal Annex Updates - In Progress
- Identify Problem Areas - In Progress
- Develop Mitigation Strategy – Not Started

Slide 6

- A7** once we qa the drafts we should post on a dedicated onedrive or sharepoint for the SC to review and comment.
Author, 6/23/2020

Citizen Survey and Brochure Discussion

- Press Release and Social Media
 - Tetra Tech will provide samples for the County and municipalities to use
- Surveys (citizen and stakeholder) and information flyer created
 - Citizen survey and brochure will be deployed
 - Next step – distribute survey links and flyers
 - Joint SC and PP Meeting will be held August 26th at 1pm
 - all links to be distributed to the appropriate people
 - all municipalities to post an HMP project link and flyer on their website; press release sent to newspapers
- Outreach: Present key info on HMP process at local meetings





2020 Hazards of Concern

- Drought
- Epidemic
- Extreme Temperatures
- Flood (combine to include flash flood, lake flood, dam failure and ice jams)
- Ground Failure
- Harmful Algal Bloom (HAB)
- Invasive Species
- Severe Storms and Hurricane (combine to include tornado)
- Severe Winter Storm and Ice Storm
- Wildfire

Critical Facilities and Lifelines

- Review CF inventory to ensure completion
- Crosswalk and identify lifelines

Critical Facilities are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard. As defined for this HMP, critical facilities include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous material facilities.

Essential facilities are a subset of critical facilities that include those facilities that are important to ensure a full recovery following the occurrence of a hazard event. For the County risk assessment, this category was defined to include police, fire, EMS, schools/colleges, shelters, senior facilities, and medical facilities.

Lifelines provide indispensable service that enables the continuous operation of **critical business** and **government functions**, and is critical to **human health and safety**, or **economic security**



Lifelines in Tompkins

- What are lifelines?
 - A lifeline enables the continuous operation of critical government and business functions and is essential to human health and safety or economic security.
 - Lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function.
 - When disrupted, decisive intervention (e.g., rapid re-establishment or employment of contingency response solutions) is required to stabilize the incident.
- Tetra Tech conducted a preliminary review of the critical facilities and assigned the lifeline categories to each
- The County and each municipality need to identify which of their facilities are considered lifelines.

Lifeline Facilities

Row Labels	Count of Life Line Category
Aviation	1
Facilities with Hazardous Material	42
Fire Services	31
Food	2
Fuel	35
Government Services	204
HAZMAT, pollutants, and contaminants	5
Infrastructure	1
Mass Transit	2
Medical Care	168
Medical Supply Chain	1
Patient Movement	8
Power Grid	33
Public Health	5
Responder Communications	35
Water	516
(blank)	
Grand Total	1089



Critical Facilities in Tompkins County

- What types of facilities are considered critical?
 - Aviation – airports, landing zones
 - Bank
 - Bridges
 - Church
 - Communication – broadcast facility, cell tower, radio system
 - Dam (High hazard only?)
 - Daycare
 - DPW – DPW, highway garage
 - Electric/Power
 - EOC
 - Fire
 - Gas Station
 - Government – government, municipal hall
 - Hazmat
 - Hospital/Medical – emergency service, hospital, medical
 - Library
 - Park/Recreation – park, recreation
 - Police
 - Post Office
 - School/Education – school, university
 - Senior Facility
 - Transportation – boat launch, rail bridge
 - Wastewater – wastewater, wastewater treatment
 - Well

Row Labels	Count of Critical Facility Type
Dam	14
DPW	6
Education	640
Fire Station	26
Fire/EMS	8
Government	93
Healthcare	163
Hospital	1
Library	1
Municipal Hall	28
Police	13
Post Office	9
Potable Water	26
Religious	121
Substation	10
Utility	94
Wastewater	10
Well	462
Grand Total	1725





Mission Statement for Tompkins

The mission of the Tompkins Hazard Mitigation Plan is to develop a pathway for increasing capacity for ALL individuals, communities, institutions, businesses and systems within the County to adapt and thrive in the face of chronic stresses and acute shocks as a result of economic and natural hazard events in Tompkins County.



HMP Goals: Compatibility with Other Plans

Tompkins County goals should be compatible with the needs and goals expressed in other available community planning documents as well as the NYS HMP. These goals and objectives should be reasonably in-line with goals established in other related planning documents and mechanisms including:

- 2019 New York State Hazard Mitigation Plan
- Tompkins County Comprehensive Plan
- Other municipal and regional comprehensive and emergency management plans

2019 New York State HMP

- **Goal 1:** Promote a comprehensive state hazard mitigation policy framework for effective mitigation programs that includes **coordination among federal, state, and local organizations for planning and programs**
- **Goal 2: Protect existing property** including public, historic, private structures, state-owned/operated buildings, and critical facilities and infrastructure.
- **Goal 3: Increase awareness of hazard risk and mitigation capabilities** among stakeholders, citizens, elected officials, and property owners to enable the successful implementation of mitigation strategies.
- **Goal 4:** Encourage the development and implementation of **long-term, cost effective, and resilient mitigation projects to preserve or restore the functions of natural systems.**
- **Goal 5: Build stronger by promoting mitigation actions** that emphasize sustainable construction and design measures to reduce or eliminate the impacts of natural hazards now and in the future



Revisit the 2015 Plan Goals and Update if Needed

- Do the goals and objectives address current and expected conditions?
- Do the goals and objectives reflect current natural hazard risk?
- Did the goals and objectives lead to mitigation projects and/or changes in policy that helped jurisdictions to reduce vulnerability?
- Do the goals and objectives support changes in mitigation priorities?
- Do the goals and objectives reflect updated State goals?
- Do the goals incorporate a focus on resiliency?

HMP Goals

According to CFR 201.6(c)(3)(i): “The hazard mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.”

- **Goal 1: Protect and Improve Resiliency of Public Health and Economy**
- **Goal 2: Increase Community and Institutional Partnerships and Knowledge of Hazard Risk and Mitigation Options**
- **Goal 3: Protect and Restore Natural Ecosystems to Reduce Flood Risk**
- **Goal 4: Enhance Relationship Between Mitigation and Emergency Services to Support Life Safety and Economic Resiliency**
- **Goal 5: Create a Healthy and Equitable Environment Including Those Socially and Physically Vulnerable**

Objectives

- **Objectives** are short-term aims which, when combined, form a strategy or course of action to meet a goal. Unlike goals, objectives are specific and *measurable-they answer the question, "How?"*.
- **Objectives were not included during the 2015 planning process. We should determine whether or not objectives should be included in the 2020 update.**

Examples of objectives include:

- Integrate the recommendations of this plan into existing regional and local programs.
- Implement mitigation actions that enhance the capabilities of the County and communities to better profile and assess exposure of hazards.

HMP Objectives

Objective 1-1: Promote resilient and sustainable land development practices to improve the ability to recover from the impacts of natural hazard events.

Objective 1-2: Develop and maintain adequate services and utilities to serve the County's population and business

Objective 1-3: Develop business and government continuity plans to decrease potential local economic losses.

Objective 1-4: Reduce or eliminate hazard risks throughout the county.

Objective 1-5: Encourage building and rebuilding practices that address resiliency through higher standards and sustainable design to resist impacts of natural hazards.

Objective 1-6: Address repetitive and severe repetitive loss properties throughout the County.

Objective 1-7: Protect and maintain critical facilities and infrastructure.

Objective 1-8: Improve detection, warning and communication systems.

Objective 1-9: Pursue federal and state assistance toward the improvement of facilities and infrastructure.

Objective 1-10: Develop, maintain, strengthen and promote enforcement of ordinances, regulations and other mechanisms that facilitate sustainable construction standards.

Objective 1-11: Integrate risk reduction concepts, policies, and projects into existing local and regional planning and implementation mechanisms, such as comprehensive plans, codes, and capital improvement plans.

Objective 2-1: Implement mitigation actions that enhance the capabilities of the County and communities to better profile and assess exposure of and participate in focus on practices that support or enhance resiliency.

Objective 2-2: Provide tools, partnership opportunities, funding resources, and current government initiatives to assist in implementing mitigation activities.

Objective 2-3: Encourage property owners to take preventive actions in areas that are especially vulnerable to hazards.

HMP Objectives

Objective 3-1: Promote the continued use of natural systems to reduce long-term hazard related costs and maximize hazard mitigation.

Objective 3-2: Protect and preserve environmentally sensitive and critical areas.

Objective 3-3: Continue to preserve, protect and acquire open space.

Objective 3-4: Incorporate hazard considerations into land-use planning and natural resource management.

Objective 4-1: Create, maintain and enhance collaborative efforts including inter-jurisdiction and inter-agency communication, coordination, and partnerships and other identified stakeholders involved with natural hazard management to promote resiliency.

Objective 4-2: Engage public agencies, citizens, neighborhood groups, non-profit organizations, businesses, and industry to implement mitigation actions more effectively.

Objective 4-3: Encourage shared services in acquiring maintaining and providing emergency services and equipment.

Objective 4-4: Enact policies to prioritize and implement mitigation actions and/or projects designed to benefit essential facilities, services, and infrastructure.

Objective 4-5: Coordinate and integrate hazard mitigation actions with existing local emergency operations plans.

Objective 4-6: Identify the need for, and acquire, any special emergency services, training, equipment, facilities and infrastructure to enhance response capabilities for specific hazards.

Objective 4-7: Review and improve, if necessary, emergency traffic routes and evacuation routes; communicate such routes to the public and communities via the County's emergency notification system, social media, and news media outlets.

Objective 4-8: Ensure continuity of governmental operations, emergency services, and essential facilities at the local level during and immediately after disaster and hazard events.

Objective 4-9: Support County Emergency Management function as the central venue for community preparedness requirements and response efforts.

Objective 5-1: Develop and implement additional education and outreach programs to increase public awareness of hazard areas and to educate the public on specific, individual and household preparedness activities

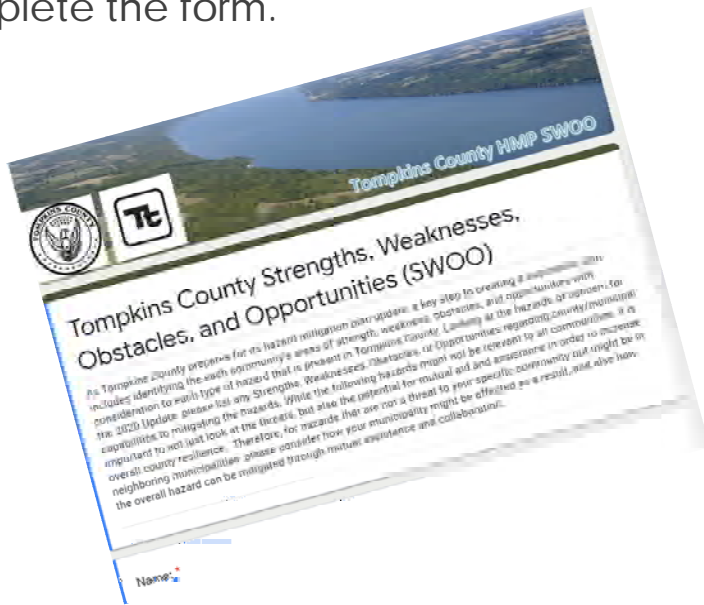
Strengths, Weaknesses, Obstacles, and Opportunities (SWOO)

The purpose of the SWOO is to identify mitigation strategies and capabilities that will meet the goals and objectives of the plan update. It is also used to develop potential mitigation actions for the participating jurisdictions.

- Strengths – what we do well
- Weaknesses – what could we do better
- Obstacles – things that stand in the way, and either prevents you from doing something or something that need to be overcome
- Opportunities – used to develop mitigation strategies

EXERCISE – Strengths, Weaknesses, Obstacles and Opportunities

Thinking about hazards of concern and any new hazards for this update...what are some strengths, weaknesses, obstacles and opportunities the County has for each? Complete the form.



Here are some examples to help brainstorm:

Hazard: Flood	
S	Minimal exposure to flood risk
W	Silt and debris buildup in streams can lead to localized flooding
Ob	Funding for culvert and catch basin maintenance
Opps	Installing stream gages

Hazard: Severe Storms	
S	Tree trimming programs are in place
W	Aging infrastructure; lack of underground utilities
Ob	Cost to retrofit existing utility infrastructure
Opps	Underground utilities; enhance public outreach program

Hazard: Severe Winter Storm	
S	Municipalities have the resources and experience to deal with winter weather
W	Aging equipment
Ob	Funding; limited staff for prolonged events
Opps	Shared services

2020 SWOO Discussion/Example

Flood	
Strengths	Weaknesses
<p>What do the County/Communities do well in terms of:</p> <ul style="list-style-type: none">➤ Plans and Regulations<ul style="list-style-type: none">➤ Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans➤ Structure and Infrastructure Projects➤ Natural Systems Protection➤ Education and Awareness Programs?➤ Preparedness➤ Others?	<p>What can the County/Communities do better or what are identified gaps in terms of:</p> <ul style="list-style-type: none">➤ Plans and Regulations<ul style="list-style-type: none">➤ Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans➤ Structure and Infrastructure Projects➤ Natural Systems Protection➤ Education and Awareness Programs?➤ Preparedness➤ Others?

2020 SWOO Discussion/Example

Flood	
Obstacles	Opportunities
<p>What is preventing the County/Communities to implement:</p> <ul style="list-style-type: none">➤ Plans and Regulations<ul style="list-style-type: none">➤ Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans➤ Structure and Infrastructure Projects➤ Natural Systems Protection➤ Education and Awareness Programs?➤ Preparedness➤ Others?	<p>What can the County/Communities implement terms of:</p> <ul style="list-style-type: none">➤ Plans and Regulations<ul style="list-style-type: none">➤ Codes, Ordinances, Planning Studies, Comprehensive Plans, Adaptation and Resiliency Plans➤ Structure and Infrastructure Projects➤ Natural Systems Protection➤ Education and Awareness Programs?➤ Preparedness➤ Others?

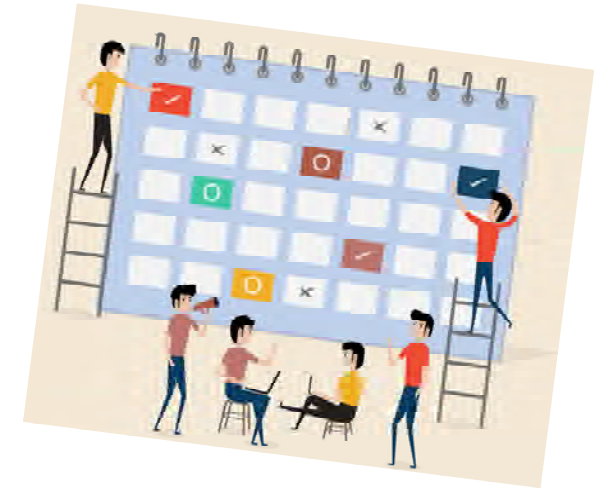
What is Next? Review Risk and Vulnerability



Schedule

OVERVIEW AND MILESTONES

- **Planning Process**
 - Steering Committee Meeting #2 - Today
 - Planning Partnership Kick-Off – Scheduled for July 13th
 - Currently finalizing municipal annexes, hazard ID, and Critical/ Lifeline Facility
- **Update Risk Assessment**
 - Data collection is underway
 - Now that hazards of concern are established, will be starting on vulnerability assessment
- **Public Involvement Strategy – ongoing throughout the planning process**
- **Mitigation Strategy**
 - Continue working with the municipalities after the Planning Partnership kick-off
 - Mitigation Strategy Workshop with FEMA and NYS DHSES – December 2020
- **Draft Plan to Steering Committee by late fall**
- **Final draft plan to NYS DHSES and FEMA by January 2021**



HMP Project Schedule



In-Kind Services

Name of Team Member: _____							
Correspondence Type	Meeting Name, Municipality	Date	Start Time	End Time	# of Hours	Agenda/Sign In?	Notes (include meeting topic, how HMP was discussed, etc.)
Meeting	Chiefs and Fire Advisory Board Meeting	2/26/2020				Yes - sign-in	Discussed the HMP update
Meeting	Town of ?? Board Meeting	3/9/2020	7:00 pm	9:00 pm	2		Discussed the HMP update
Phone Call	Town of ?? phone call	3/10/2020			1	No	Spoke with the Town about the HMP process and their responsibilities in participating
Meeting	Town of ?? Board Meeting	3/12/2020	6:30 pm			Yes - agenda	

Next Steps

- Review Hazard Profiles
- Review Risk Assessment Results
- Identify Problems and Problem Areas
- Develop Mitigation Strategy







Tompkins County Project Contact

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**PUTNAM COUNTY HAZARD MITIGATION PLAN UPDATE
INTERIM RISK ASSESSMENT STEERING COMMITTEE MEETING – AGENDA
MEETING DATE/TIME: July 27, 2020 – 10:00 am – 11:30 am**



Virtual Meeting

Dial-in Phone Number: +1 213-357-2812; Conference ID: 767 621 403#

Join by Computer: <https://bit.ly/3g6nKhC>

1. **Opening Remarks**
2. **Project Status** - where we are in the process, public outreach, Survey discussions
3. **Risk Assessment Overview**
 - Hazards of concern risk ranking
 - Results of each risk assessment for each hazard
 - How will this information be used in the HMP
4. **Feedback and Input**
5. **Next Steps**
6. **Adjournment**

Putnam County Project Contact

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Putnam County Hazard Mitigation Plan Update Minutes of Meeting



Purpose of Meeting: Steering Committee Meeting #3
Location of Meeting: Remote Teams call with PowerPoint presentation and handout
Date/Time of Meeting: 7/27/2020; 10:00 am – 11:00 am

Attendees: <i>Bob Lipton-Deputy Commissioner, OEM</i> <i>Ken Clair- Commissioner, OEM</i> <i>Lisa Johnson-Putnam County Economic Development / Real Property</i> <i>Shawn Rogan- Department of Health, Director of Environmental Health</i> <i>Rich Williams- Supervisor, Town of Patterson, Representative of Towns</i> <i>Vince Tamagna – Transportation Manager, Putnam County Department of Planning</i> <i>Lauri Taylor- Putnam County Soil and Water</i> <i>Barbara Barosa- Putnam County Planning</i> <i>Cynthia Addonizio-Bianco, Tetra Tech (Tt)</i> <i>Heather Apgar, Tetra Tech (Tt)</i> <i>Brian Kempf, Tetra Tech (Tt)</i>

Agenda Summary: Review results from risk ranking; introduce SWOO exercise; collect input on hazard rankings
--

Item No.	Description	Action By:
1.	Project Status <ul style="list-style-type: none"> Tetra Tech has contacted all municipalities at this point Most municipal annexes are at some level of completion Website and citizen survey are available for distribution Tetra Tech reviewed the project schedule 	Steering Committee to take and distribute citizen survey
2.	Risk Assessment Overview and Hazard Review <ul style="list-style-type: none"> Hazards of Concern: Drought, earthquake, extreme temperature, flood, HABs, Disease outbreak, severe storm, severe winter storm, wildfire Tetra Tech presented an overview of hazards and exposure for each hazard Tetra Tech presented the vulnerability results/maps indicating impacts on a county-wide basis. Clarification was requested to confirm the basis for the distribution of low-income population in the Town of Patterson. It was noted that the high density of low-income population may be due to seniors, particularly at Clover Lake. Homes were damaged in Patterson due to flash flooding in 2015. Due to concern about meeting length, the SWOO 	Tt to examine distribution of low-income persons in the County, particularly in Patterson Tt to compile spreadsheet including date, location, impacts) of past hazards to help examine data and determine if there are additional events.



Putnam County Hazard Mitigation Plan Update Minutes of Meeting



	<p>exercise was not completed for each hazard but the committee members were urged to complete the online SWOO to provide additional input.</p>	
3.	<p>Risk Ranking</p> <ul style="list-style-type: none"> • Results in descending order: wildfire; severe storm; severe winter storm; drought; disease outbreak; harmful algal blooms; extreme temperature; flood; earthquake • SC recommends examining terrorism as a concern with respect to dam protection and security in government building lobbies. • Wildfire is ranked too high – does not reflect hazard. Some wildfires occur in Fahnestock State Park, though it is an isolated area. • Putnam County Soil and Water noted a history of flooding near Manitou Station. It was agreed to adjust the flood risk ranking for the Town of Philipstown to medium 	<p>Adjust wildfire ranking to “medium” from “high”</p> <p>Identify projects for all “high” ranked hazards</p> <p>Tt to develop Terrorism hazard profile. Tt to reach out to Shawn to work with bioterrorism/terrorism coordinator</p> <p>Risk ranking for HABs for communities with lakes to be adjusted.</p> <p>Risk ranking for flood in Philipstown to “medium”</p>
4.	<p>Conclusion The meeting was adjourned at 11:12 AM.</p>	<p>Tetra Tech to adjust risk ranking workbooks to present to the Planning Partnership</p>



Planning Together for a Resilient Putnam County

2020 County Hazard Mitigation Plan

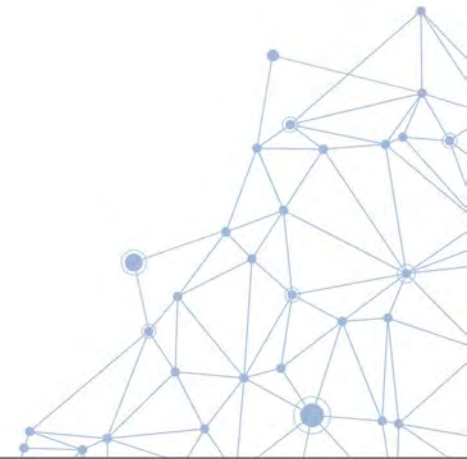
**Steering Committee Meeting - Risk Assessment Review
July 27, 2020**





Agenda

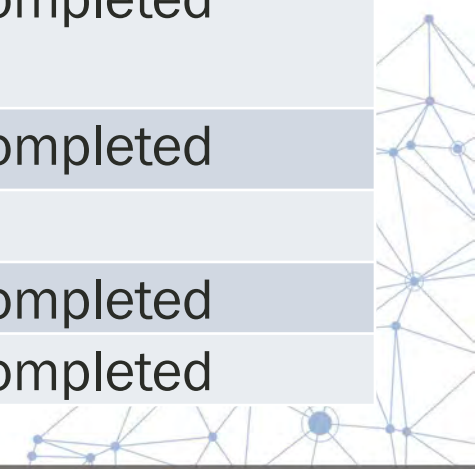
1. Opening Remarks
2. Project Status - where we are in the process, public outreach
3. Risk Assessment Overview
4. Risk Ranking
5. Strengths, Weaknesses, Obstacles and Opportunities Exercise
6. Next Steps
7. Adjournment





Progress Update

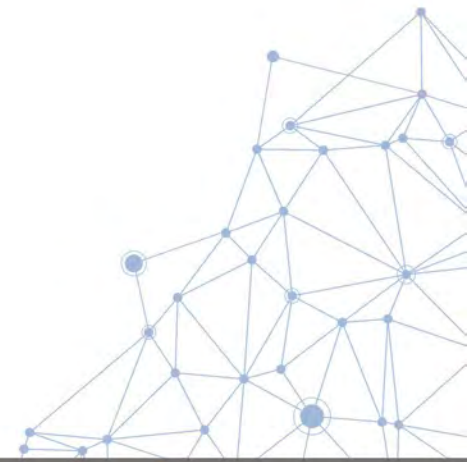
Municipality	LOIP Received	Status
Putnam County		Annex meeting held; in progress
Brewster (V)		Annex update underway- substantially completed
Carmel (T)	X	Annex update underway- substantially completed
Cold Spring (V)		Meeting pending
Kent (T)		Meeting pending
Nelsonville (V)		Annex update underway- substantially completed
Patterson (T)	X	Annex update underway- substantially completed
Philipstown (T)	X	Meeting pending
Putnam Valley (T)	X	Annex update underway- substantially completed
Southeast (T)	X	Annex update underway- substantially completed





Schedule

Task	Date
Data Collection	Complete
Update Hazard Profiles	Complete
Risk Assessment	Complete
Risk Results Presentation	July 29, 2020
Mitigation Strategy Workshop	August 26, 2020
Review Draft Plan	October 21, 2020
Submit to NYSDHSES	November 18, 2020
Submit to FEMA	TBD





ACTION! Take and Distribute the Citizen Survey!

- Ready to go – here is the link – post on your municipal websites
- <https://www.surveymonkey.com/r/PutnamHMP2020>
- HMP Website available here:
<https://www.putnamcountynyhmp.com>

Putnam County Hazard Mitigation Plan Update

Home About What is Mitigation Meetings Calendar Explore the Plan
Additional Information

About the Project

Purpose

Putnam County's Bureau of Emergency Services is leading the update of the Putnam County Hazard Mitigation Plan (HMP) for the County and its jurisdictions. This plan is an opportunity to detail a variety of potential hazards that could affect some or all of our residents and will also allow the County and the participating jurisdictions to be eligible for future mitigation funding from the Federal Emergency Management Agency (FEMA). The goal of this plan is to identify projects that can reduce damages from future natural and non-natural hazards. The plan will include a risk assessment and a hazard mitigation strategy. The study will focus on existing buildings and potential future development, infrastructure, and critical facilities that might be impacted. Critical Facilities are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard. Critical facilities include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous material facilities.

Scope

During the planning process, the Planning Partnership will actively be involving private sector, non-profit, and other community partners in the planning process. The approach is consistent with the "Whole Community Approach," which seeks to involve the entire community in disaster and hazard planning.



Objectives

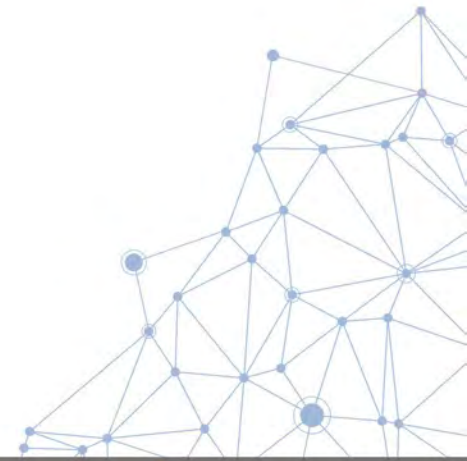
The objectives of the Putnam County HMP planning process are:

- Provide the public opportunities throughout the plan development and drafting process to provide input.
- Conduct a thorough risk assessment using the most recent disaster data and information.
- Formulate hazard mitigation goals, objectives, and actions as they relate to reducing loss of life and property from natural and human-caused hazards.



Hazards of Concern

- Drought 
- Earthquake 
- Extreme Temperature 
- Flood 
- Harmful Algal Bloom 
- Disease Outbreak 
- Severe Storm 
- Severe Winter Storm 
- Wildfire 





SEVERE STORMS



**NYS HMP Reports
\$2.43M in wind
damages**

\$106,000 annually



\$74.2 Million

Potential Losses in Building Stock in
500-year MRP Windstorm

0.27% of total County GBS



Total Storms 203
(1950-2019)

Thunderstorm 122

Hail 31

Heavy Rain 16

Recent Impacts

**0 Disaster
Declarations since
Hurricane Sandy
(2012)**

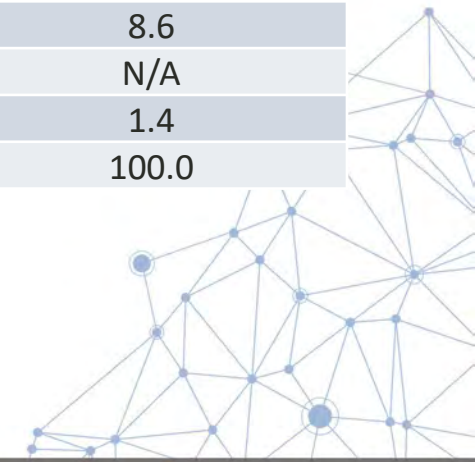
Severe Storms Includes...

**Windstorms,
thunderstorms,
hurricanes and tropical
storms, Nor'easters, hail
and tornadoes**



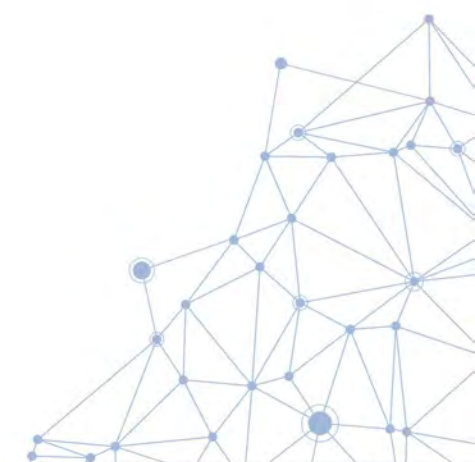
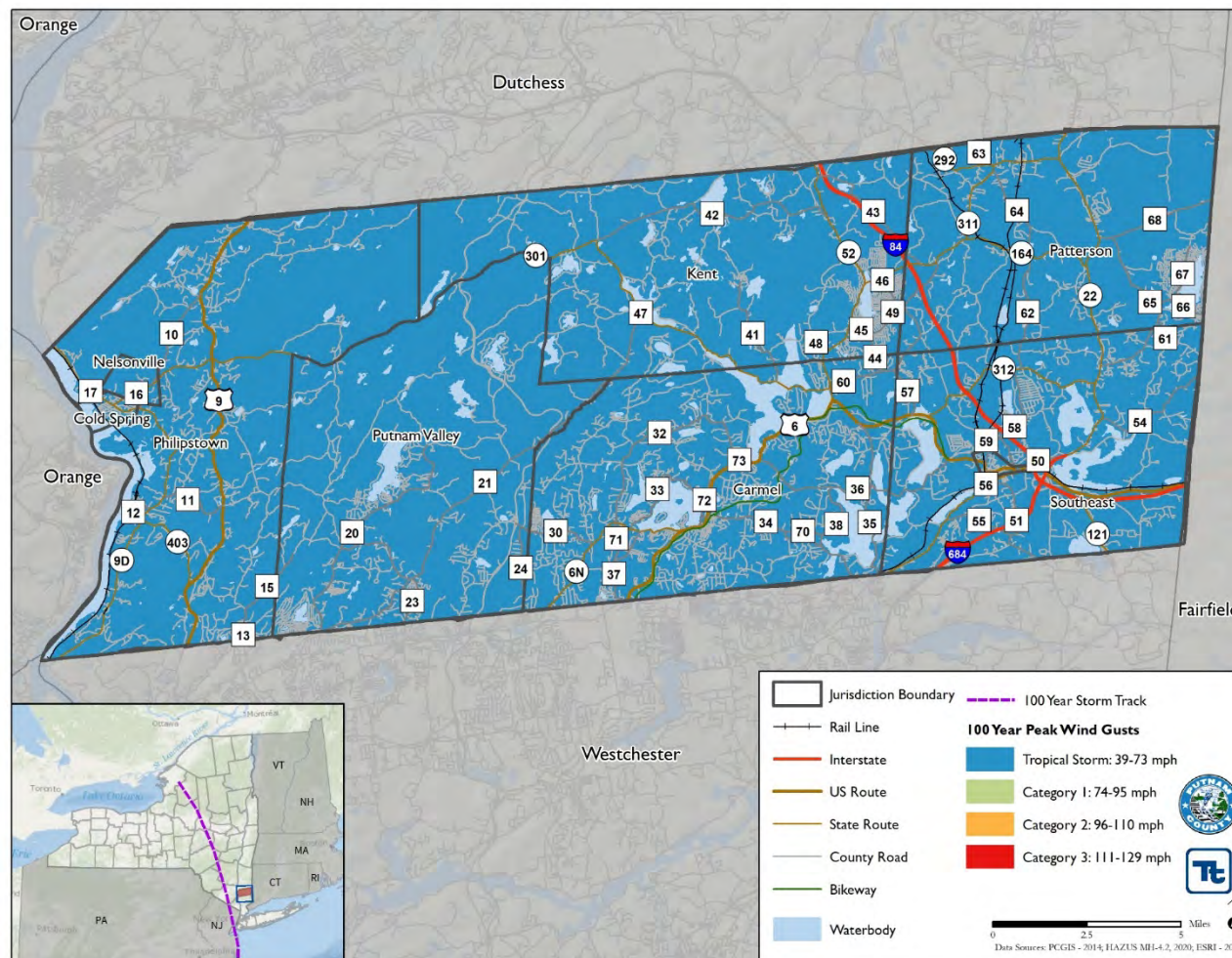
Estimated Exposure for Severe Storms

Hazard Type	Number of Occurrences Between 1950 and 2019	Rate of Occurrence	Recurrence Interval (in years)	Probability of event Occurring in Any Given Year	% Chance of Occurring in Any Given Year
Funnel Cloud	2	0.0	35.0	0.0	2.9
Hail	31	0.4	2.3	0.4	44.3
Heavy Rain	16	0.2	4.4	0.2	22.9
High Wind*	14	0.2	5.0	0.2	20.0
Hurricane**	0	0.0	N/A	N/A	N/A
Lightning	6	0.1	11.7	0.1	8.6
Strong Wind	5	0.1	14.0	0.1	7.1
Thunderstorm Wind	122	1.8	0.6	1.7	100
Tornado	6	0.1	11.7	0.1	8.6
Tropical Depression**	0	0.0	N/A	N/A	N/A
Tropical Storm***	1	0.0	70.0	0.0	1.4
TOTAL	203	2.9	0.3	2.9	100.0



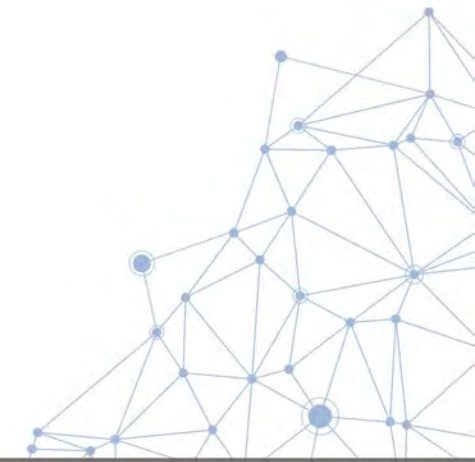
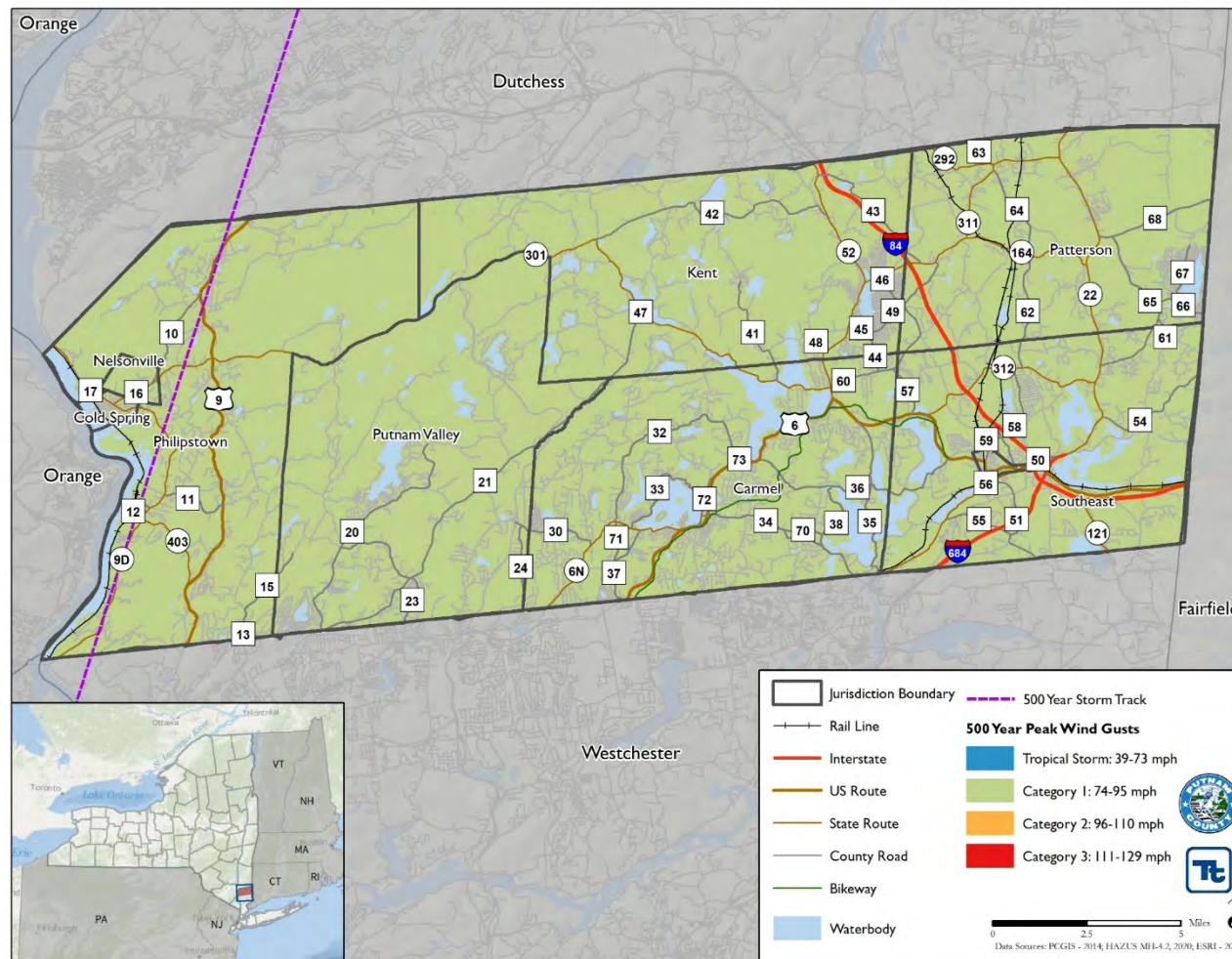


Estimated Exposure for 100-Year Peak Wind Gusts



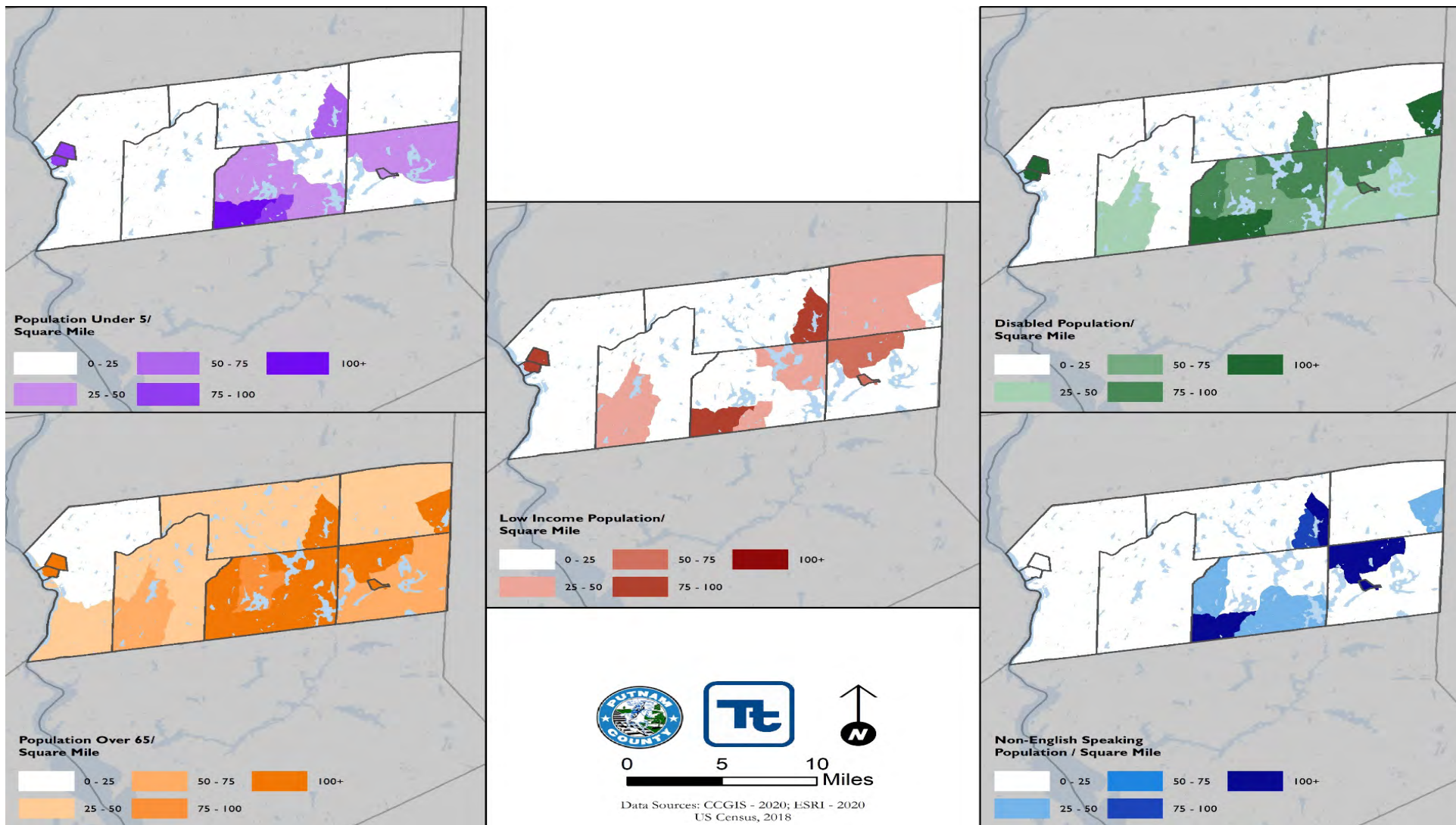


Estimated Exposure for 500-Year Peak Wind Gusts





Vulnerable Populations

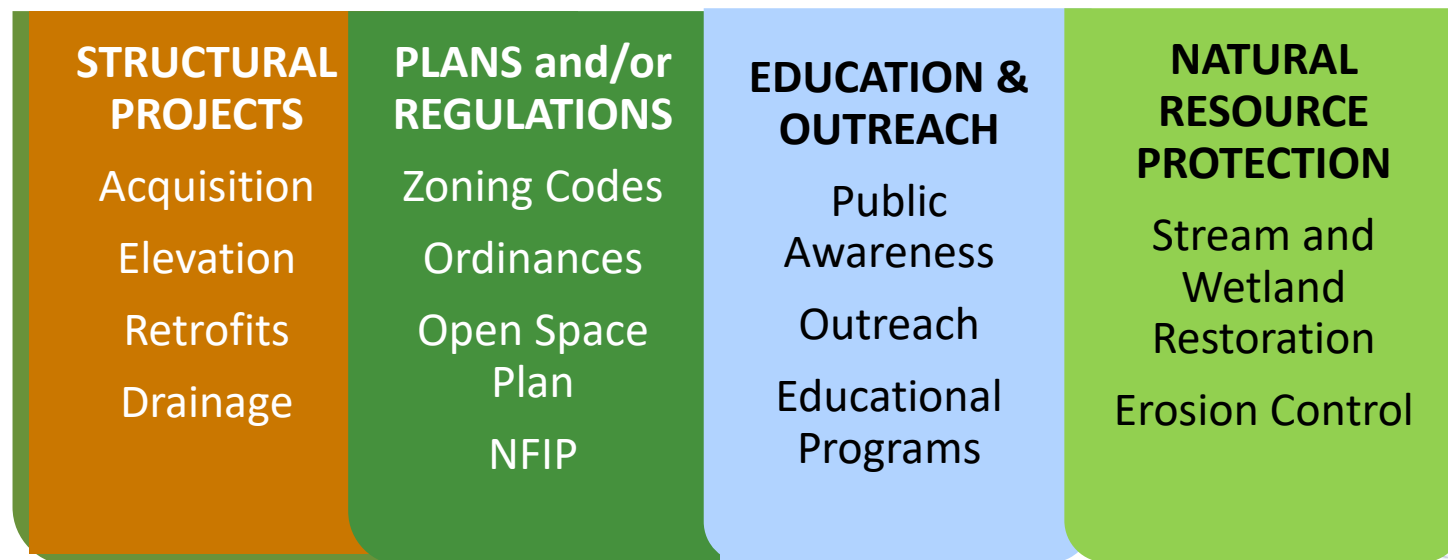




SWOO – Severe Storms

- Strengths
 - High response capability
- Weaknesses
 - Increasingly frequent occurrences
- Obstacles
 - Strained resources
- Opportunities
 - Infrastructure hardening

- Consider SWOO's in these areas:





SEVERE WINTER STORMS

79

Occurrences
(1996 – 2019)

\$261,000

Annual Losses

\$1.3
Billion

Potential Economic
Damage

Risk for Putnam County

High

49

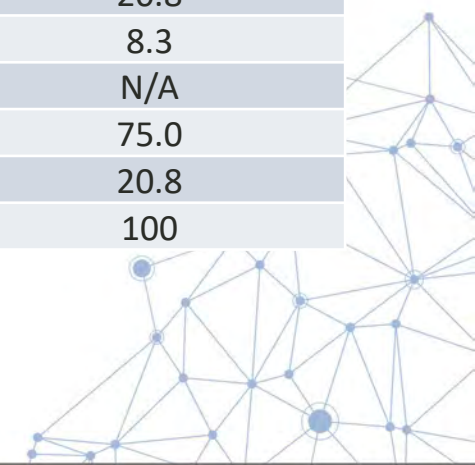
Heavy Snow Events
(1996 – 2019)



Estimated Exposure for Severe Winter Storms

- The entirety of Putnam County is exposed to this hazard irrespective of geographic location.

Hazard Type*	Number of Occurrences Between 1996 and 2019	Rate of Occurrence	Recurrence Interval (in years)	Probability of event Occurring in Any Given Year	% Chance of Occurring in Any Given Year
Blizzard	0	0.0	N/A	N/A	N/A
Heavy Snow	49	2.1	0.5	2.0	100
Ice Storm	5	0.2	4.8	0.2	20.8
Lake Effect Snow	2	0.1	12.0	0.1	8.3
Sleet	0	0.0	N/A	N/A	N/A
Winter Storm	18	0.8	1.3	0.8	75.0
Winter Weather	5	0.2	4.8	0.2	20.8
TOTAL	79	3.4	0.3	3.3	100

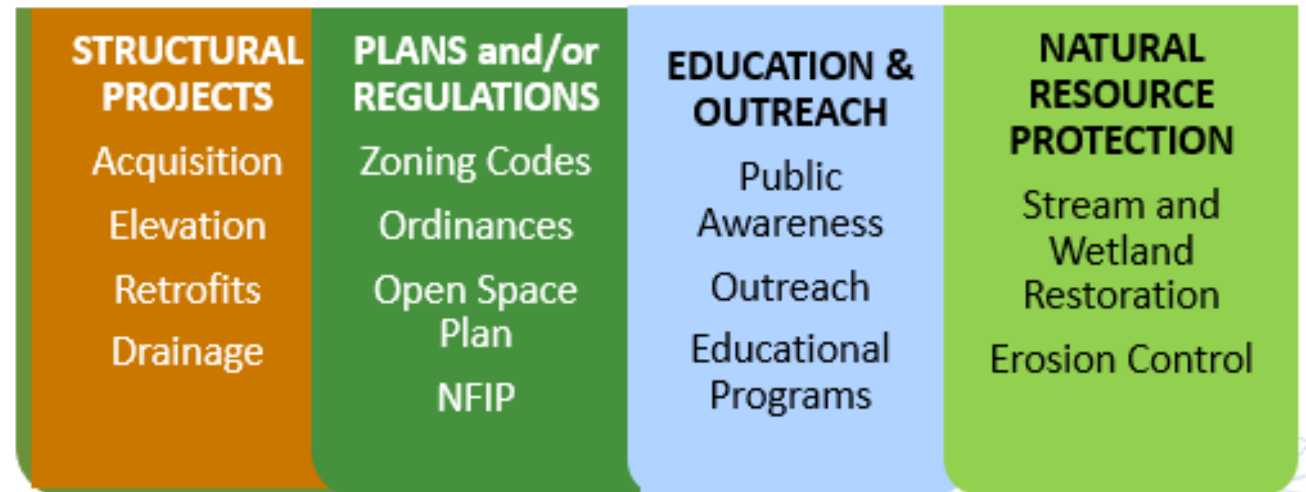




SWOO – Severe Winter Storms

- Strengths
 - High response capability
- Weaknesses
 - Increasingly frequent occurrence
- Obstacles
 - Strained resources
- Opportunities
 - Infrastructure hardening

- Consider SWOO's in these areas:



WILDFIRE



Population that lives in the Wildland-Urban Interface (WUI)

97%

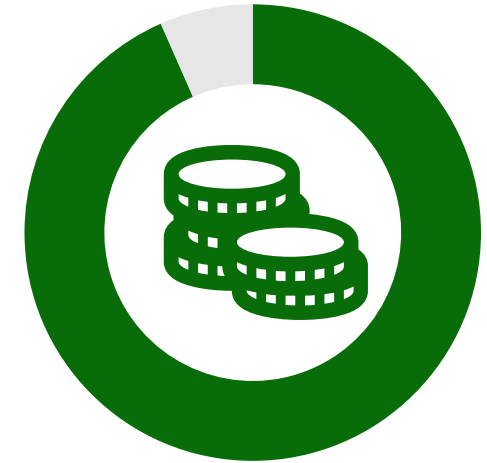
96,096 people



Buildings within the Wildland-Urban Interface (WUI)

96.5%

30,241 buildings



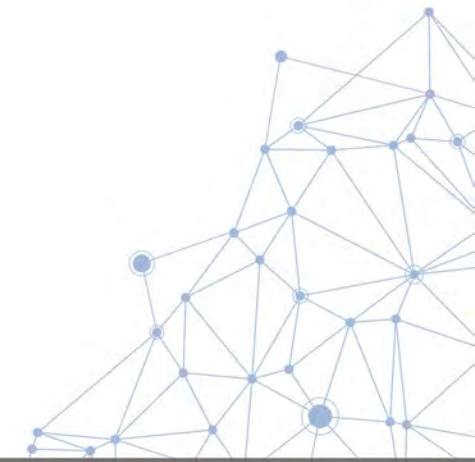
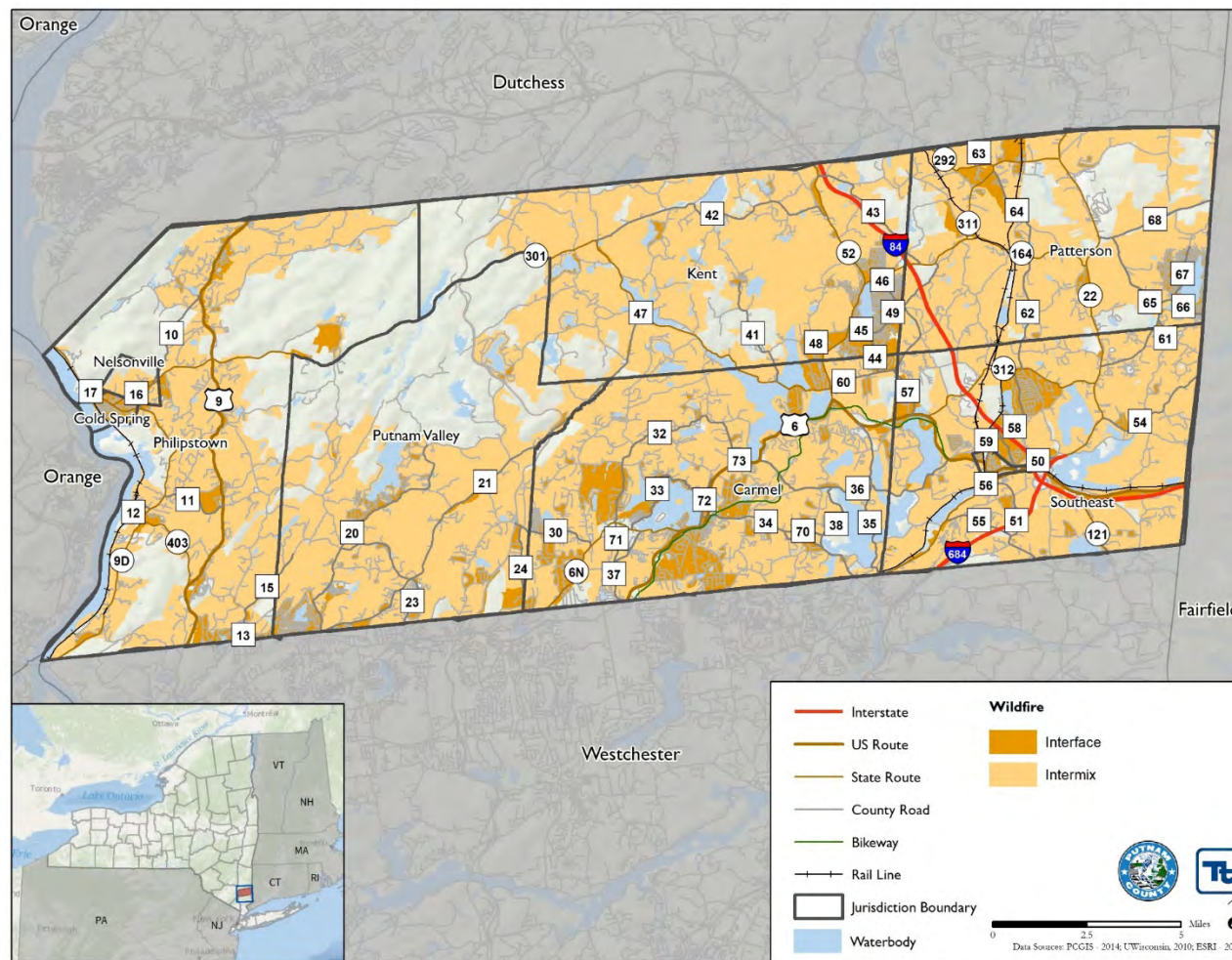
Percent of Replacement Cost Value (RCV) Exposed to wildfires

93.4%

\$25.7 Billion



Wildfire Exposure

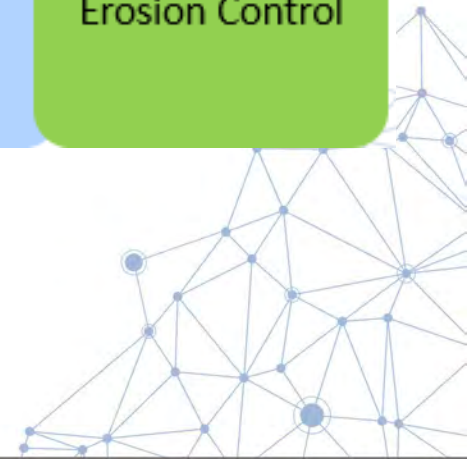
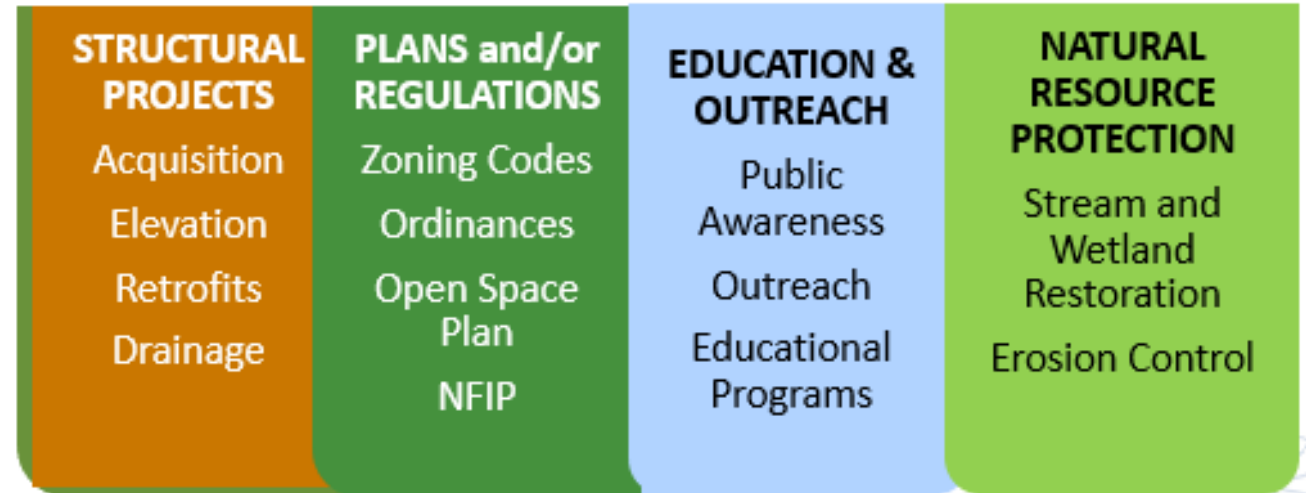




SWOO – Wildfire

- Strengths
 - Ability to fight smaller brushfires
 - Multi-jurisdictional coordination
- Weaknesses
 - High vulnerability and extent of forests
- Obstacles
 - Communities connected by isolated roadways that pass through large stands of forest
- Opportunities
 - Land use practices for WUI

- Consider SWOO's in these areas:





DROUGHT



Percent of Building Stock Impacted



Buildings within the Wildland-Urban Interface (WUI)



Climate Change Impacts



Disaster Declarations (2014 – March 2020)

Putnam County has experienced abnormally dry periods at least annually since 2015.

A drought period beginning in May 2015 lasted 10 months, and one beginning in April 2016 lasted more than one year and included periods of extreme and severe drought conditions.



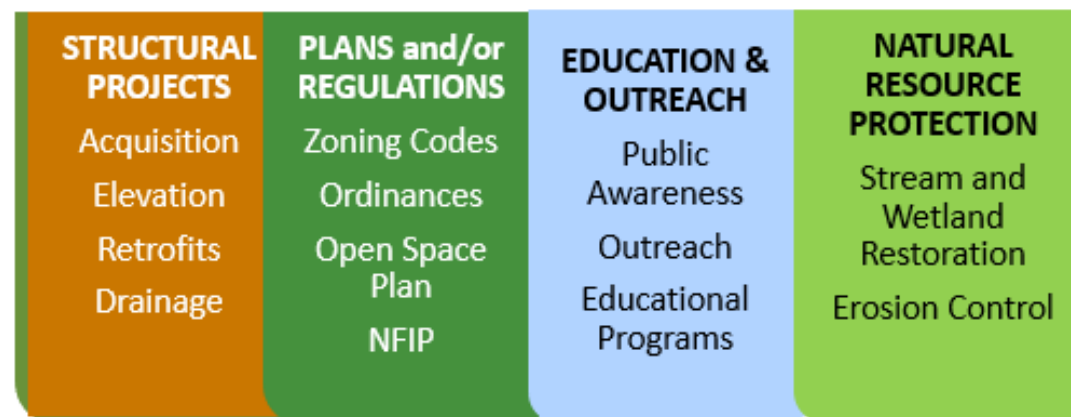
Drought

Dates of Event	Duration (Approx.)	Event Details*
March 17-March 30, 2020	2 weeks	Abnormally dry conditions were present in the County for a two-week period in mid-March.
September 17-November 5, 2019	1.5 months	Putnam County experienced abnormally dry conditions in the fall.
December 5, 2017-January 1, 2018	1 month	Abnormally dry conditions impacted the County in January 2018.
September 26-October 30, 2017	1 week	In October, abnormally dry conditions persisted in portions of the County and included all of the County for the week of October 24 th .
April 19, 2016-May 8, 2017	1 year and 3 weeks	Drought and abnormally dry conditions persisted for more than a calendar year between spring 2016 and 2017. Between October 2016 and March 2017, severe drought conditions occurred and between mid-November and January extreme drought conditions occurred for portions of the County.
May 5, 2015-February 23, 2016	10 months	The latter half of 2015 saw abnormally dry conditions, with D1 (“Moderate drought”) conditions observed May 19 th to June 15 th and in September through December.
August 26-December 15, 2014	3.5 months	According to the U.S. Drought Monitor, conditions were classified at D0, or abnormally dry status across Putnam County in the last quarter of 2014.

SWOO - Drought

- Strengths
 - Contingency plans for drought conditions
 - Reliance on Groundwater for much of County
- Weaknesses
 - Use of lake water as a water source for some communities
- Obstacles
 - NYCDEP water use
- Opportunities
 - Water conservation rules

- Consider SWOO's in these areas:





EARTHQUAKE

Population most susceptible to the impacts of earthquakes are those living in areas of National Earthquake Hazards Reduction Program (NEHRP) Class D and E soils. These types of soils can amplify ground shaking.



Replacement Cost Value (RCV) of exposed buildings to 1,000-year MRP



Population exposed to NEHRP D and E soil types



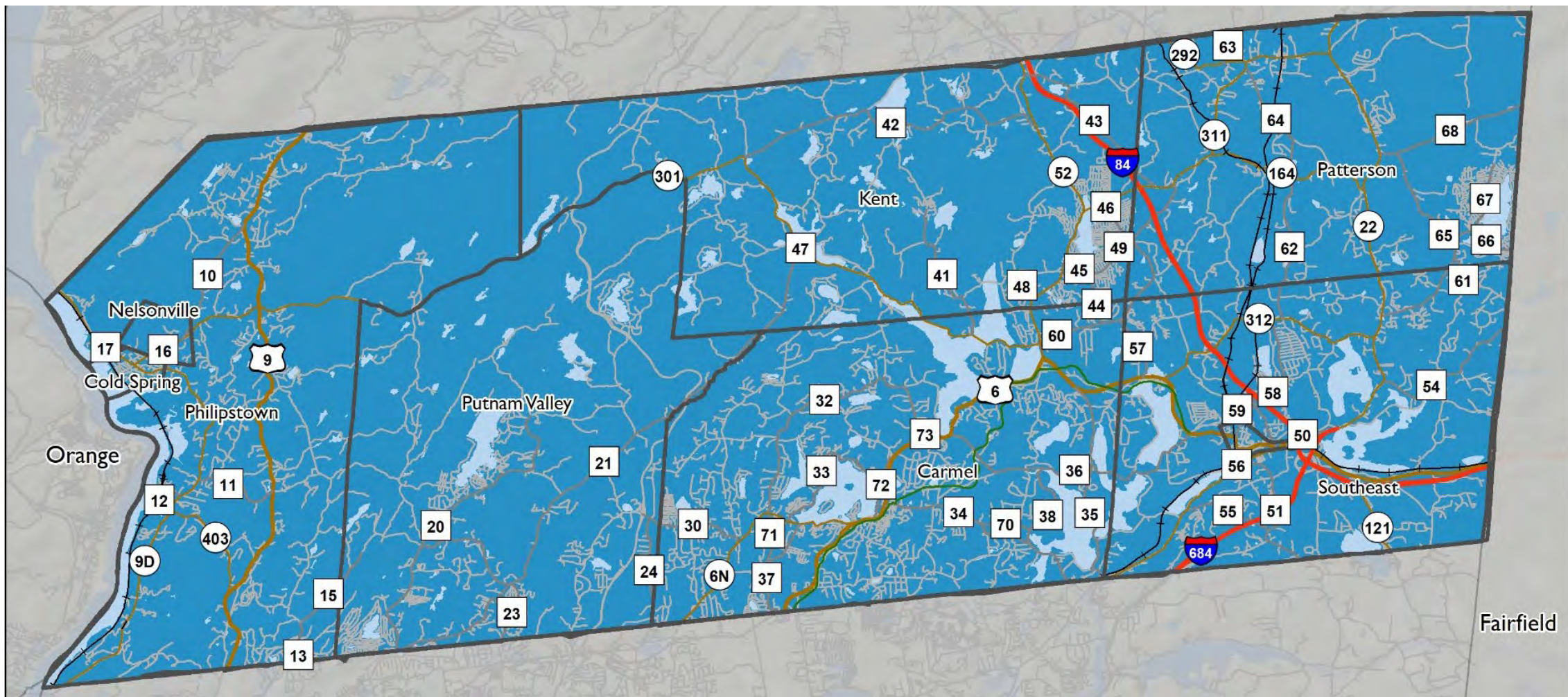
Estimated displaced households for a 2,500-year event



Earthquakes with epicenters in Putnam County (1950-2019)



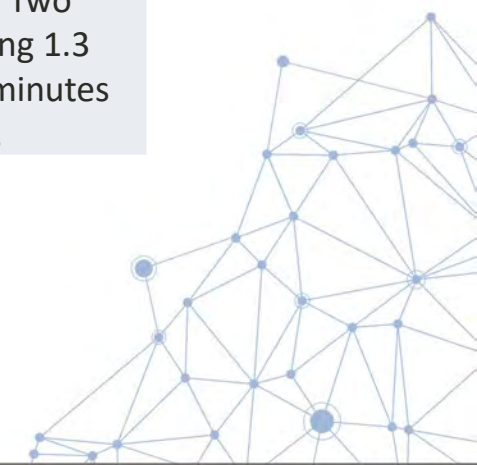
2%/50-Year Earthquake Peak Ground Acceleration





Earthquake

Dates of Event	Event Type	Location	FEMA Declaration Number (if applicable)	County Designated?	Event Details*
April 10, 2017	Earthquake	Pawling, NY	N/A	N/A	A magnitude 1.3 earthquake occurred in Pawling just outside of Putnam County.
February 7, 2018	Earthquake	Putnam Valley, NY	N/A	N/A	A magnitude 2.2 earthquake with an epicenter southwest of the intersection of Oscawana Lake Road and Cimmarron Road struck in the morning of February 7 th . Two aftershocks each measuring 1.3 struck approximately two minutes and two hours later.

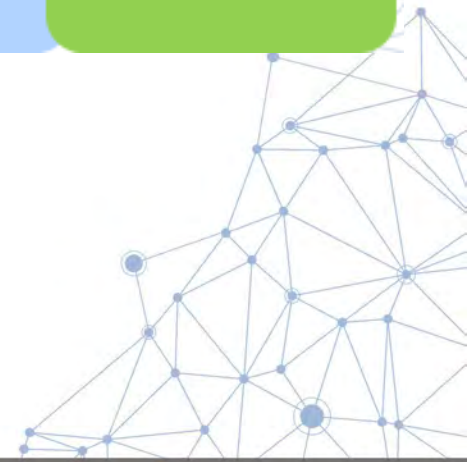
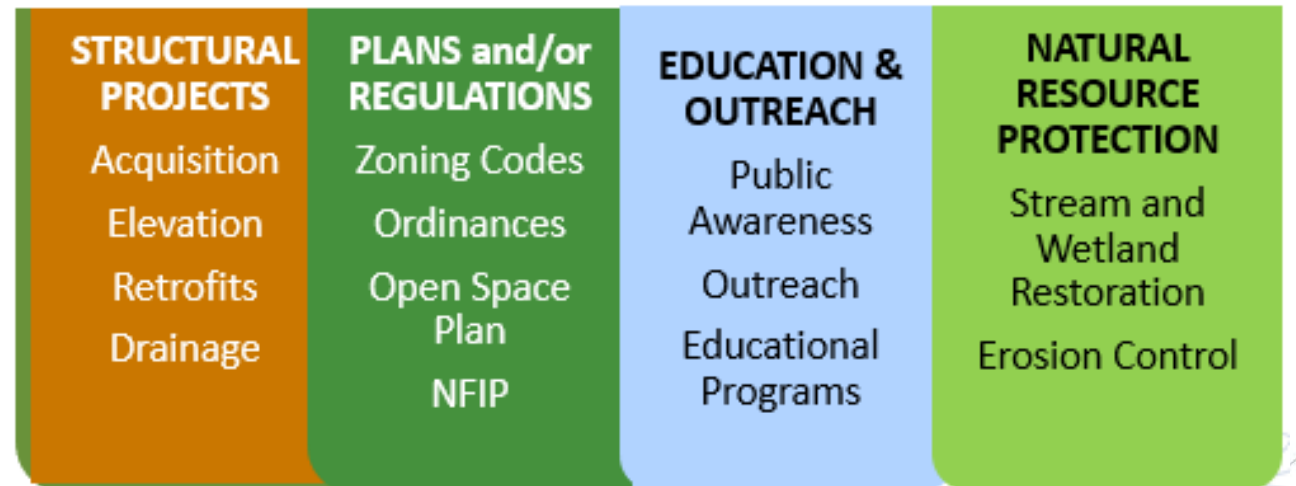




SWOO - Earthquake

- Strengths
 - Robust emergency response apparatus
- Weaknesses
 - Acute vulnerability in some locations
- Obstacles
- Opportunities

- Consider SWOO's in these areas:





FLOOD

894 Residents Exposed to 1% Annual Flood Event



Buildings Exposed to 1% Annual Flood Event

359

\$439 Million Estimated Loss Potential from 1% Annual Event



Highest Population Exposure (2.7%) **Philipstown**



Flood

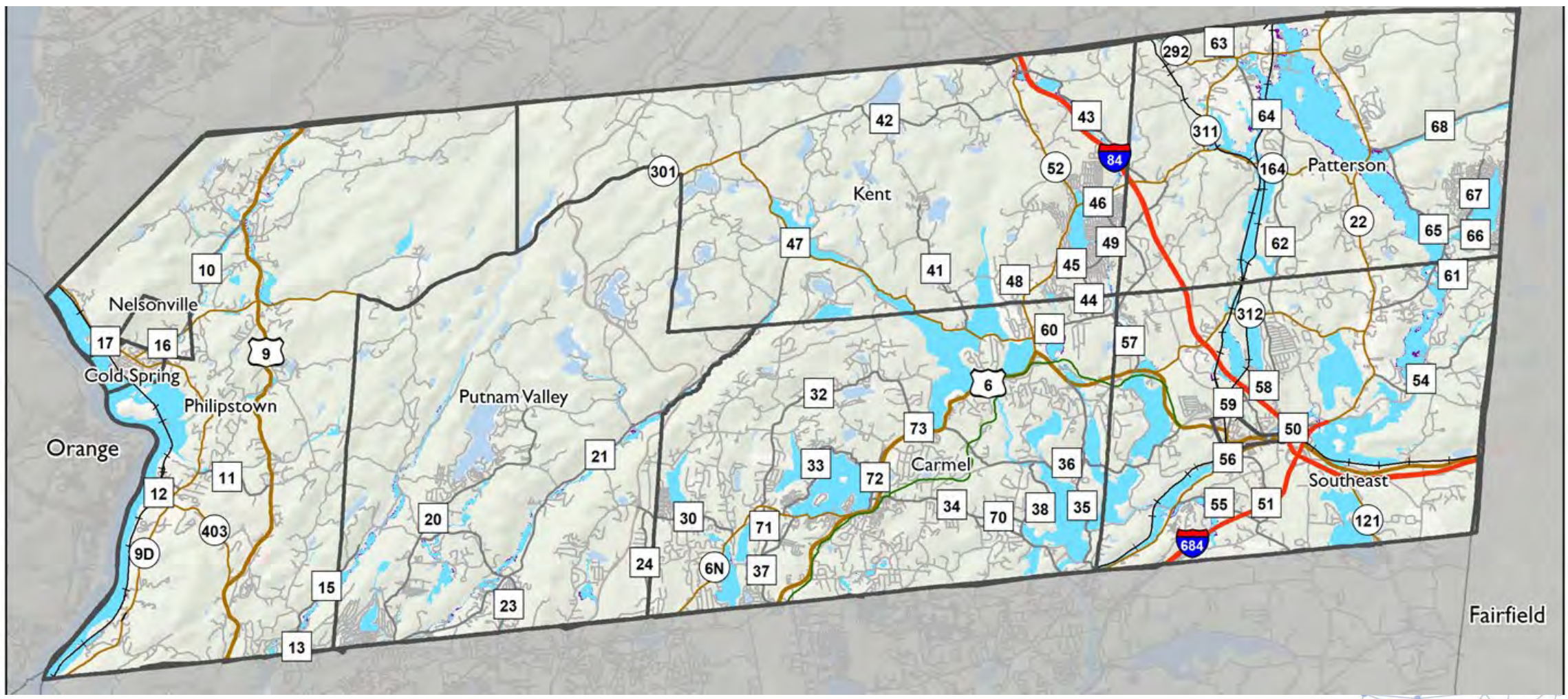
- Putnam County has been impacted by flooding in the past. Its most recent disaster declaration was in 2012 for Hurricane Sandy.
- The Steering and Planning Committees identified floods as a hazard of concern for Putnam County.

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
July 7, 2015	Flash Flood	N/A	N/A	Showers and thunderstorms struck the area, producing heavy rain and localized flash flooding. A vehicle at the intersection of Routes 6, 202, and 22 in Brewster became stranded in high water.
July 28, 2018	Flash Flood	N/A	N/A	Scattered showers and thunderstorms across the Lower Hudson Valley caused isolated flash flooding in northeastern Putnam County. Approximately 1.4 inches of rain fell. Route 311 in Patterson and Ludingtonville Road along I-84 in Lake Carmel were closed due to flooding.





Flood Exposure- Regulatory Floodplains

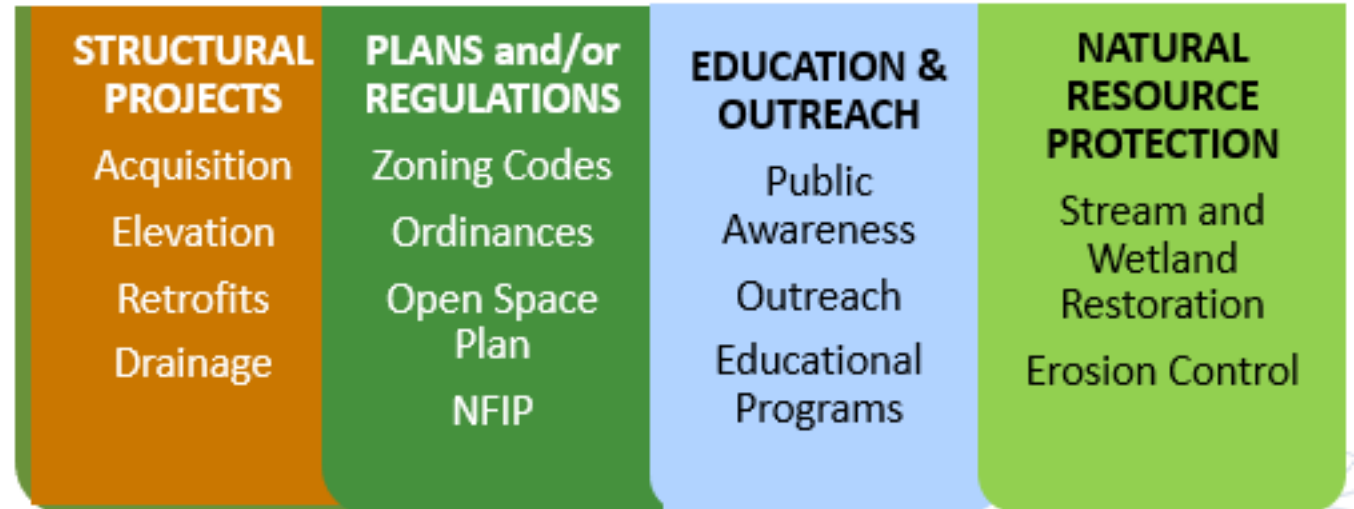




SWOO - Flood

- Strengths
 - Low amount of vulnerability
- Weaknesses
 - Limited structural flood control
- Obstacles
- Opportunities

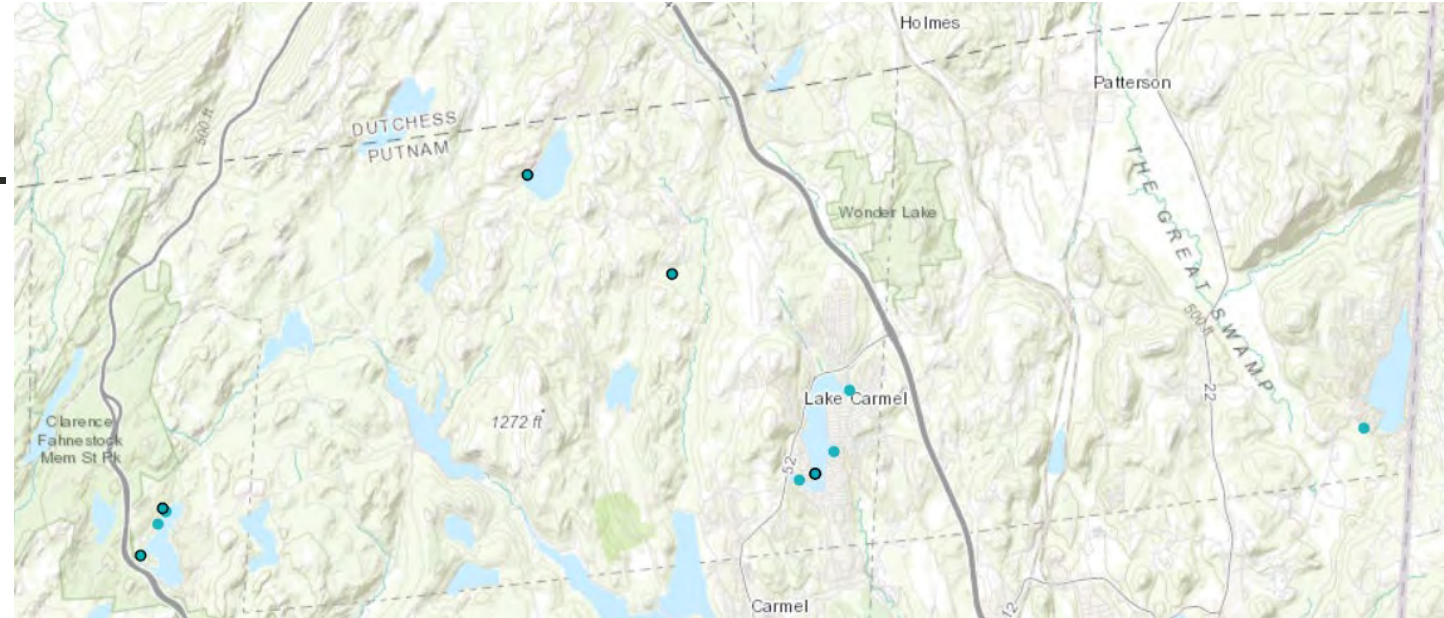
- Consider SWOO's in these areas:





Harmful Algal Blooms

- Putnam County is the subject of three action plans addressing harmful algal blooms by the State's Water Quality Rapid Response Team.
- Since the State started tracking blooms in 2012, **the County has experienced 58 algal blooms across 23 lakes.**
- The Steering and Planning Committees identified HABs as a hazard of concern for Putnam County.





Estimated Exposure for Harmful Algal Blooms

- 10 confirmed High Toxins Blooms since 2012
- 26 Confirmed Blooms
- 21 Suspicious Blooms

2020 Current Beach Status

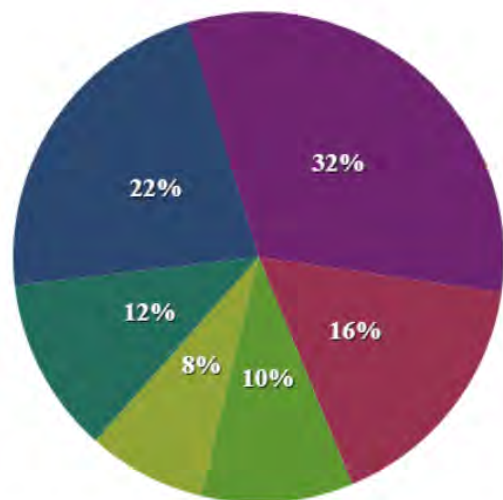
Town	Lake	Beach	Status	Reason
Kent	Lake Carmel	Beach 7	Closed	Blue-Green Algae
Philipstown	Cortlandt Lake	Continental Village Beach	Closed	Coliform
Putnam Valley	Lake Peekskill	Singers Beach	Closed	Blue-Green Algae





Disease Outbreak

 1596
Putnam County Confirmed Cases



Number of Confirmed Cases by Town

CARMEL	KENT	PATTERSON	PHILIPSTOWN	PUTNAM VALLEY	SOUTHEAST
511	263	160	124	185	353

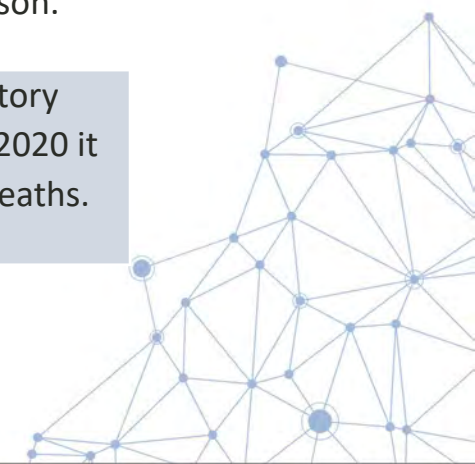
- The county has been impacted by various diseases, including influenza, Lyme disease, food poisoning, measles, and COVID-19. As of June 30, 2020 Putnam County totaled 1,499 positive COVID-19 cases. The County has the ninth highest rate of cases in the State.
- The Steering and Planning Committees identified disease outbreak as a hazard of concern for Putnam County.





Disease Outbreak

Dates of Event	Event Type	FEMA Declaration Number (if applicable)	County Designated?	Event Details
May 2012	Biological	N/A	N/A	A food-borne illness manifested at a Mother's Day event at the Chuang Yen Monastery in Kent, sickening 100 people.
May 2018	Biological	N/A	N/A	A measles outbreak was reported in connection with international travelers to the Watchtower Education Center in Patterson.
March 2020-Present	Biological	DR-4480	es	Novel coronavirus COVID-19, a highly infectious respiratory disease, spreads throughout the United States. As of July 2020 it has infected 3.8 million people and has caused 140,630 deaths.

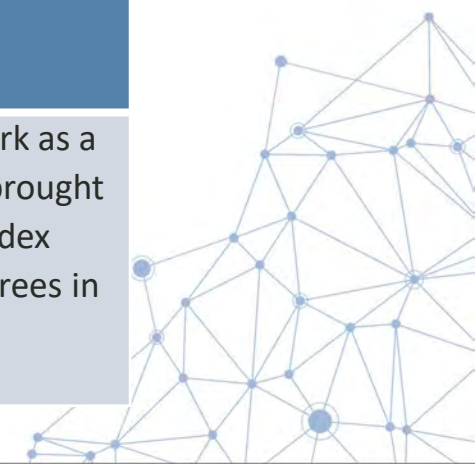




Extreme Temperature

- Putnam County was not included in any recent USDA disaster declarations related to extreme temperature events. However, the County remains at risk for relatively regularly-occurring extreme temperatures.
- The Steering and Planning Committees identified extreme temperature as a hazard of concern for Putnam County.

Dates of Event	Event Type	FEMA Declaration Number (if applicable)	County Designated?	Event Details
August 12-13, 2016	Excessive Heat	N/A	N/A	Excessive heat affected large sections of southern New York as a high pressure system stayed over the Atlantic Ocean and brought hotter and more humid air into the region. The heat index reached 110 degrees at Montgomery Airport and 107 degrees in Poughkeepsie.

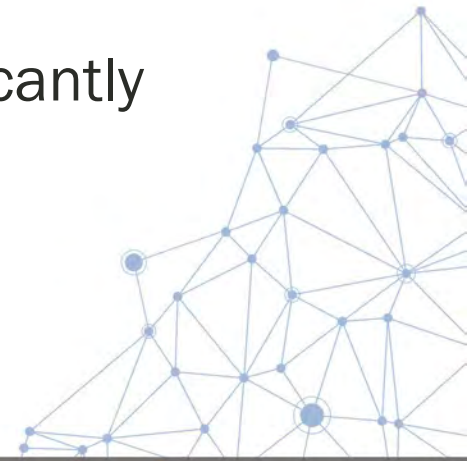




Estimated Exposure

HABS, Extreme Temperature and Disease Outbreak

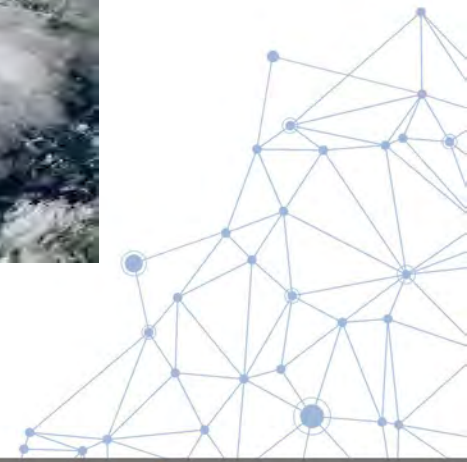
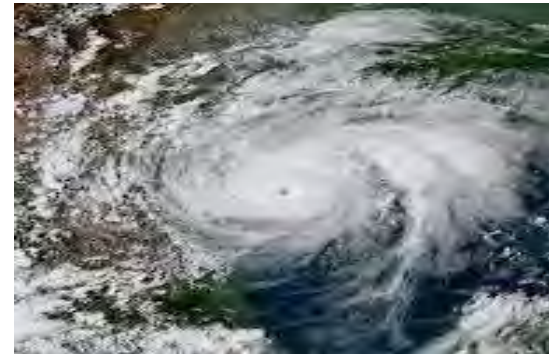
- GIS-based analyses were not used for calculating exposure to extreme disease, disease outbreak, or HABS hazards
- HABS hazards are more likely to occur with communities with large waterbodies
- Disease outbreak can have a significant impact on the economy, as demonstrated with COVID-19 outbreak
- Extreme temperatures to be exacerbated by climate change and significantly impact populations, but not property



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*

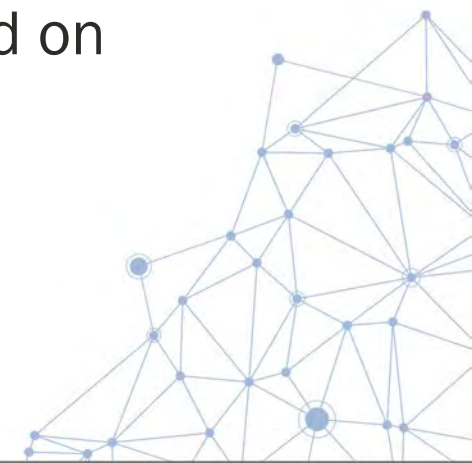




Hazard Ranking Approach

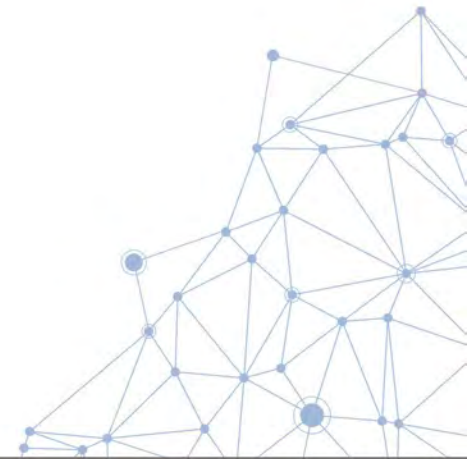
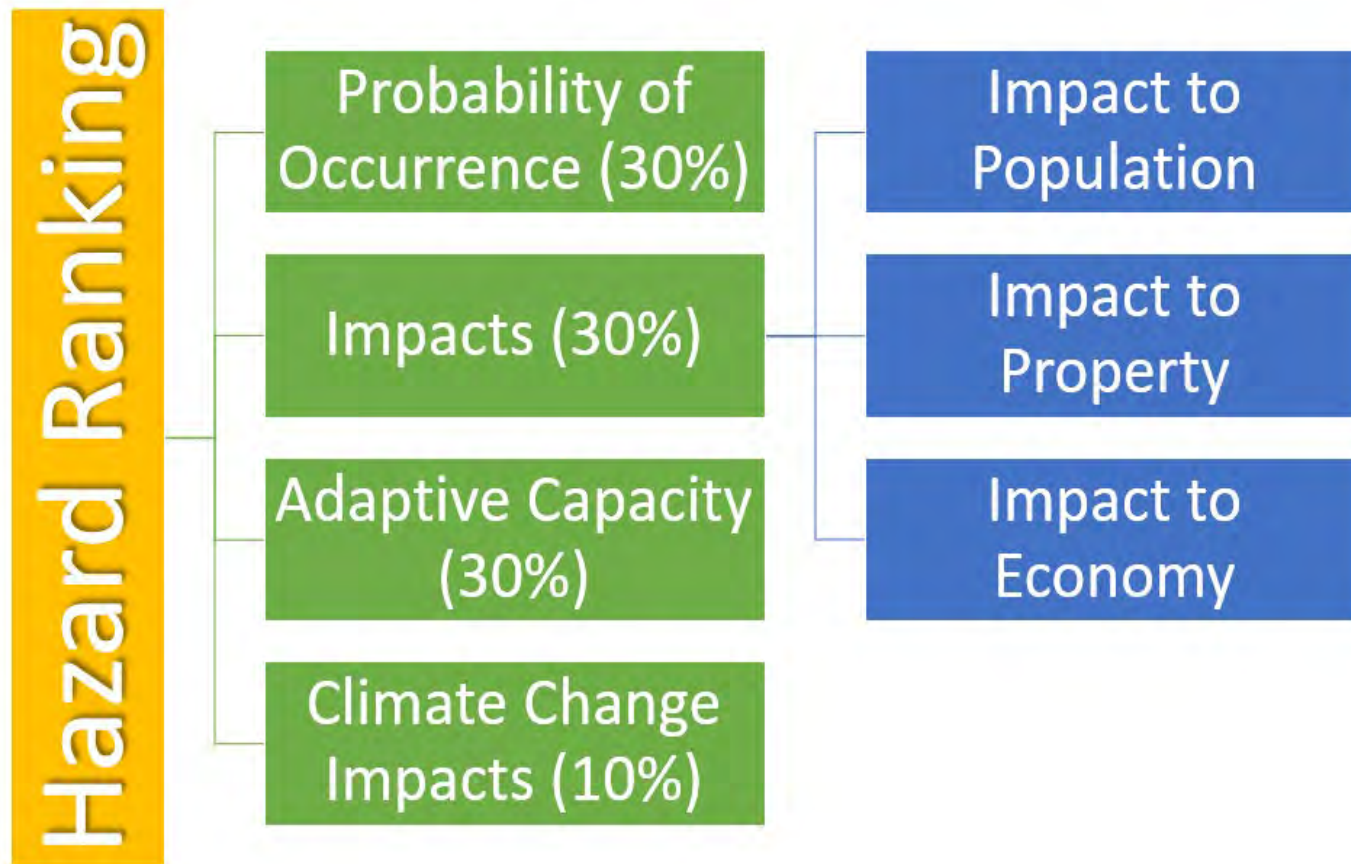
Hazard Ranking is determined by quantitative and qualitative factors including:

- The calculated *probability* of a hazard occurring based on historical data
- *Impacts to people, property, and the economy* based on GIS data and analysis of exposure.
- The degree to which *climate change* will affect future occurrences based on best available data.
- *Capability*- the ability of your community to respond to the hazard based on ordinances, mitigation strategies and procedures, and readiness.





Hazard Ranking Formula

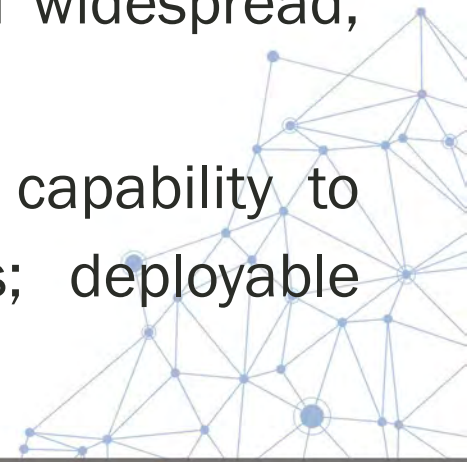




Adaptive Capacity

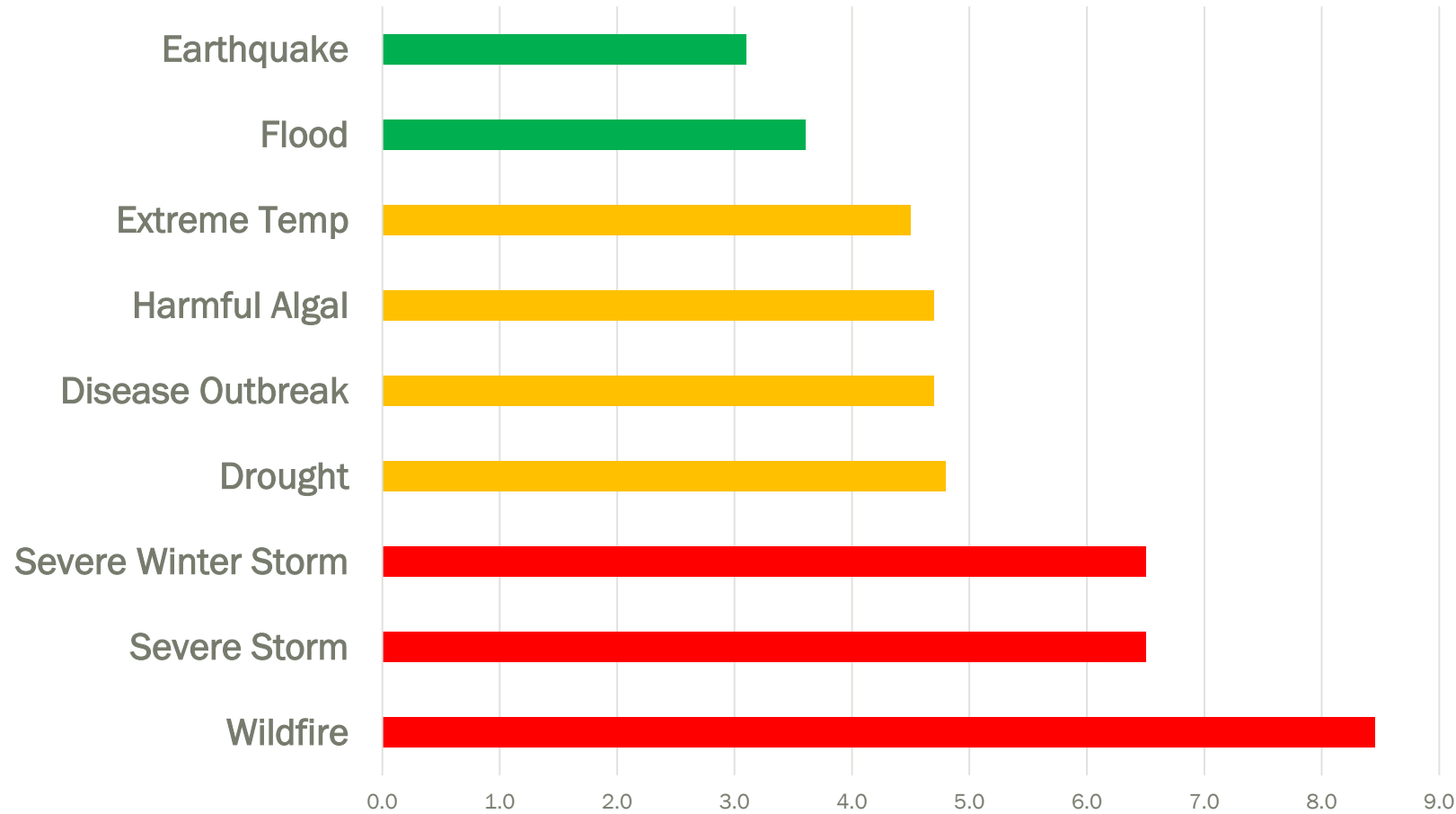
Describes a jurisdiction's current ability to protect from or withstand a hazard event

- **Low** 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.
- **Medium** adaptive capacity indicates minimum requirements are in place; moderate capabilities; mitigation measures are identified but not implemented widespread; jurisdiction can recover but needs outside resources.
- **High** adaptive capacity shows that the jurisdiction does have the capability to effectively respond, plans/policies exceed minimum requirements; deployable resources all of which decreases vulnerability.

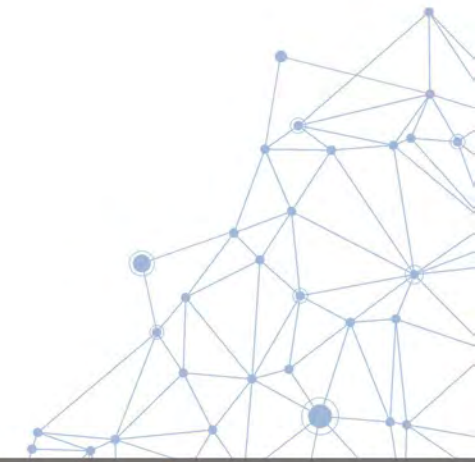




Overall Risk Ranking



Low	<3.8
Medium	3.9-4.9
High	>=5

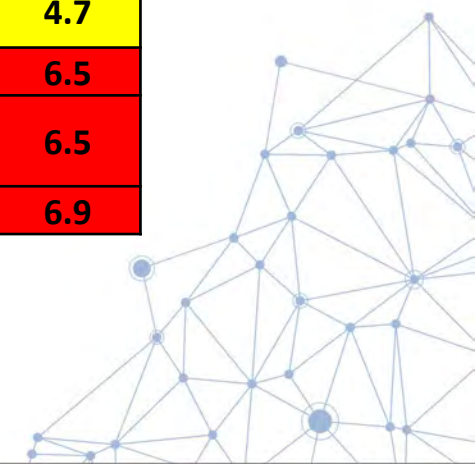




Overall Risk Ranking – County-wide

HAZARD	RISK ASSESSMENT CATEGORY										RELATIVE RISK FACTOR
	PROBABILITY		IMPACT				ADAPTIVE CAPACITY		CHANGING FUTURE CONDITIONS		
	Numeric Value	Score	Population	Built Environment	Economy	Total	Numeric Value	Score	Numeric Value	Score	
Drought	2	0.6	3	6	2	3.3	2	0.6	3	0.3	4.8
Disease Outbreak	2	0.6	6	2	3	3.3	2	0.6	2	0.2	4.7
Earthquake	2	0.6	3	1	1	1.5	2	0.6	1	0.1	2.8
Extreme Temp	2	0.6	6	2	2	3	2	0.6	3	0.3	4.5
Flood	3	0.9	3	2	1	1.8	2	0.6	3	0.3	3.6
Harmful Algal Bloom	3	0.9	6	2	3	3.3	1	0.3	2	0.2	4.7
Severe Storm	3	0.9	9	6	1	4.8	2	0.6	2	0.2	6.5
Severe Winter Storm	3	0.9	9	6	1	4.8	2	0.6	2	0.2	6.5
Wildfire	2	0.6	9	6	3	5.4	2	0.6	3	0.3	6.9

Low	<3.8
Medium	3.9-4.9
High	>=5

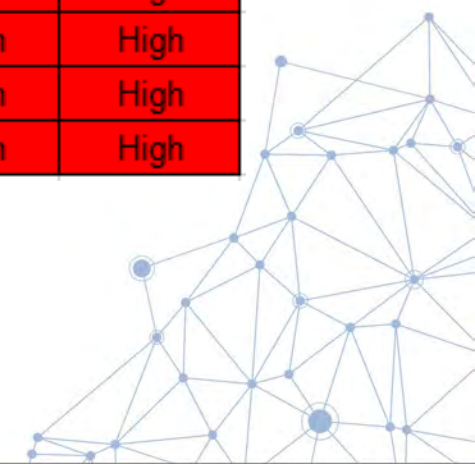




Overall Risk Ranking – Municipal Level

Putnam County Municipality	Hazard Ranking								
	Drought	Earthquake	Flood	Disease Outbreak	Harmful Algal	Extreme Temp	Severe Storm	Wildfire	Severe Winter Storm
Brewster (V)	Medium	Low	Low	Medium	Low	Medium	High	High	High
Carmel (T)	Medium	Low	Low	Medium	Low	Medium	High	High	High
Cold Spring (V)	Medium	Low	Low	Medium	Low	Medium	High	High	High
Kent (T)	Medium	Low	Low	Medium	Low	Medium	High	High	High
Nelsonville (V)	Medium	Low	Low	Medium	Low	Medium	High	High	High
Patterson (T)	Medium	Low	Medium	Medium	Low	Medium	High	High	High
Philipstown (T)	Medium	Low	Low	Medium	Low	Medium	High	High	High
Putnam Valley (T)	Medium	Low	Low	Medium	Low	Medium	High	High	High
Southeast (T)	Medium	Low	Low	Medium	Low	Medium	High	High	High
PutnamCounty	Medium	Low	Low	Medium	Medium	Medium	High	High	High

Low	<3.8
Medium	3.9-4.9
High	>=5





Village of Brewster Draft Hazard Ranking and Draft Risk Assessment Results

Name: _____

Title and Agency: _____

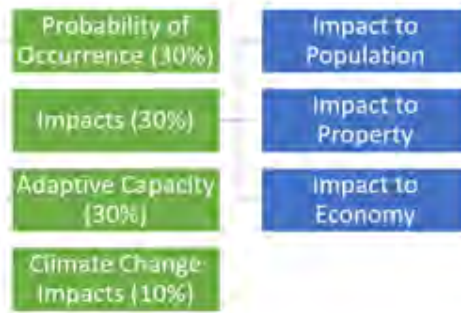
What is a Hazard Ranking?

A 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 is the ability your community has to respond to the hazard based on ordinances, mitigation strategies and procedures, and readiness.

Hazard Ranking



What is my Hazard Ranking?

The following tables represent the calculated rankings for the hazards of concern for the County and 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.



Table 1: 2015 and Draft 2020 County Hazard Rankings

Hazard	Countywide	
	2015	2020 Draft Update
Disease Outbreak <i>(new)</i>	-	Medium
Drought <i>(new)</i>	-	Low
Earthquake	Low	Low
Extreme Temperature	Medium	Medium
Flood	Medium	Medium
Harmful Algal Bloom <i>(new)</i>	-	Medium
Land Failure	High	-
Severe Weather	High	High
Severe Winter Weather	High	High
Wildfire	High	High

Table 2: 2015 and Draft 2020 Municipal Hazard Rankings

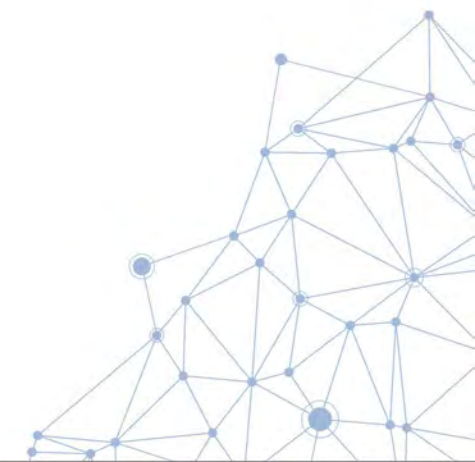
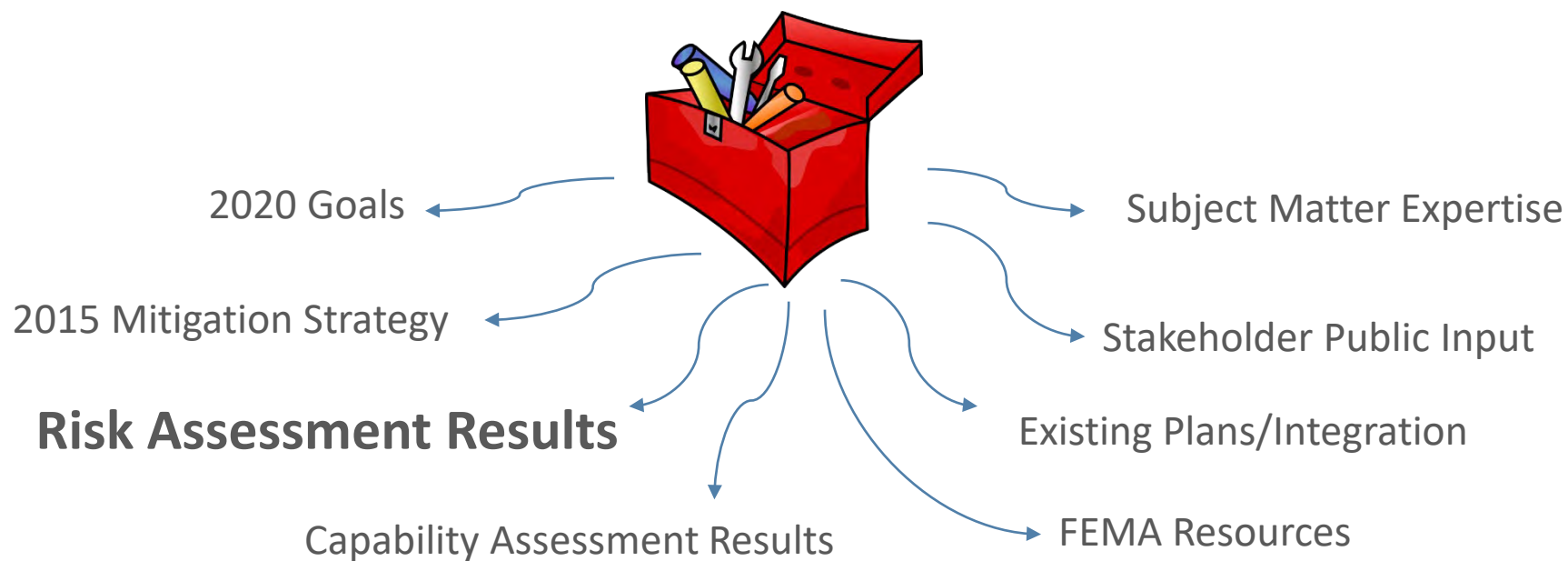
Hazard	2015	Municipality 2020				If adjusting the ranking, please explain why.
		Draft 2020 Based on RA Results	Adaptive Capacity [Capabilities]	Municipal Hazard Ranking	Municipal Adaptive Capacity	
Disease Outbreak <i>(new)</i>	N/A					
Drought <i>(new)</i>	N/A					
Earthquake						
Extreme Temperature						
Flood						
Harmful Algal Bloom <i>(new)</i>	N/A					
Severe Weather						
Severe Winter Weather						
Wildfire						

N/A = Not applicable; Disease Outbreak, Drought and Harmful Algal Bloom are new hazards of concern and were not evaluated in the 2015 plan.
RA = Risk Assessment





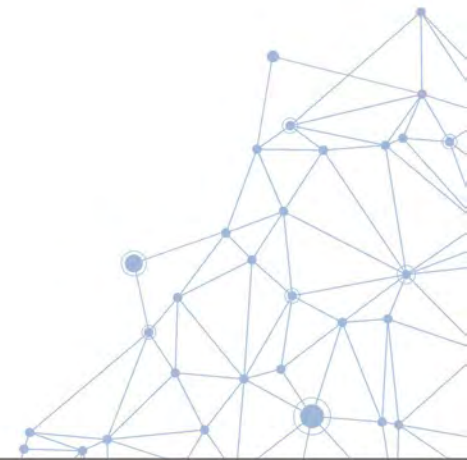
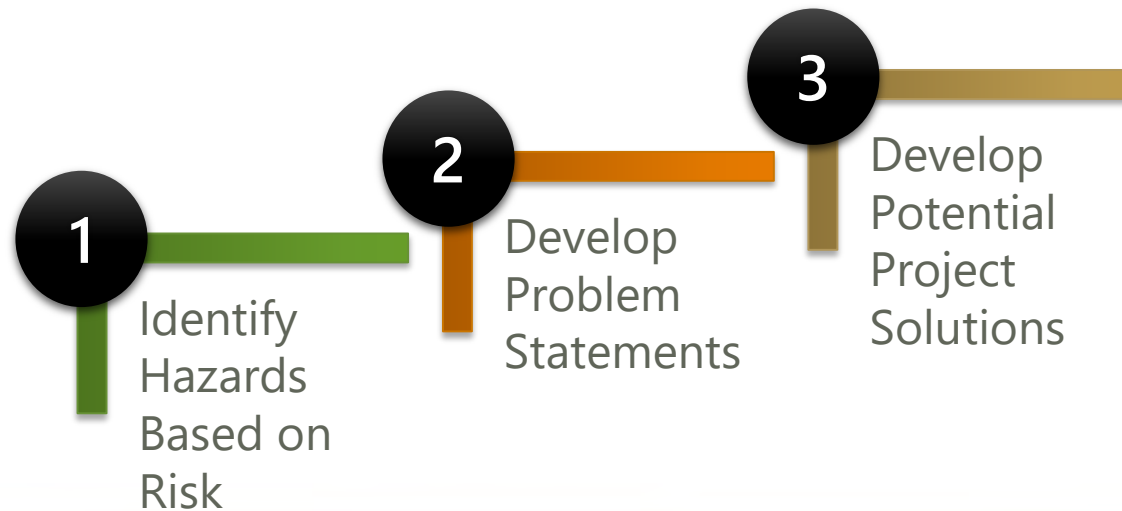
The Plan's Direction





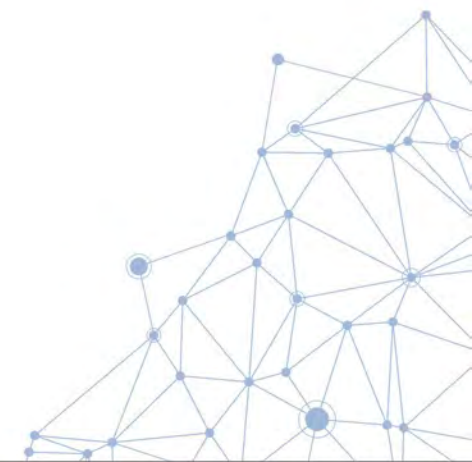
Next Step: Problem Statements

- One worksheet needs to be completed per mitigation action
- **Focus on your problems**
- Quality, not quantity
- Provide details to support the issues and to help define solutions
- We will provide this information to NYSDHSES to prepare for our next meeting on August 26th





Questions?



Putnam County Project Contact

Robert Lipton, Deputy Commissioner

845-808-4000 | Robert.Lipton@putnamcountyny.gov

Tetra Tech Project Contacts

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Thank
You!



**PUTNAM COUNTY HAZARD MITIGATION PLAN UPDATE
RISK ASSESSMENT MEETING – AGENDA
MEETING DATE/TIME: July 29, 2020 – 10:00 am – 11:30 am**



1. **Opening Remarks**
2. **Project Status** - where we are in the process, public outreach
3. **Risk Assessment Overview**
4. **Risk Ranking**
5. **Swoo Exercise**
6. **Next Steps**
7. **Adjournment**

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Putnam County Hazard Mitigation Plan Update Minutes of Meeting



Purpose of Meeting: Planning Partnership Meeting #2 – Risk Assessment Presentation

Location of Meeting: Remote Teams call with PowerPoint presentation and handout

Date/Time of Meeting: 7/29/2020; 10:00 am – 11:30 am

Attendees: *Bob Lipton-Deputy Commissioner, OEM*
Lauri Taylor- Putnam County Soil and Water
Barbara Barosa- Putnam County Planning
Karen Kroboth – Town of Putnam Valley
Laurie Bell and Christine Dubois – Town of Southeast
Michelle Chiudina – Village of Brewster
Peter Deandreano; Rich Williams – Town of Patterson
Richard Franzetti – Town of Carmel
Mindy Jeseck – Village of Nelsonville
Shannon Clarke - NYDHSES
Tara Percacciolo – Town of Philipstown
Maureen Fleming; Bill Walters – Town of Kent
Shawn Rogan- Putnam County Department of Health
Cynthia Addonizio-Bianco, Tetra Tech (Tt)
Heather Apgar, Tetra Tech (Tt)
Brian Kempf, Tetra Tech (Tt)

Agenda Summary: Review results from risk ranking; introduce SWOO exercise; collect input on hazard rankings

Item No.	Description	Action By:
1.	Project Status <ul style="list-style-type: none"> • Tetra Tech has contacted all municipalities at this point • Most municipal annexes are at some level of completion • Website and citizen survey are available for distribution • Tetra Tech reviewed the project schedule 	
2.	Risk Assessment Overview and Hazard Review <ul style="list-style-type: none"> • Hazards of Concern: Drought, earthquake, extreme temperature, flood, HABs, Disease outbreak, severe storm, severe winter storm, wildfire • Tetra Tech presented an overview of hazards and exposure for each hazard • Tetra Tech presented the vulnerability results/maps indicating impacts on a county-wide basis. 	Tt to examine distribution of low-income persons in the County, particularly in Patterson
	Severe Storms SWOO (no response)	
	Severe Winter Storm S- Outreach calls with utilities and Highway departments. Highway departments are highly capable W- Trees go down on wires, then NYSEG has to be involved. NYSEG has issues w crews not being able to find their way around the County to respond to outages. O- Utility company responsiveness- NYSEG needs to change the way they respond. Highway Dept personnel serve as guides O- NYSEG had previously assigned crews w highway	



Putnam County Hazard Mitigation Plan Update Minutes of Meeting



	<p>departments to do at the same time. Deploy crews together. Get NYS involved to help coordinate response.</p>	
	Wildfire (no response)	
	<p>Drought Weakness- e.g. Carmel has two systems on lakes and rest of water districts are on wells. In some instances, water has needed to be trucked in.</p>	Send Rich Franzetti drought dates- can look up costs to supplement water supply.
	Earthquake (no response)	
	<p>Flood (no response) Weakness- flood hotspot in Southeast along Doansburgh Road flash floods in Southeast past Gage Road</p>	
	<p>HABS</p> <ul style="list-style-type: none"> - HABS number in presentation seems very low - In some years, every lake in the County has experienced HABS - No funding materialized from Action Plans 	Tt to follow up with county and municipalities with regard to source and details of HABS event documentation.
	Disease Outbreak/Extreme Temps (no response)	
3.	<p>Risk Ranking</p> <ul style="list-style-type: none"> • Tetra Tech reviewed the approach • Results in descending order: severe storm; severe winter storm; wildfire; drought; disease outbreak; harmful algal blooms; extreme temperature; flood; earthquake • No response on Countywide assessment • Major wildfire at Presbyterian Camp – last year (Kent) • Carmel, Putnam Valley, and Kent to go to medium/high on algal blooms • Concern about terrorism- rioting, court system screening and security. 	<p>Municipalities to review risk ranking</p> <p>Tt to adjust harmful algal bloom rank to be adjusted/increased</p> <p>Tetra Tech to send out problem statements. Municipalities to identify projects for all “high” ranked hazards</p> <p>DHSES to provide assistance where they can</p>
4.	<p>Conclusion The meeting was adjourned at 11:37 AM.</p>	



Planning Together for a Resilient Putnam County

2020 County Hazard Mitigation Plan

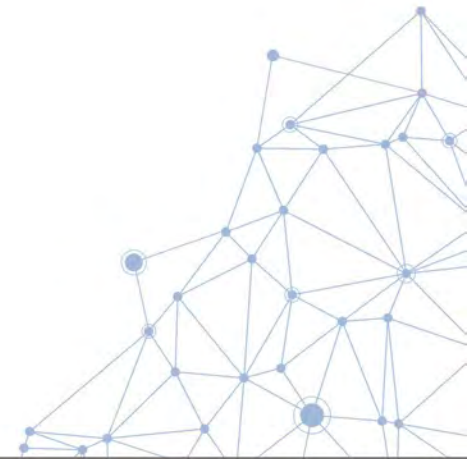
Planning Partnership Meeting - Risk Assessment
Presentation
July 29, 2020





Agenda

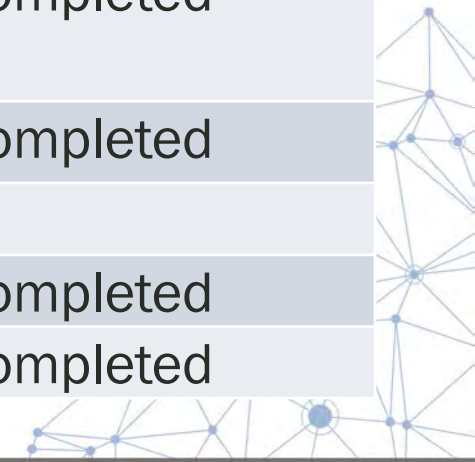
- 1.** Opening Remarks
- 2.** Project Status - where we are in the process, public outreach
- 3.** Risk Assessment Overview
- 4.** Risk Ranking
- 5.** Strengths, Weaknesses, Obstacles and Opportunities Exercise
- 6.** Next Steps
- 7.** Adjournment





Progress Update

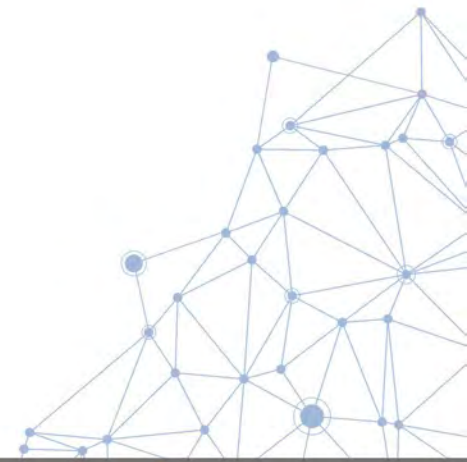
Municipality	LOIP Received	Status
Putnam County		Annex meeting held; in progress
Brewster (V)		Annex update underway- substantially completed
Carmel (T)	X	Annex update underway- substantially completed
Cold Spring (V)		Meeting pending
Kent (T)		Meeting pending
Nelsonville (V)		Annex update underway- substantially completed
Patterson (T)	X	Annex update underway- substantially completed
Philipstown (T)	X	Meeting pending
Putnam Valley (T)	X	Annex update underway- substantially completed
Southeast (T)	X	Annex update underway- substantially completed





Schedule

Task	Date
Data Collection	Complete
Update Hazard Profiles	Complete
Risk Assessment	Complete
Risk Results Presentation	July 29, 2020
Mitigation Strategy Workshop	August 26, 2020
Review Draft Plan	October 21, 2020
Submit to NYSDHSES	November 18, 2020
Submit to FEMA	TBD





ACTION! Take and Distribute the Citizen Survey!

- Ready to go – here is the link – post on your municipal websites
- <https://www.surveymonkey.com/r/PutnamHMP2020>
- HMP Website available here:
<https://www.putnamcountynyhmp.com>

Putnam County Hazard Mitigation Plan Update

Home About What is Mitigation Meetings Calendar Explore the Plan
Additional Information

About the Project

Purpose

Putnam County's Bureau of Emergency Services is leading the update of the Putnam County Hazard Mitigation Plan (HMP) for the County and its jurisdictions. This plan is an opportunity to detail a variety of potential hazards that could affect some or all of our residents and will also allow the County and the participating jurisdictions to be eligible for future mitigation funding from the Federal Emergency Management Agency (FEMA). The goal of this plan is to identify projects that can reduce damages from future natural and non-natural hazards. The plan will include a risk assessment and a hazard mitigation strategy. The study will focus on existing buildings and potential future development, infrastructure, and critical facilities that might be impacted. Critical Facilities are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard. Critical facilities include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous material facilities.

Scope


During the planning process, the Planning Partnership will actively be involving private sector, non-profit, and other community partners in the planning process. The approach is consistent with the "Whole Community Approach," which seeks to involve the entire community in disaster and hazard planning.

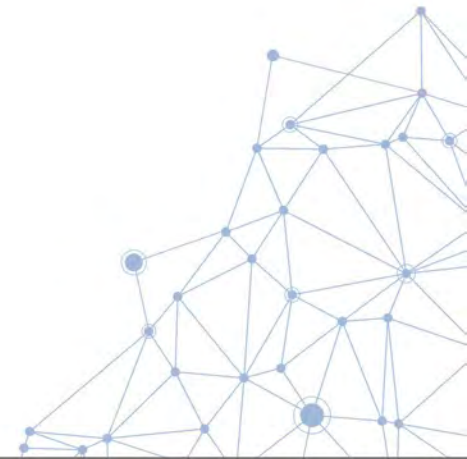
Objectives

The objectives of the Putnam County HMP planning process are:

- Provide the public opportunities throughout the plan development and drafting process to provide input.
- Conduct a thorough risk assessment using the most recent disaster data and information.
- Formulate hazard mitigation goals, objectives, and actions as they relate to reducing loss of life and property from natural and human-caused hazards.

Hazards of Concern

- Drought 
- Earthquake 
- Extreme Temperature 
- Flood 
- Harmful Algal Bloom 
- Disease Outbreak 
- Severe Storm 
- Severe Winter Storm 
- Terrorism 
- Wildfire 



Severe Storms



NYS HMP Reports
\$2.43M in wind
damages

\$106,000 annually



\$74.2 Million

Potential Losses in Building Stock in
500-year MRP Windstorm

0.27% of total County GBS



Total Storms
(1950-2019) 203

Thunderstorm 122

Hail 31

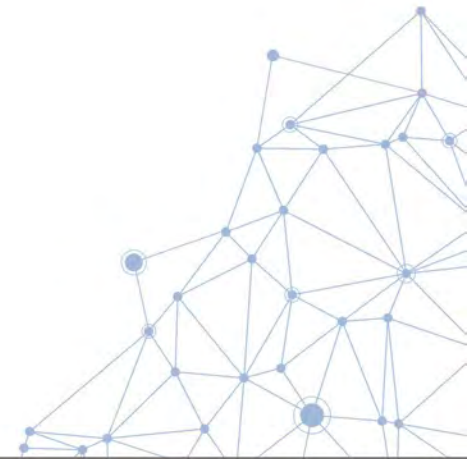
Heavy Rain 16

Recent Impacts

**0 Disaster
Declarations since
Hurricane Sandy
(2012)**

Severe Storms Includes...

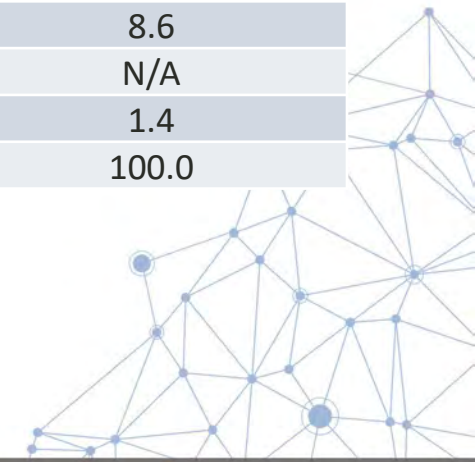
**Windstorms,
thunderstorms,
hurricanes and tropical
storms, Nor'easters, hail
and tornadoes**





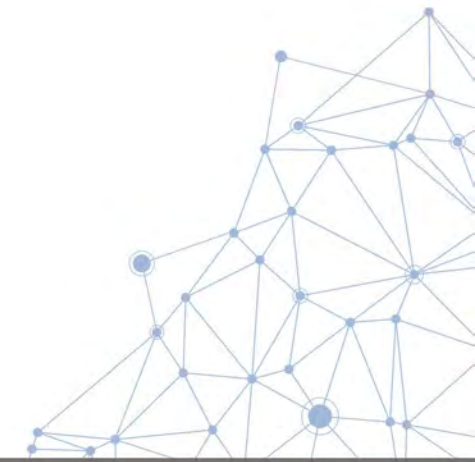
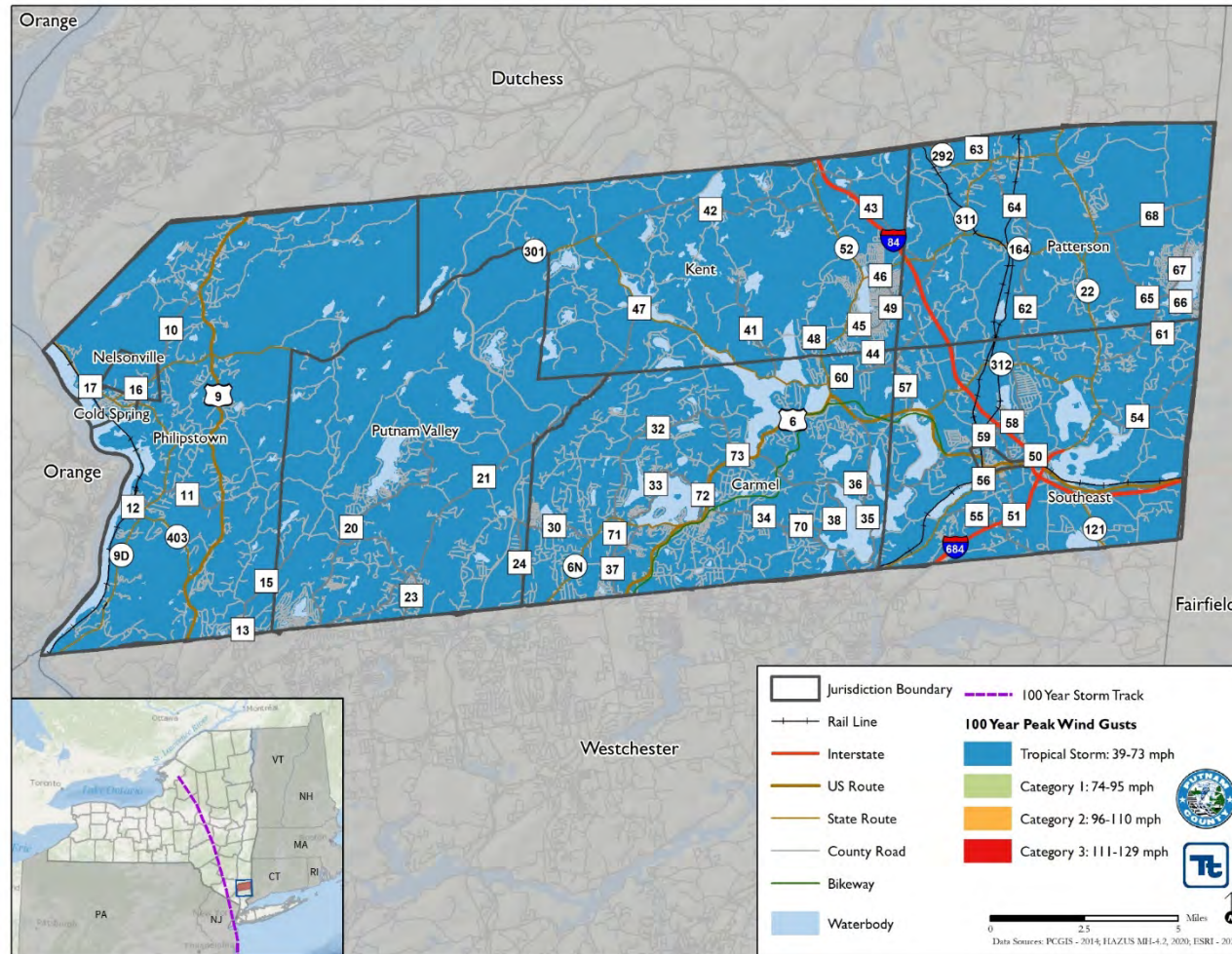
Estimated Exposure for Severe Storms

Hazard Type	Number of Occurrences Between 1950 and 2019	Rate of Occurrence	Recurrence Interval (in years)	Probability of event Occurring in Any Given Year	% Chance of Occurring in Any Given Year
Funnel Cloud	2	0.0	35.0	0.0	2.9
Hail	31	0.4	2.3	0.4	44.3
Heavy Rain	16	0.2	4.4	0.2	22.9
High Wind*	14	0.2	5.0	0.2	20.0
Hurricane**	0	0.0	N/A	N/A	N/A
Lightning	6	0.1	11.7	0.1	8.6
Strong Wind	5	0.1	14.0	0.1	7.1
Thunderstorm Wind	122	1.8	0.6	1.7	100
Tornado	6	0.1	11.7	0.1	8.6
Tropical Depression**	0	0.0	N/A	N/A	N/A
Tropical Storm***	1	0.0	70.0	0.0	1.4
TOTAL	203	2.9	0.3	2.9	100.0



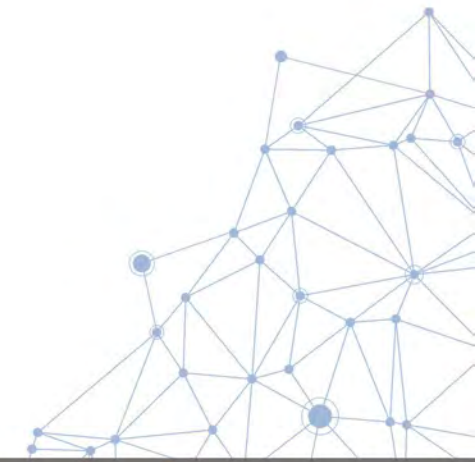
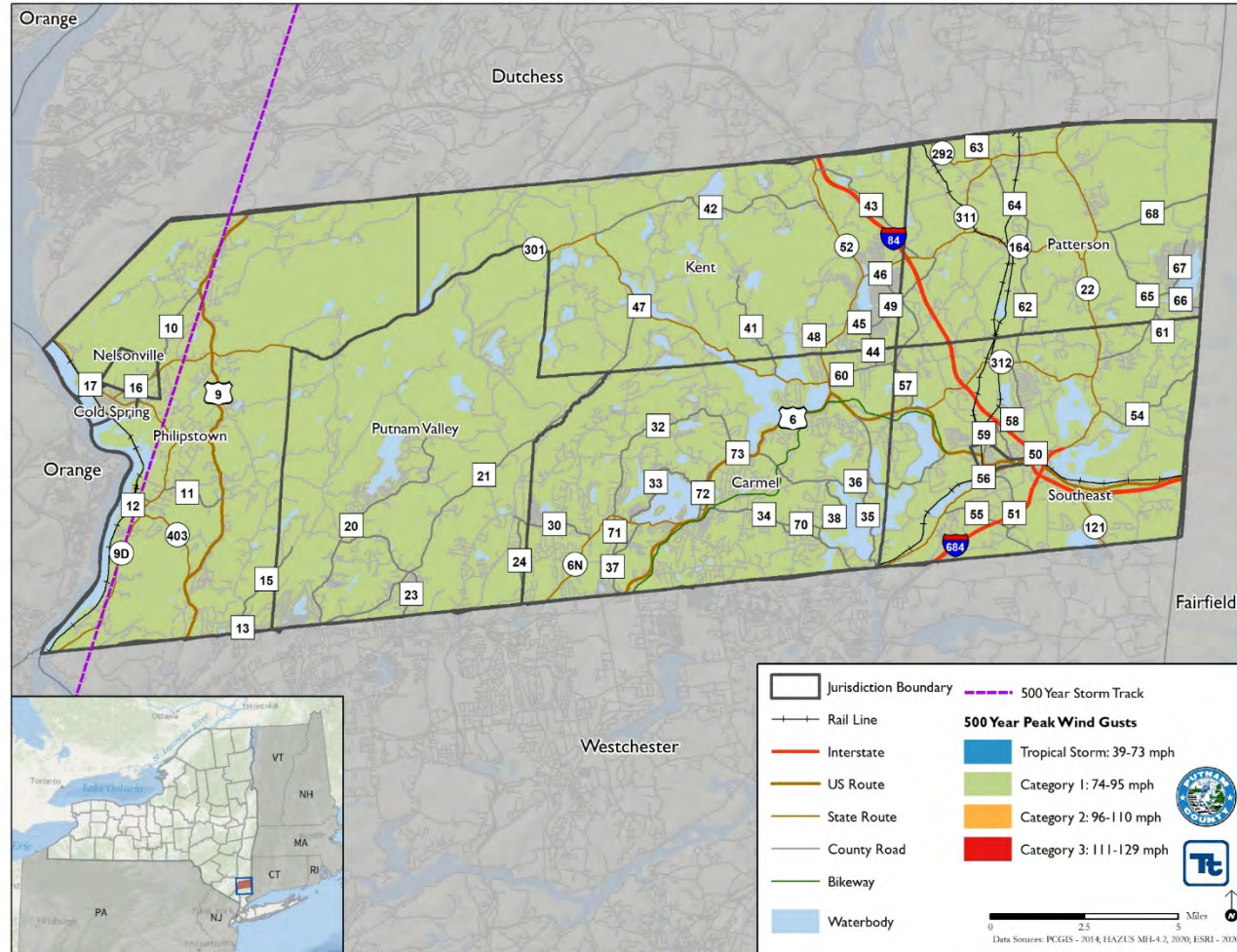


Estimated Exposure for 100-Year Peak Wind Gusts

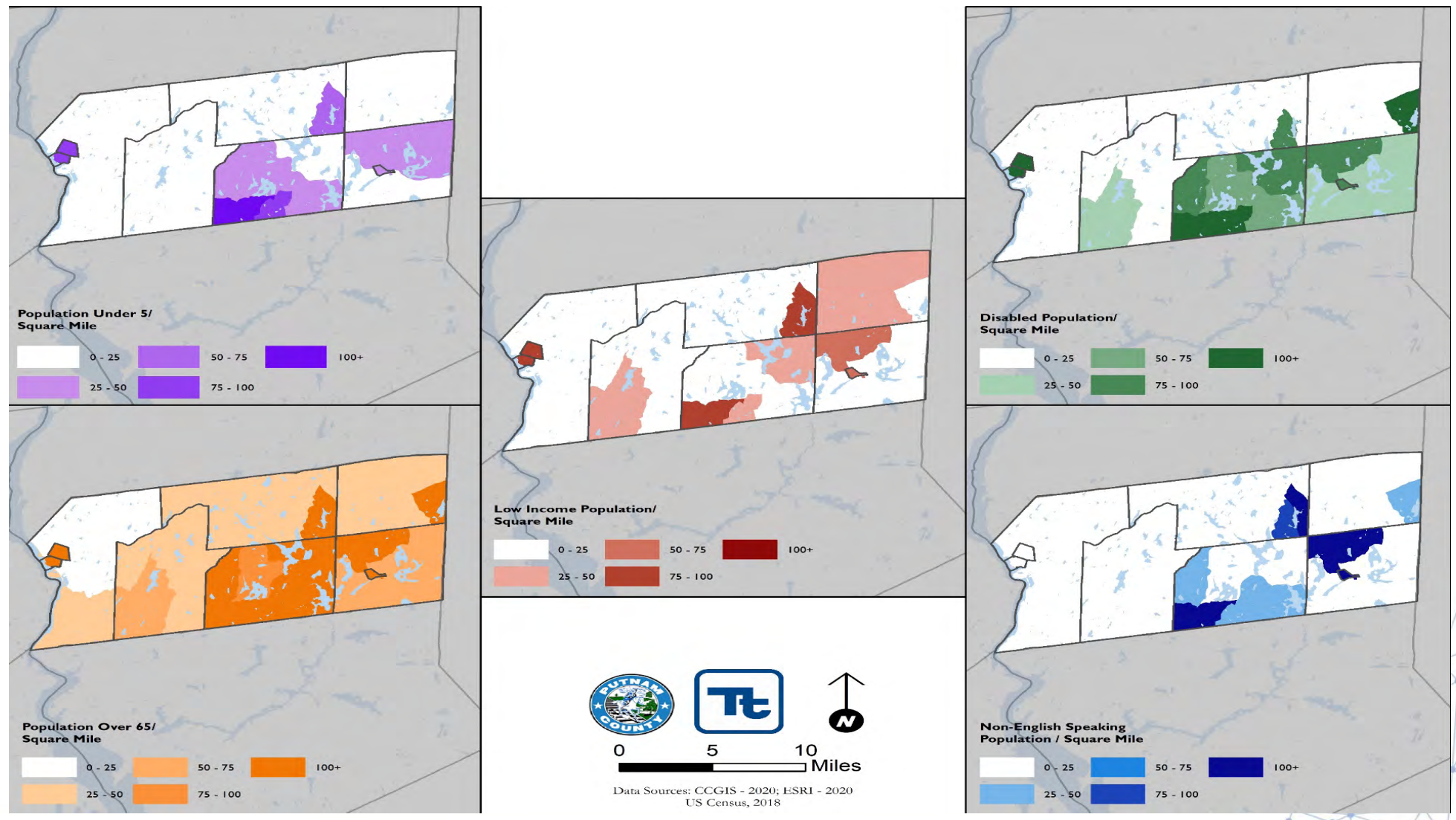




Estimated Exposure for 500-Year Peak Wind Gusts



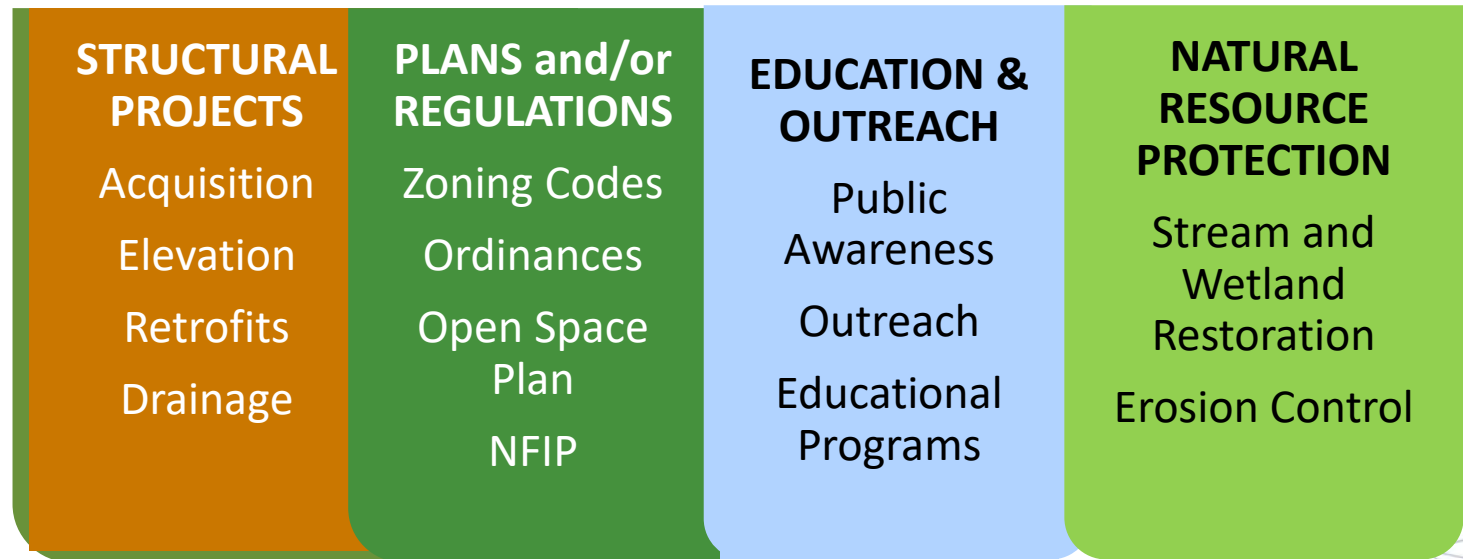
Vulnerable Populations



SWOO – Severe Storms

- Strengths
 - High response capability
- Weaknesses
 - Increasingly frequent occurrences
- Obstacles
 - Strained resources
- Opportunities
 - Infrastructure hardening

- Consider SWOO's in these areas:





Severe Winter Storms

79

Occurrences
(1996 – 2019)

49

Heavy Snow Events
(1996 – 2019)

\$1.3
Billion

Potential Economic
Damage

\$261,000

Annual Losses

Risk for Putnam County

High

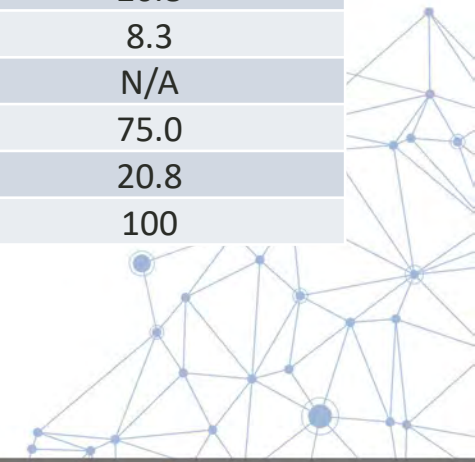




Estimated Exposure for Severe Winter Storms

- The entirety of Putnam County is exposed to this hazard irrespective of geographic location.

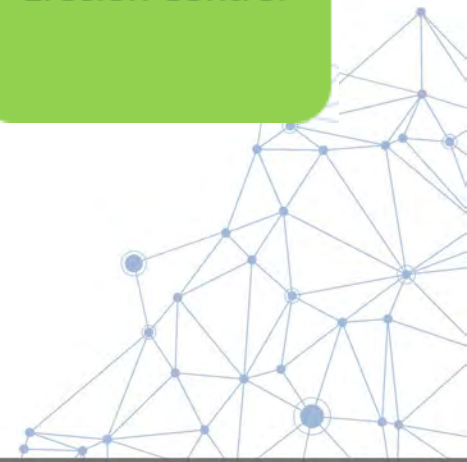
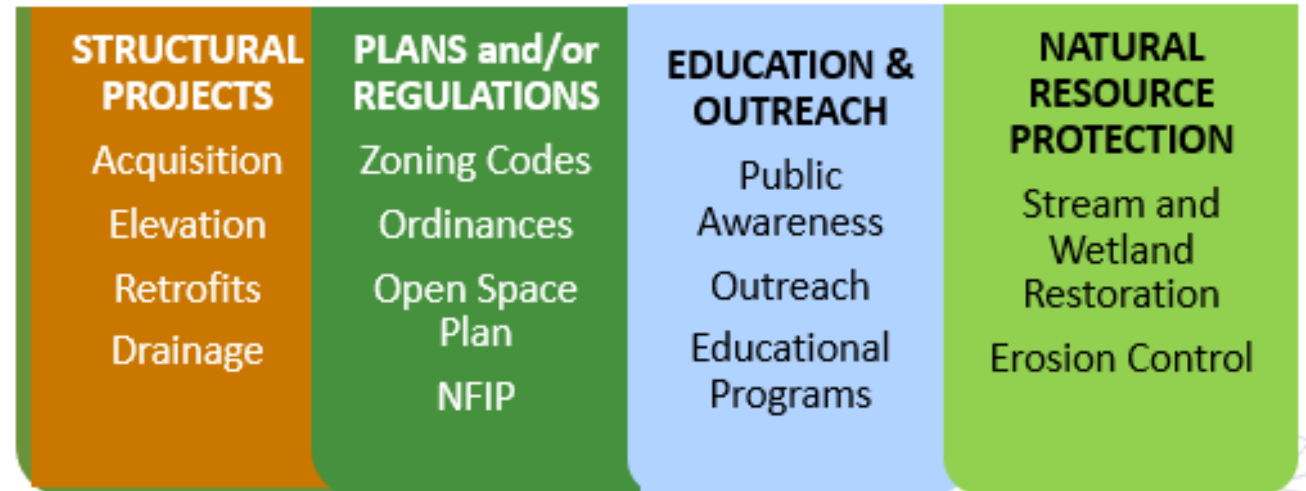
Hazard Type*	Number of Occurrences Between 1996 and 2019	Rate of Occurrence	Recurrence Interval (in years)	Probability of event Occurring in Any Given Year	% Chance of Occurring in Any Given Year
Blizzard	0	0.0	N/A	N/A	N/A
Heavy Snow	49	2.1	0.5	2.0	100
Ice Storm	5	0.2	4.8	0.2	20.8
Lake Effect Snow	2	0.1	12.0	0.1	8.3
Sleet	0	0.0	N/A	N/A	N/A
Winter Storm	18	0.8	1.3	0.8	75.0
Winter Weather	5	0.2	4.8	0.2	20.8
TOTAL	79	3.4	0.3	3.3	100



SWOO – Severe Winter Storms

- Strengths
 - High response capability
- Weaknesses
 - Increasingly frequent occurrences
- Obstacles
 - Strained resources
- Opportunities
 - Infrastructure hardening

- Consider SWOO's in these areas:



Wildfire



Population that lives in the Wildland-Urban Interface (WUI)

97%

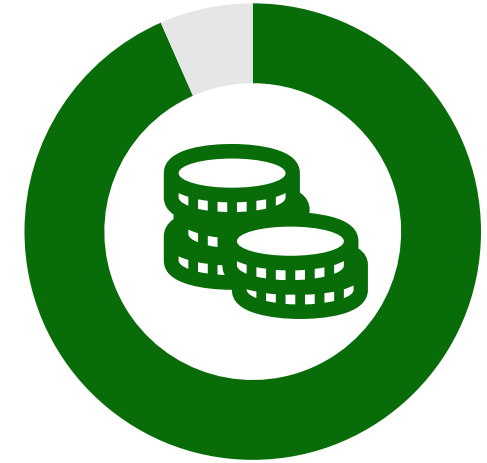
96,096 people



Buildings within the Wildland-Urban Interface (WUI)

96.5%

30,241 buildings



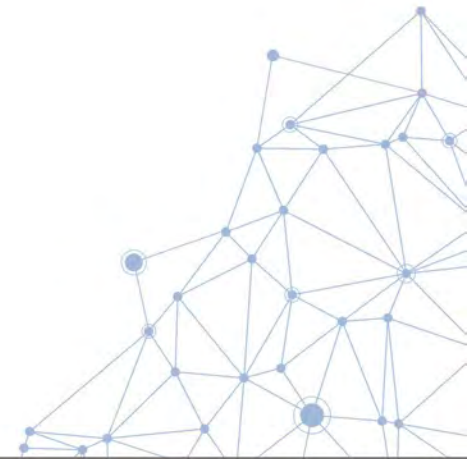
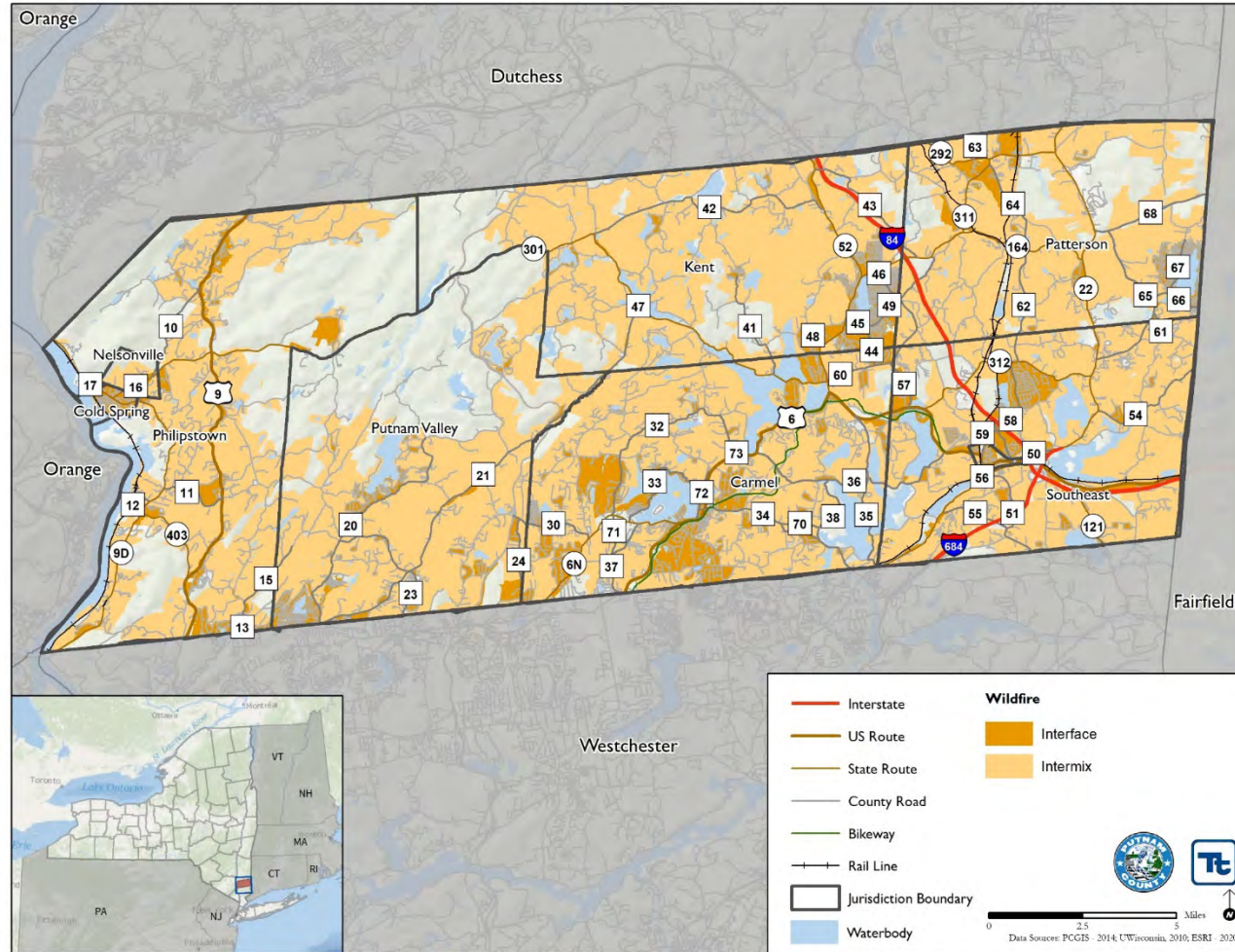
Percent of Replacement Cost Value (RCV) Exposed to wildfires

93.4%

\$25.7 Billion



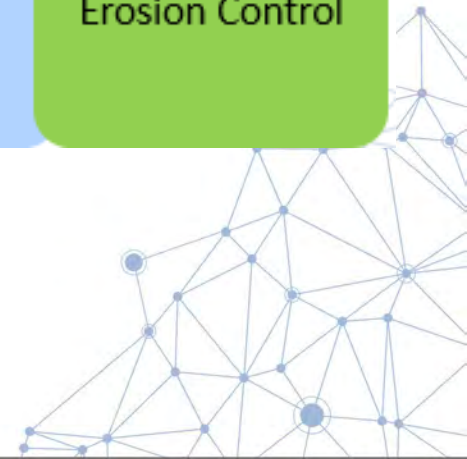
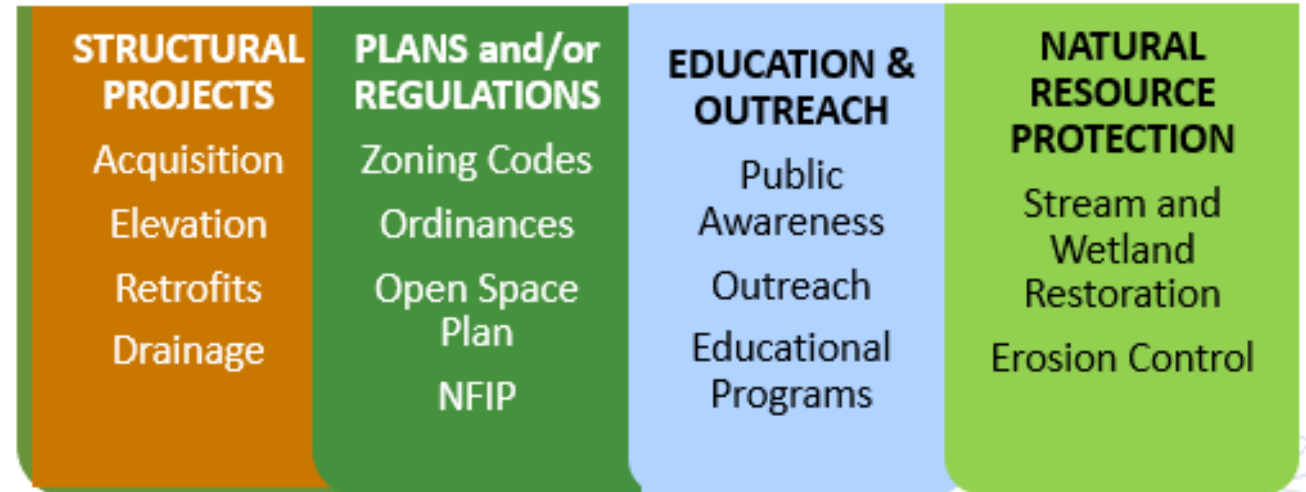
Wildfire Exposure



SWOO – Wildfire

- Strengths
 - Ability to fight smaller brushfires
 - Multi-jurisdictional coordination
- Weaknesses
 - High vulnerability and extent of forests
- Obstacles
 - Communities connected by isolated roadways that pass through large stands of forest
- Opportunities
 - Land use practices for WUI

- Consider SWOO's in these areas:



Drought



Percent of Building Stock Impacted



Buildings within the Wildland-Urban Interface (WUI)



Climate Change Impacts



Disaster Declarations (2014 – March 2020)

Putnam County has experienced abnormally dry periods at least annually since 2015.

A drought period beginning in May 2015 lasted 10 months, and one beginning in April 2016 lasted more than one year and included periods of extreme and severe drought conditions.



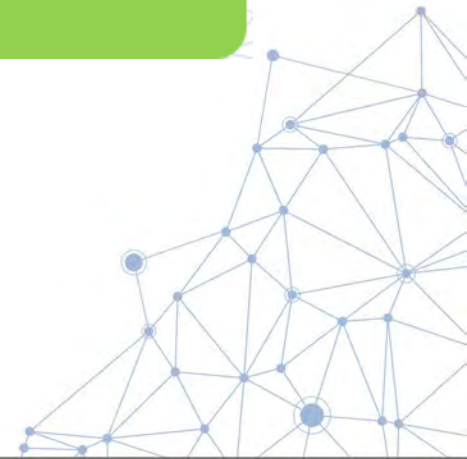
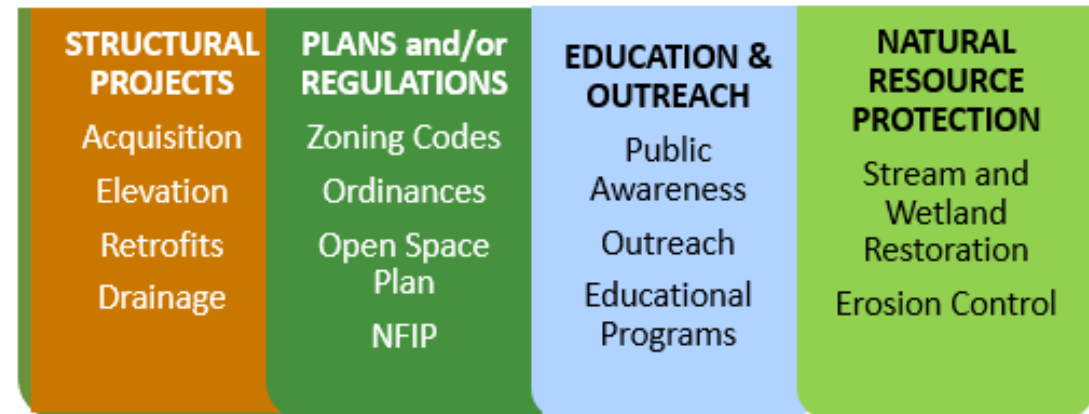
Drought

Dates of Event	Duration (Approx.)	Event Details*
March 17-March 30, 2020	2 weeks	Abnormally dry conditions were present in the County for a two-week period in mid-March.
September 17-November 5, 2019	1.5 months	Putnam County experienced abnormally dry conditions in the fall.
December 5, 2017-January 1, 2018	1 month	Abnormally dry conditions impacted the County in January 2018.
September 26-October 30, 2017	1 week	In October, abnormally dry conditions persisted in portions of the County and included all of the County for the week of October 24 th .
April 19, 2016-May 8, 2017	1 year and 3 weeks	Drought and abnormally dry conditions persisted for more than a calendar year between spring 2016 and 2017. Between October 2016 and March 2017, severe drought conditions occurred and between mid-November and January extreme drought conditions occurred for portions of the County.
May 5, 2015-February 23, 2016	10 months	The latter half of 2015 saw abnormally dry conditions, with D1 (“Moderate drought”) conditions observed May 19 th to June 15 th and in September through December.
August 26-December 15, 2014	3.5 months	According to the U.S. Drought Monitor, conditions were classified at D0, or abnormally dry status across Putnam County in the last quarter of 2014.

SWOO - Drought

- Strengths
 - Contingency plans for drought conditions
- Weaknesses
 - Use of groundwater/surface water for supply
- Obstacles
 - NYCDEP conflicts
- Opportunities
 - Water conservation rules

- Consider SWOO's in these areas:



Earthquake

Population most susceptible to the impacts of earthquakes are those living in areas of National Earthquake Hazards Reduction Program (NEHRP) Class D and E soils. These types of soils can amplify ground shaking.



Replacement Cost Value (RCV) of exposed buildings to 1,000-year MRP



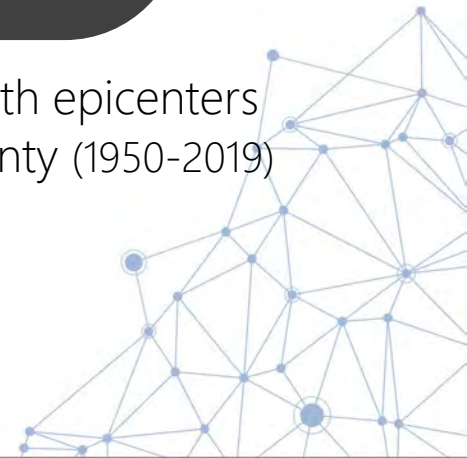
Population exposed to NEHRP D and E soil types



Estimated displaced households for a 2,500-year event

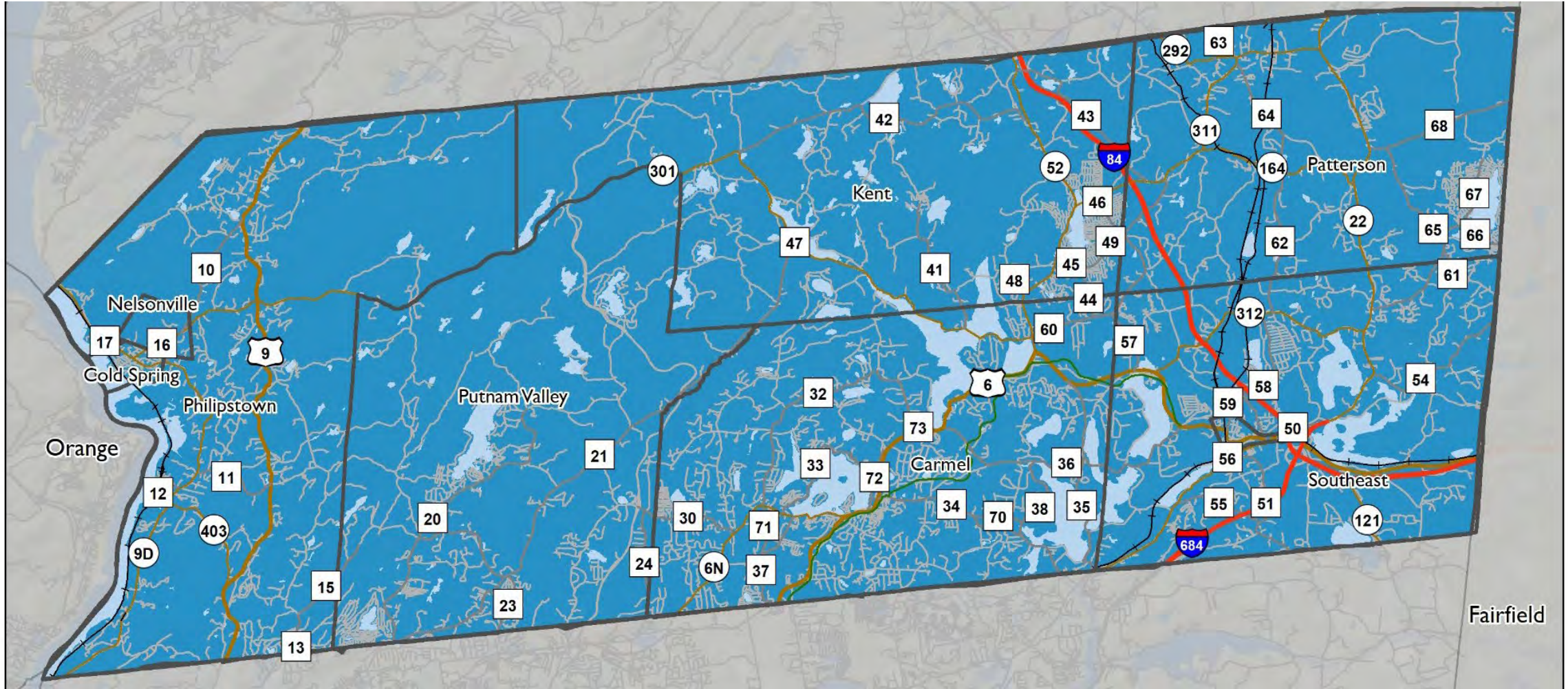


Earthquakes with epicenters in Putnam County (1950-2019)

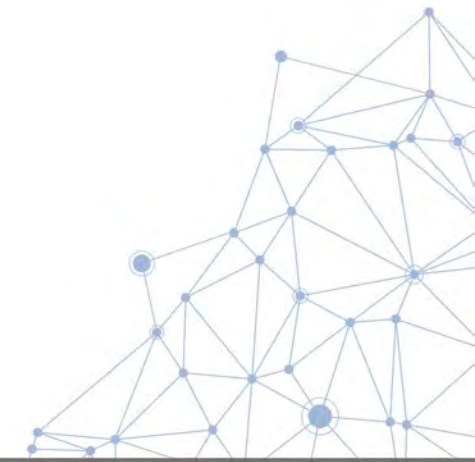
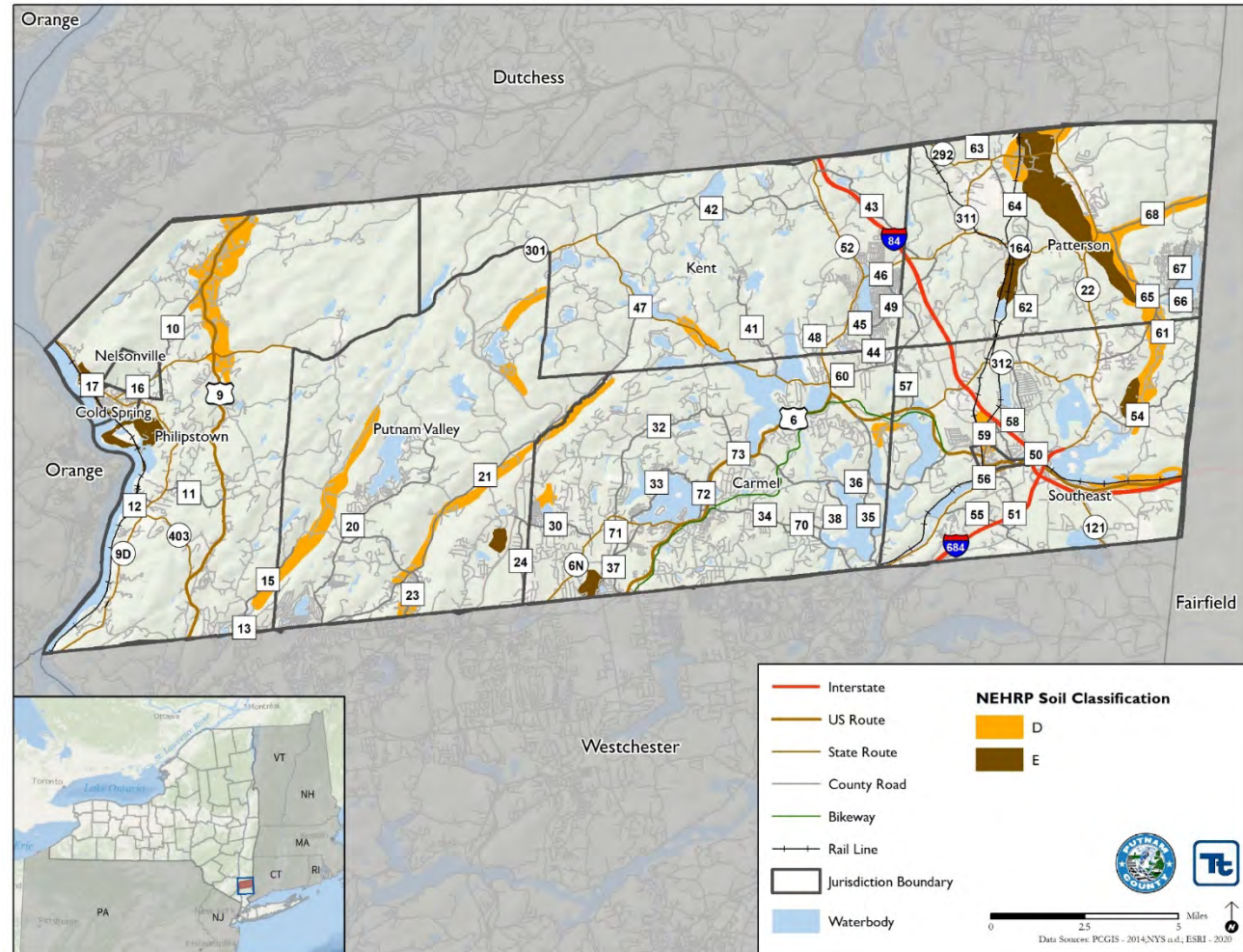




2%/50-Year Earthquake Peak Ground Acceleration



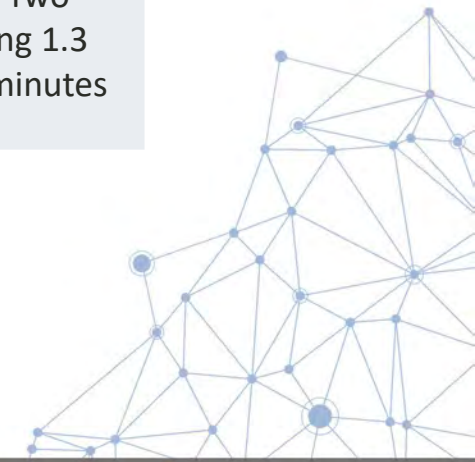
NEHRP Soil Types





Earthquake

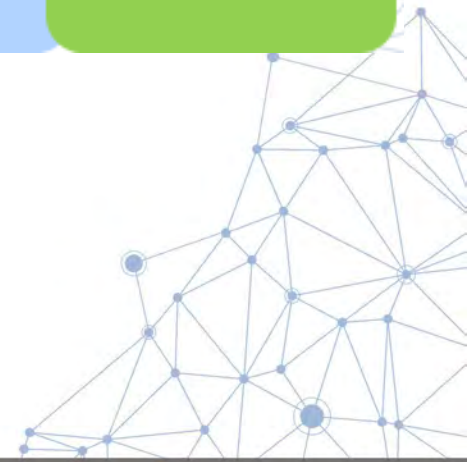
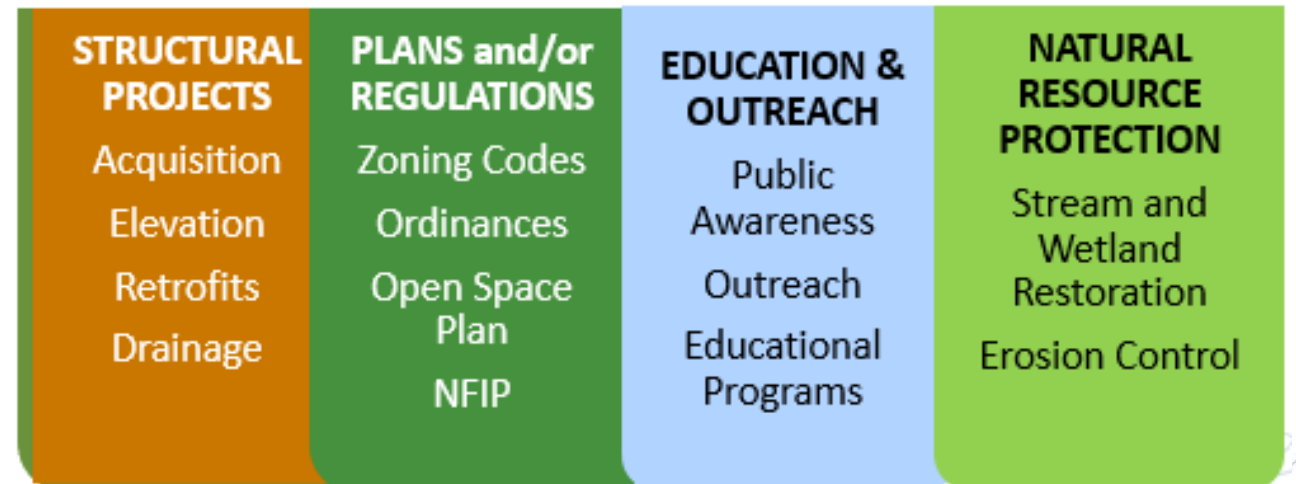
Dates of Event	Event Type	Location	FEMA Declaration Number (if applicable)	County Designated?	Event Details*
April 10, 2017	Earthquake	Pawling, NY	N/A	N/A	A magnitude 1.3 earthquake occurred in Pawling just outside of Putnam County.
February 7, 2018	Earthquake	Putnam Valley, NY	N/A	N/A	A magnitude 2.2 earthquake with an epicenter southwest of the intersection of Oscawana Lake Road and Cimmarron Road struck in the morning of February 7 th . Two aftershocks each measuring 1.3 struck approximately two minutes and two hours later.



SWOO - Earthquake

- Strengths
 - Robust emergency response apparatus
- Weaknesses
 - Acute vulnerability in some locations
- Obstacles
- Opportunities

- Consider SWOO's in these areas:



Flood

894 Residents Exposed to 1% Annual Flood Event



Buildings Exposed to 1% Annual Flood Event

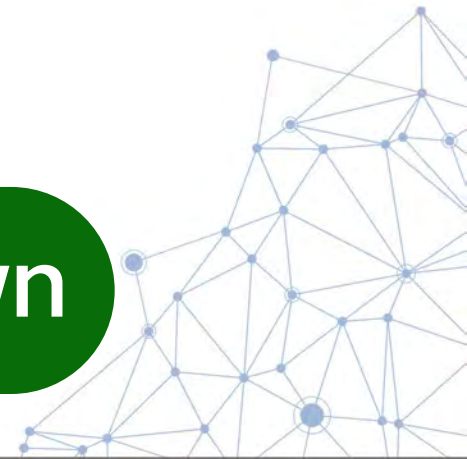
359

\$439 Million Estimated Loss Potential from 1% Annual Event



Highest Population Exposure (2.7%)

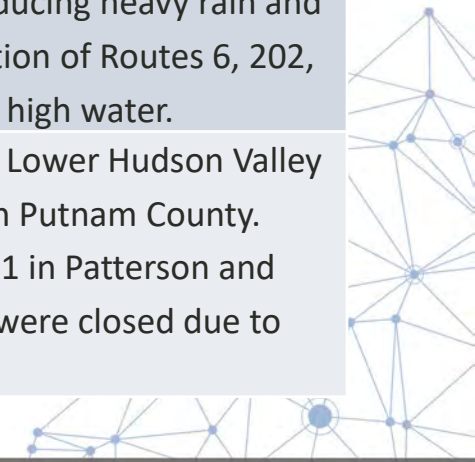
Philipstown



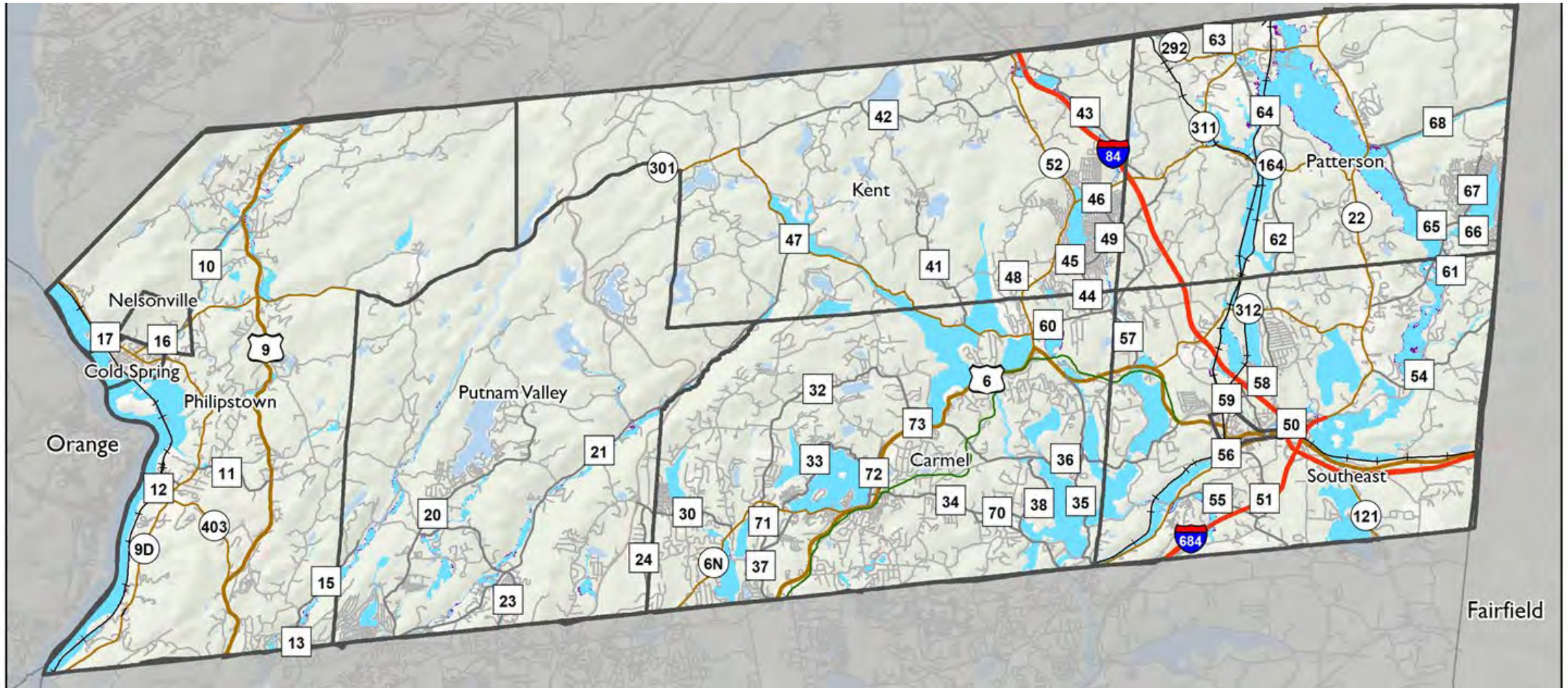
Flood

- Putnam County has been impacted by flooding in the past. Its most recent disaster declaration was in 2012 for Hurricane Sandy.
- The Steering and Planning Committees identified floods as a hazard of concern for Putnam County.

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Losses / Impacts
July 7, 2015	Flash Flood	N/A	N/A	Showers and thunderstorms struck the area, producing heavy rain and localized flash flooding. A vehicle at the intersection of Routes 6, 202, and 22 in Brewster became stranded in high water.
July 28, 2018	Flash Flood	N/A	N/A	Scattered showers and thunderstorms across the Lower Hudson Valley caused isolated flash flooding in northeastern Putnam County. Approximately 1.4 inches of rain fell. Route 311 in Patterson and Ludingtonville Road along I-84 in Lake Carmel were closed due to flooding.



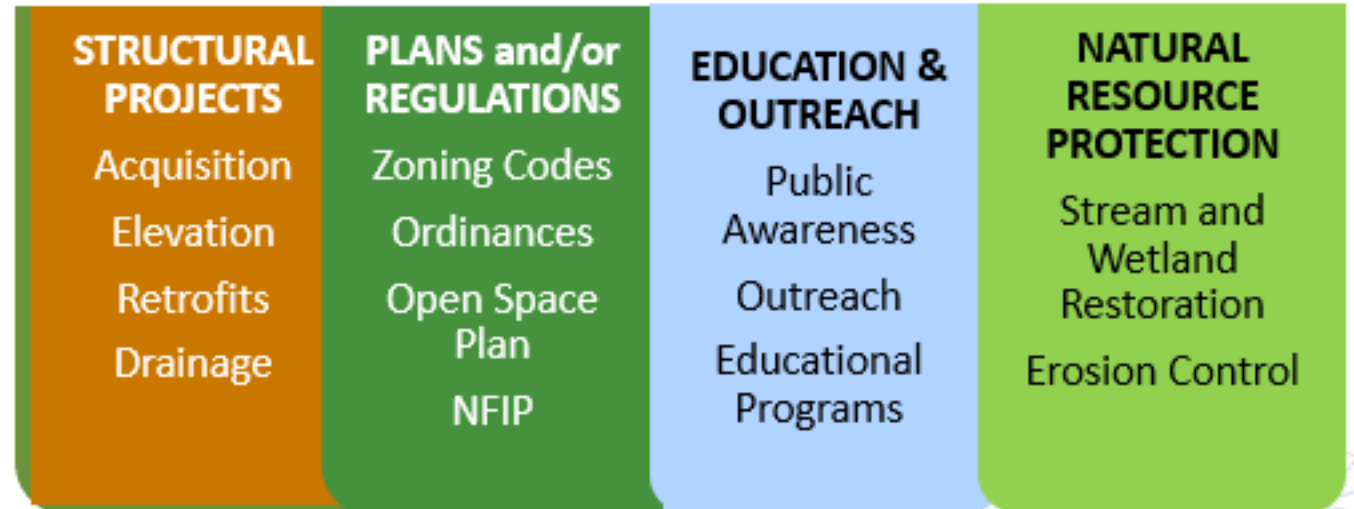
Flood Exposure- Regulatory Floodplains



SWOO - Flood

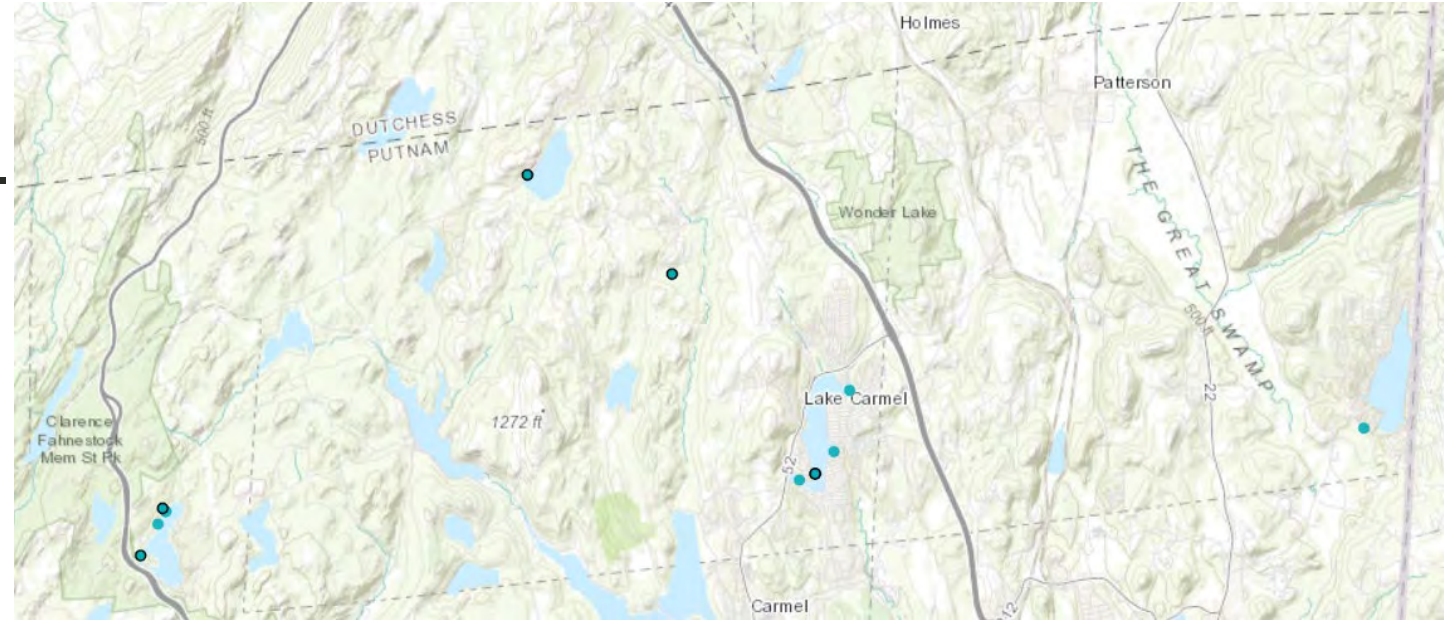
- Strengths
 - Low amount of vulnerability
- Weaknesses
 - Limited structural flood control
- Obstacles
- Opportunities

- Consider SWOO's in these areas:



Harmful Algal Blooms

- Putnam County is the subject of three action plans addressing harmful algal blooms by the State's Water Quality Rapid Response Team.
- Since the State started tracking blooms in 2012, [the County has experienced 58 algal blooms across 23 lakes.](#)
- The Steering and Planning Committees identified HABs as a hazard of concern for Putnam County.



Estimated Exposure for Harmful Algal Blooms

- 10 confirmed High Toxins Blooms since 2012
- 26 Confirmed Blooms
- 21 Suspicious Blooms

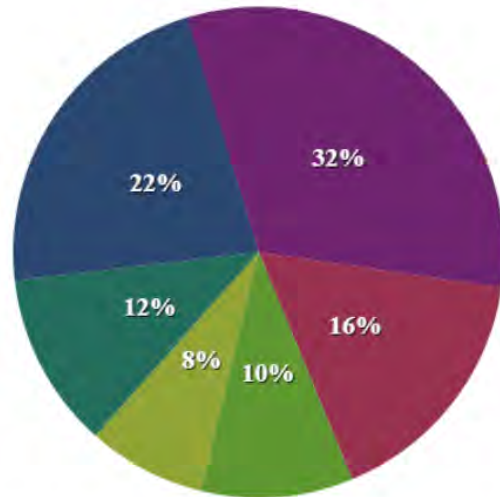
2020 Current Beach Status

Town	Lake	Beach	Status	Reason
Kent	Lake Carmel	Beach 7	Closed	Blue-Green Algae
Philipstown	Cortlandt Lake	Continental Village Beach	Closed	Coliform
Putnam Valley	Lake Peekskill	Singers Beach	Closed	Blue-Green Algae



Disease Outbreak

1596
Putnam County Confirmed Cases



Number of Confirmed Cases by Town (Covid-19 Cases)

CARMEL	KENT	PATTERSON	PHILIPSTOWN	PUTNAM VALLEY	SOUTHEAST
511	263	160	124	185	353

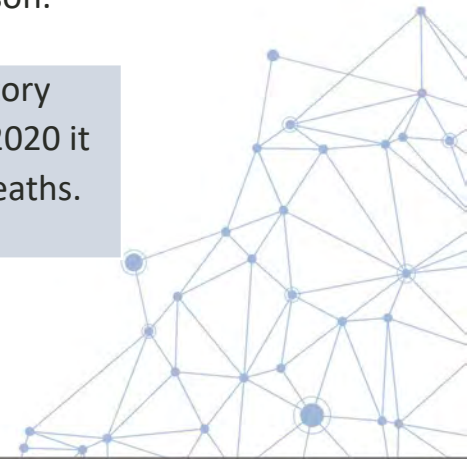
- The County has been impacted by various diseases, including influenza, Lyme disease, food poisoning, measles, and COVID-19.
- As of June 30, 2020 Putnam County totaled 1,499 positive COVID-19 cases. The County has the ninth highest rate of cases in the State.
- The Steering and Planning Committees identified disease outbreak as a hazard of concern for Putnam County.





Disease Outbreak

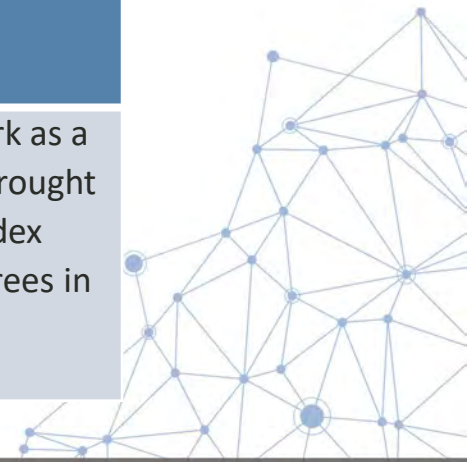
Dates of Event	Event Type	FEMA Declaration Number (if applicable)	County Designated?	Event Details
May 2012	Biological	N/A	N/A	A food-borne illness manifested at a Mother's Day event at the Chuang Yen Monastery in Kent, sickening 100 people.
May 2018	Biological	N/A	N/A	A measles outbreak was reported in connection with international travelers to the Watchtower Education Center in Patterson.
March 2020-Present	Biological	DR-4480	Yes	Novel coronavirus COVID-19, a highly infectious respiratory disease, spreads throughout the United States. As of July 2020 it has infected 3.8 million people and has caused 140,630 deaths.



Extreme Temperature

- Putnam County was not included in any recent USDA disaster declarations related to extreme temperature events. However, the County remains at risk for relatively regularly-occurring extreme temperatures.
- The Steering and Planning Committees identified extreme temperature as a hazard of concern for Putnam County.

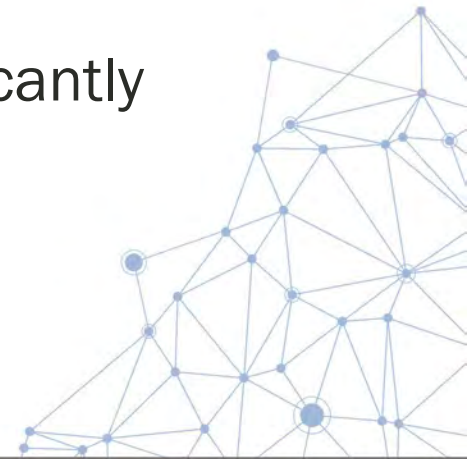
Dates of Event	Event Type	FEMA Declaration Number (if applicable)	County Designated?	Event Details
August 12-13, 2016	Excessive Heat	N/A	N/A	Excessive heat affected large sections of southern New York as a high pressure system stayed over the Atlantic Ocean and brought hotter and more humid air into the region. The heat index reached 110 degrees at Montgomery Airport and 107 degrees in Poughkeepsie.



Estimated Exposure

HABS, Extreme Temperature and Disease Outbreak

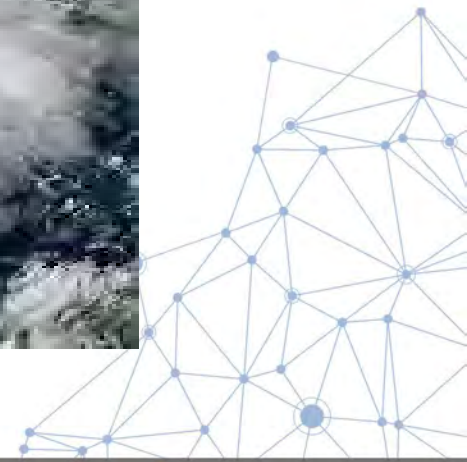
- GIS-based analyses were not used for calculating exposure to extreme disease, disease outbreak, or HABS hazards
- HABS hazards are more likely to occur with communities with large waterbodies
- Disease outbreak can have a significant impact on the economy, as demonstrated with COVID-19 outbreak
- Extreme temperatures to be exacerbated by climate change and significantly impact populations, but not property



What is Risk?

Risk is defined as a function of :

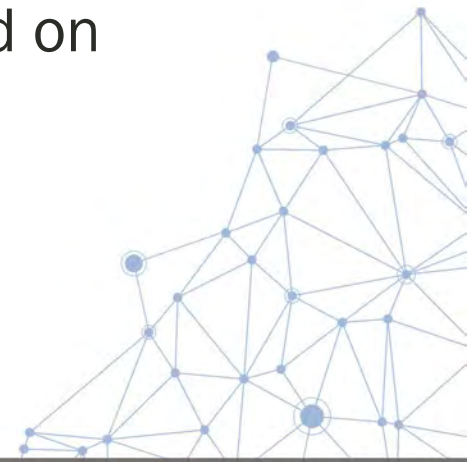
- Hazard
 - *Source of potential danger or adverse condition*
- Exposure
 - *Manmade or natural features that are exposed to the hazard*
- Vulnerability
 - *Damage susceptibility of the exposed features*
- Adaptive Capacity (or capability)
 - *Plans/policies*
 - *Response/recovery*
 - *Financial resources*



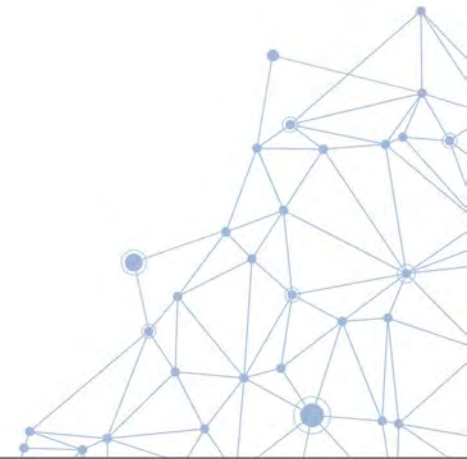
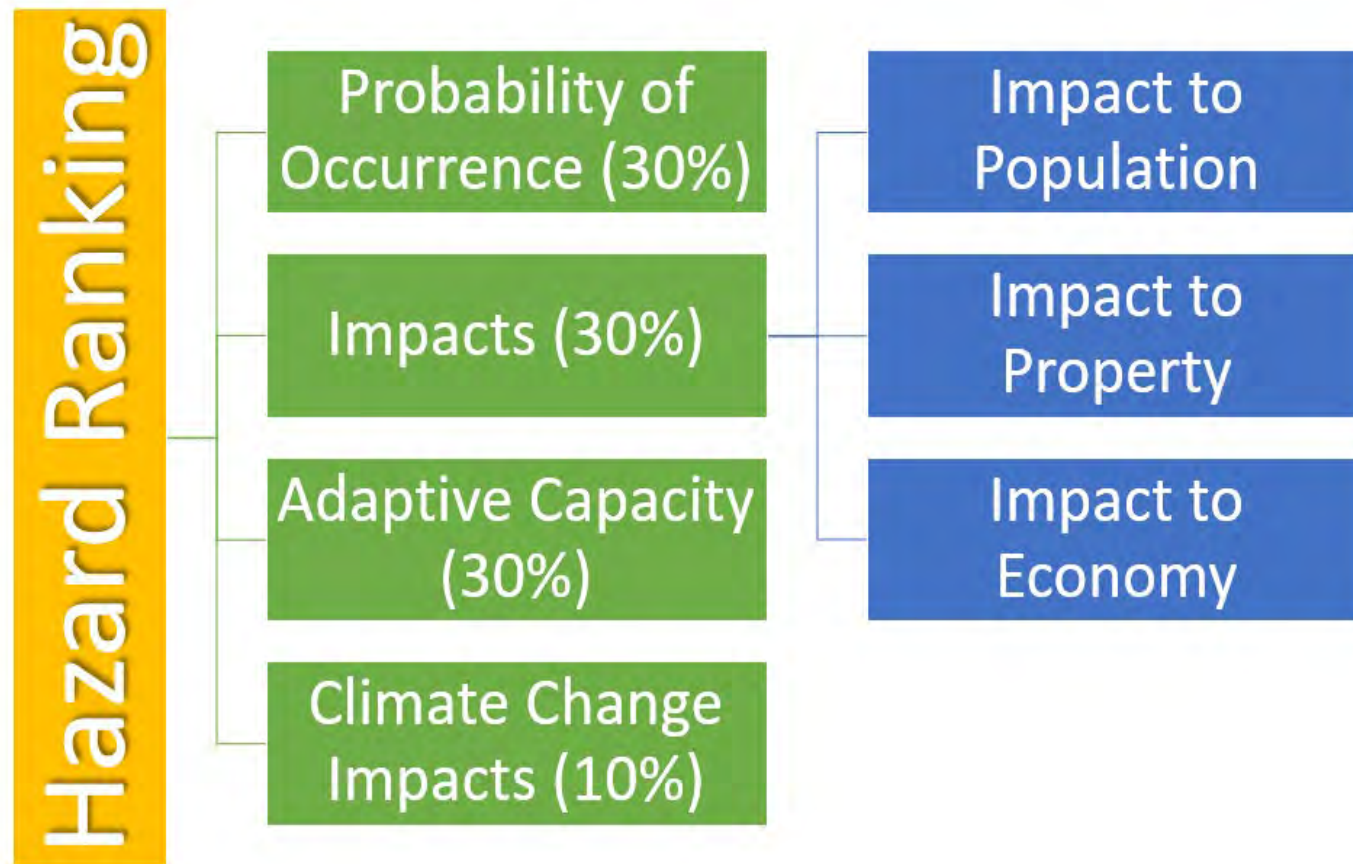
Hazard Ranking Approach

Hazard Ranking is determined by quantitative and qualitative factors including:

- The calculated *probability* of a hazard occurring based on historical data
- *Impacts to people, property, and the economy* based on GIS data and analysis of exposure.
- The degree to which *climate change* will affect future occurrences based on best available data.
- *Capability*- the ability of your community to respond to the hazard based on ordinances, mitigation strategies and procedures, and readiness.



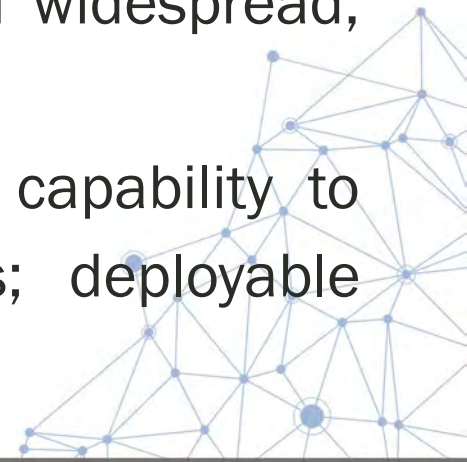
Hazard Ranking Formula



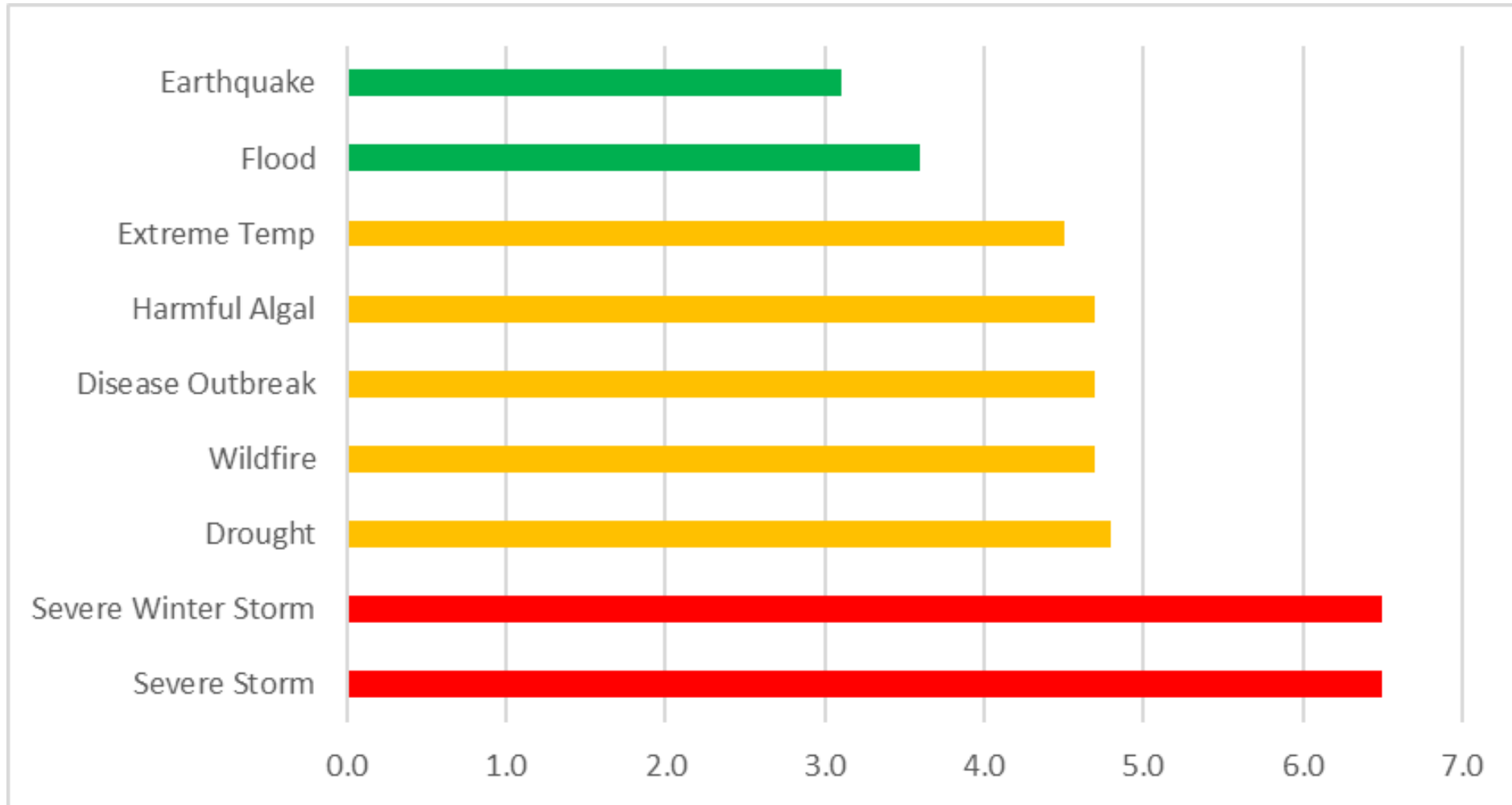
Adaptive Capacity

Describes a jurisdiction's current ability to protect from or withstand a hazard event

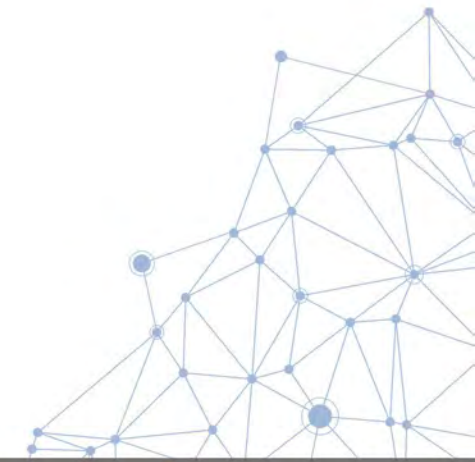
- **Low** adaptive capacity means the jurisdiction does not have the capability to effectively respond, which leads to an increase in vulnerability. Examples include weak/outdated/inconsistent plans, policies, codes/ordinances in place; no redundancies; limited to no deployable resources; limited capabilities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



Overall Risk Ranking



Low	<3.8
Medium	3.9-4.9
High	>=5





Overall Risk Ranking – County-wide

HAZARD	RISK ASSESSMENT CATEGORY										RELATIVE RISK FACTOR
	PROBABILITY		IMPACT				ADAPTIVE CAPACITY		CHANGING FUTURE CONDITIONS		
			Population	Built Environment	Economy	Total					
	Numeric Value	Score	Score	Score	Score		Numeric Value	Score	Numeric Value	Score	
Drought	2	0.6	3	6	2	3.3	2	0.6	3	0.3	4.8
Disease Outbreak	2	0.6	6	2	3	3.3	1	0.3	2	0.2	4.4
Earthquake	2	0.6	3	1	1	1.5	2	0.6	1	0.1	2.8
Extreme Temp	2	0.6	6	2	2	3	2	0.6	3	0.3	4.5
Flood	3	0.9	3	2	1	1.8	2	0.6	3	0.3	3.6
Harmful Algal Bloom	3	0.9	6	2	3	3.3	1	0.3	2	0.2	4.7
Severe Storm	3	0.9	9	6	1	4.8	2	0.6	2	0.2	6.5
Severe Winter Storm	3	0.9	9	6	1	4.8	2	0.6	2	0.2	6.5
Terrorism											N A
Wildfire	2	0.6	6	2	1	2.7	1	0.3	3	0.3	3.9

Low	<3.8
Medium	3.9-4.9
High	>=5



Overall Risk Ranking – Municipal Level

Putnam County Municipality	Hazard Ranking									
	Drought	Earthquake	Flood	Disease Outbreak	Harmful Algal	Extreme Temp	Severe Storm	Terrorism	Wildfire	Severe Winter Storm
Brewster (V)	Medium	Low	Low	Medium	Low	Medium	High	Medium	Medium	High
Carmel (T)	Medium	Low	Low	Medium	Low	Medium	High	Medium	Medium	High
Cold Spring (V)	Medium	Low	Low	Medium	Low	Medium	High	Medium	Medium	High
Kent (T)	Medium	Low	Low	Medium	Low	Medium	High	Medium	High	High
Nelsonville (V)	Medium	Low	Low	Medium	Low	Medium	High	Medium	Medium	High
Patterson (T)	Medium	Low	Medium	Medium	Low	Medium	High	Medium	Medium	High
Philipstown (T)	Medium	Low	Medium	Medium	Low	Medium	High	Medium	High	High
Putnam Valley (T)	Medium	Low	Low	Medium	Low	Medium	High	Medium	Medium	High
Southeast (T)	Medium	Low	Low	Medium	Low	Medium	High	Medium	Medium	High
Putnam County	Medium	Low	Low	Medium	Medium	Medium	High	Medium	Medium	High

Low	<3.8
Medium	3.9-4.9
High	>=5



Village of Brewster Draft Hazard Ranking and Draft Risk Assessment Results

Name: _____

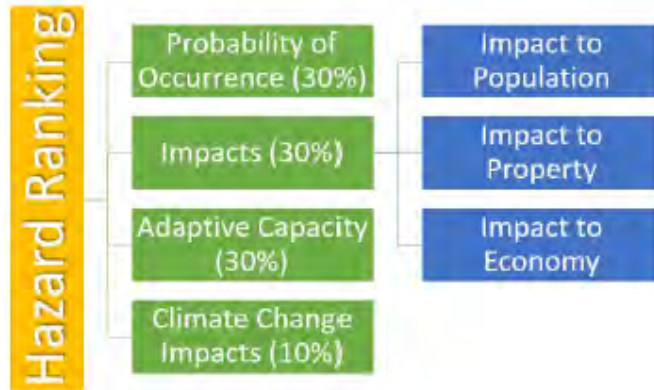
Title and Agency: _____

What is a Hazard Ranking?

A 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 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 tables represent the calculated rankings for the hazards of concern for the County and 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.

Table 1: 2015 and Draft 2020 County Hazard Rankings

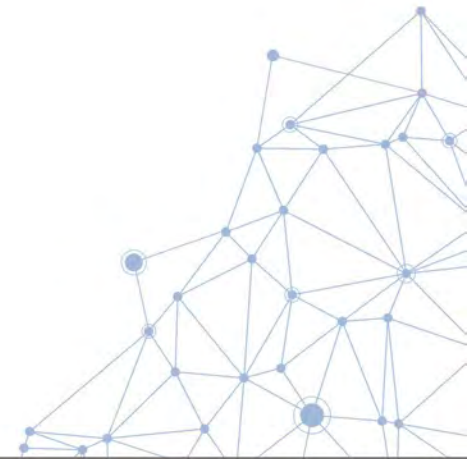
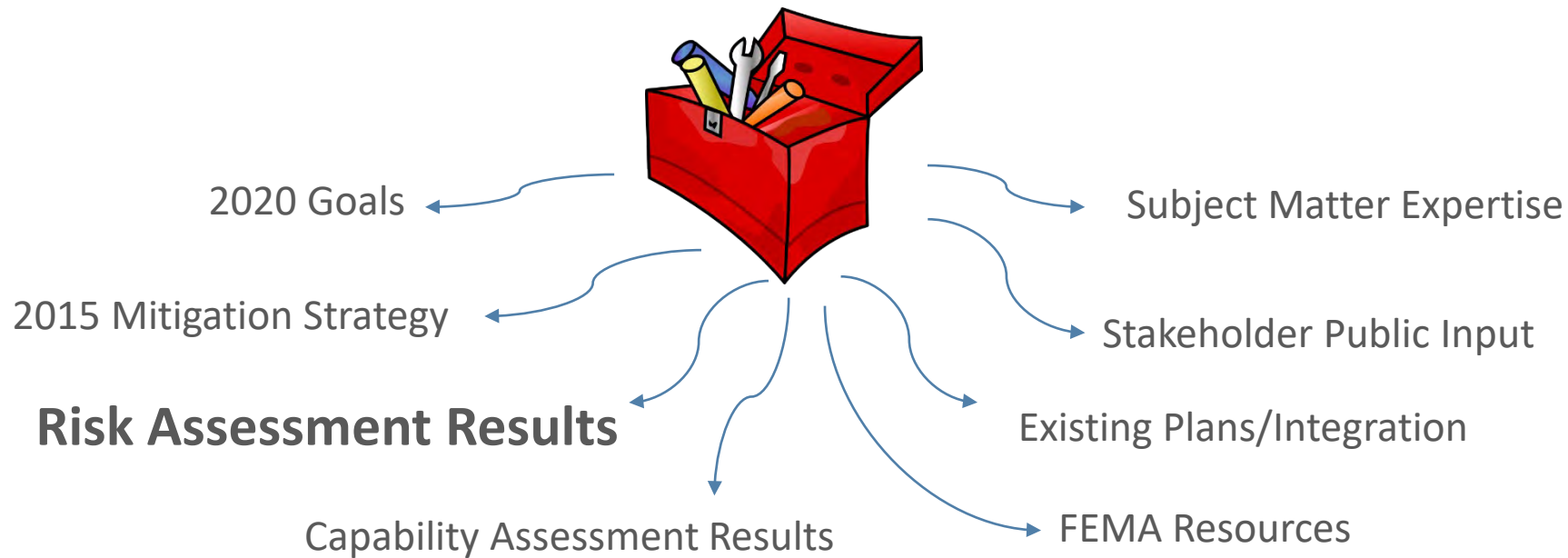
Hazard	Countywide	
	2015	2020 Draft Update
Disease Outbreak <i>(new)</i>	-	Medium
Drought <i>(new)</i>	-	Medium
Earthquake	Low	Low
Extreme Temperature	Medium	Medium
Flood	Medium	Low
Harmful Algal Bloom <i>(new)</i>	-	Medium
Land Failure	High	-
Severe Weather	High	High
Severe Winter Weather	High	High
Terrorism <i>(new)</i>	-	Medium
Wildfire	High	Medium

Table 2: 2015 and Draft 2020 Municipal Hazard Rankings

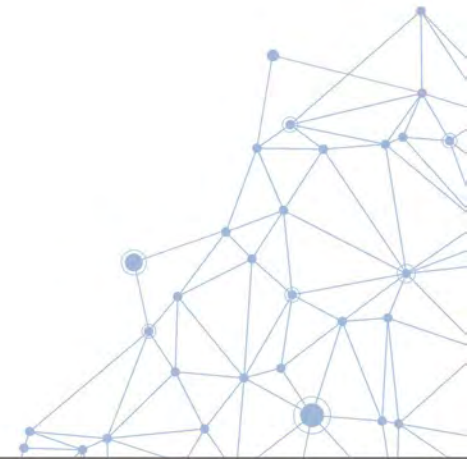
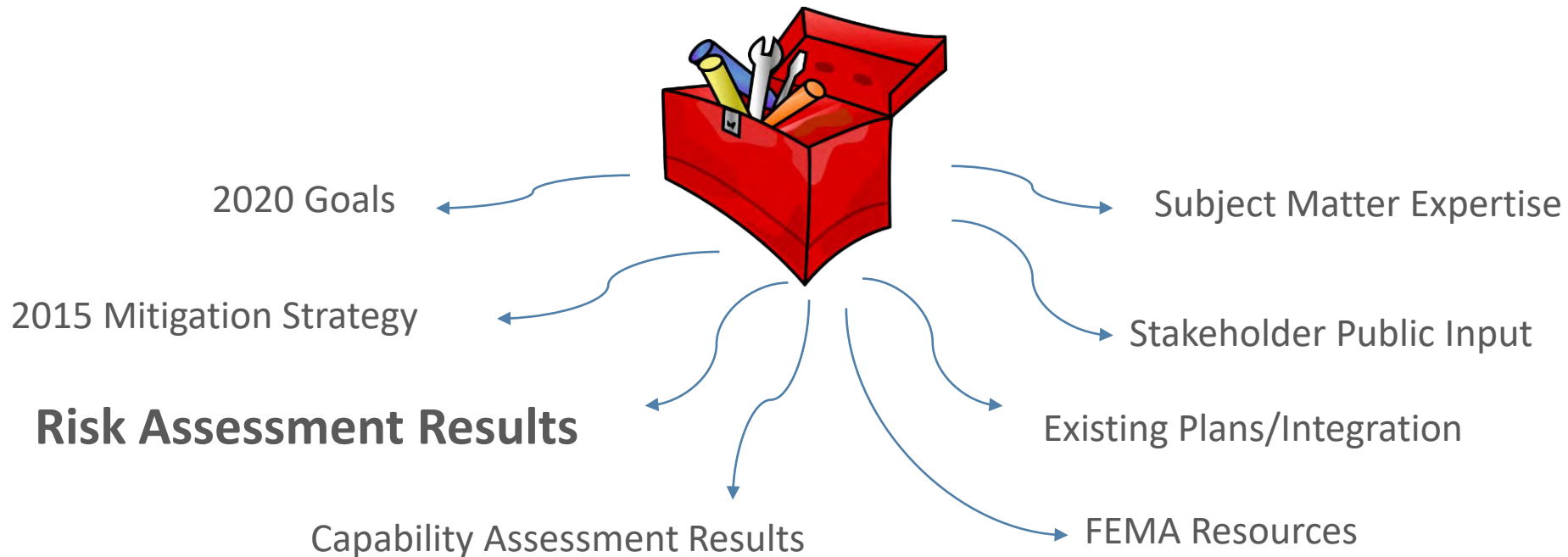
Hazard	2015	Municipality				If adjusting the ranking, please explain why.
		Draft 2020 Based on RA Results	Adaptive Capacity (Capabilities)	Municipal Hazard Ranking	Municipal Adaptive Capacity	
Disease Outbreak <i>(new)</i>	N/A	Medium	High			
Drought <i>(new)</i>	N/A	Medium	Medium			
Earthquake	Low	Low	Medium			
Extreme Temperature	Medium	Medium	Medium			
Flood	Medium	Low	Medium			
Harmful Algal Bloom <i>(new)</i>	N/A	Low	Low			
Severe Weather	High	High	Medium			
Severe Winter Weather	High	High	Medium			
Terrorism <i>(new)</i>	N/A	Medium	High			
Wildfire	High	Medium	Medium			

N/A = Not applicable; Disease Outbreak, Drought, Harmful Algal Bloom, and Terrorism are new hazards of concern and were not evaluated in the 2015 plan.
RA = Risk Assessment

The Plan's Direction

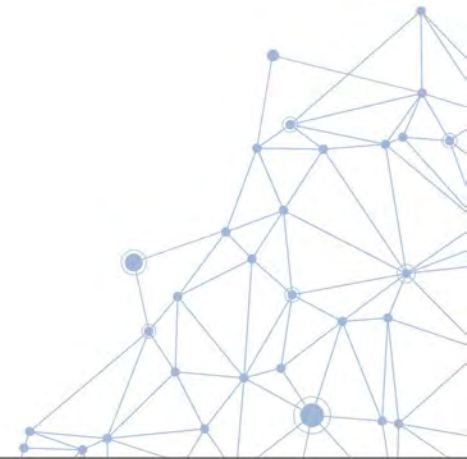
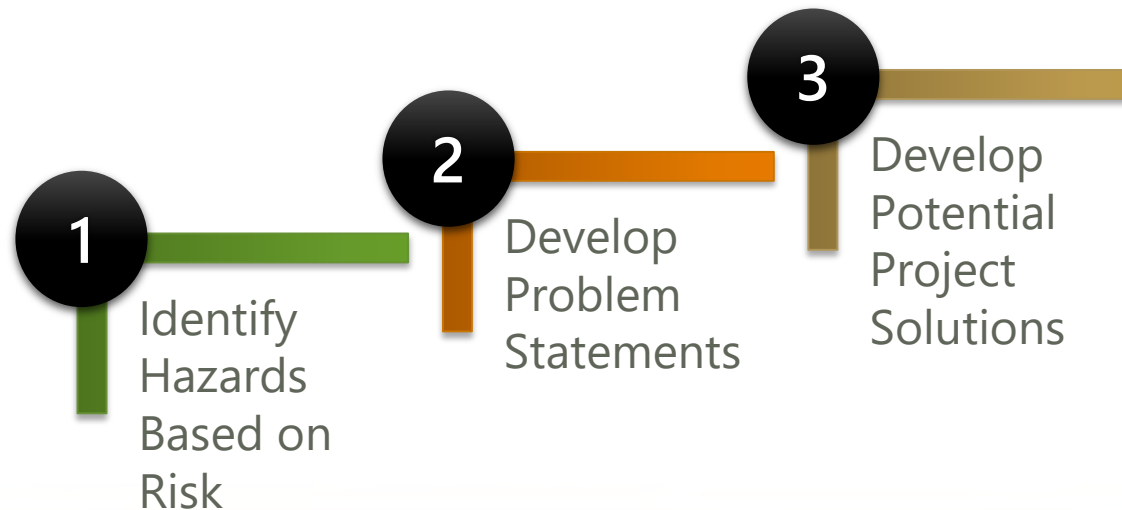


The Plan's Direction

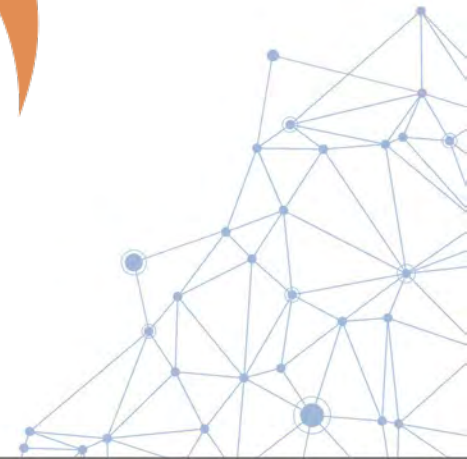


Next Step: Problem Statements

- One worksheet needs to be completed per mitigation action
- Focus on your problems
- Quality, not quantity
- Provide details to support the issues and to help define solutions
- We will provide this information to NYSDHSES to prepare for our next meeting on August 26th



Questions?



Putnam County Project Contact

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Tetra Tech Project Contacts

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Thank
You!



PUTNAM COUNTY HAZARD MITIGATION PLAN - 2020 UPDATE
Mitigation Strategy Workshop – Agenda
Conference Call
August 26, 2020, 11:00am – 12:00 noon



Welcome and Opening Remarks – *Putnam County Bureau of Emergency Services*

Project Status - *Tetra Tech*

Developing Mitigation Strategies - *NYS DHSES, FEMA*

Development of Actions and Action Worksheets using Problem Statement Worksheets - *Tetra Tech*

- **Review, Refine, Revise Problem Statements**
 - Review countywide problem statements
 - Identifying similar problems
- **Consider Options**
 - Identify similar solutions
- **Select Best Choice**
 - Highlight or write in your selected actions
- **Review any draft action worksheets from Tetra Tech and begin new action worksheets – complete as much as practical today**
- **Discuss opportunities for integrating mitigation into daily operations**

Next Steps - *Tetra Tech*

Tetra Tech contact information:

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Heather Apgar, CFM
(973) 630-8046 | heather.apgar@tetratech.com
Brian Kempf, AICP, CFM
(212) 615-3720 | brian.kempf@tetratech.com



Putnam County Hazard Mitigation Plan Update Minutes of Meeting



Purpose of Meeting: Mitigation Strategy Workshop
Location of Meeting: Remote Teams call with PowerPoint presentation and handouts distributed via OneDrive
Date/Time of Meeting: 8/26/20; 11:00 am – 12:00 pm

Attendees: <i>Bob Lipton-Deputy Commissioner, OEM</i> <i>Karen Kroboth – Town of Putnam Valley</i> <i>Laurie Bell -- Town of Southeast</i> <i>Michelle Chiudina, Domenic Consentino, Todd Atkinson – Village of Brewster</i> <i>Peter Deandreano; Rich Williams – Town of Patterson</i> <i>Richard Franzetti – Town of Carmel</i> <i>Mindy Jesek – Village of Nelsonville</i> <i>Shannon Clarke - NYDHSES</i> <i>Greg Wunner, Philipstown</i> <i>845 363 1564 (Unknown caller)</i> <i>Corrina Cavallo, Shannon Clarke – NY DHSES</i> <i>Maureen Fleming; Bill Walters – Town of Kent</i> <i>Cynthia Addonizio-Bianco, Tetra Tech (Tt)</i> <i>Heather Apgar, Tetra Tech (Tt)</i> <i>Brian Kempf, Tetra Tech (Tt)</i>
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Agenda Summary: Present mitigation strategy and provide assistance with developing mitigation projects

Item No.	Description	Action By:
1.	Introductions and Project Status <ul style="list-style-type: none"> • Tetra Tech noted a compressed time schedule and reviewed progress on municipal annexes • Draft to State in November; draft plan October 21 • Tetra Tech reviewed the Citizen Survey results received thus far- Extreme Temperature, Severe Storms, and Severe Winter Storms ranked as top hazards of concern. • Utility disruptions were a top concern. • Putnam County OEM noted that on 8/25 there were wires brought down in heavy winds, thousands without power 	Communities to distribute the citizen survey
2.	Developing Mitigation Strategies <ul style="list-style-type: none"> • Tetra Tech reviewed risk reduction strategies as included in the presentation (attached). Additional comments were provided by NYSDHSES • NYSDHSES reviewed grant opportunities and noted that a new grant window will be announced by NYDHSES in the next few weeks with a quick turnaround on letters of intent for eligible communities (those with an approved hazard mitigation plan). NYSDHSES stressed having detailed, thought out mitigation projects • Regarding mitigation project details, in addition to the mitigation project matrix, NYSDHSES requires at least two action worksheets for grant eligible projects. If a community has repetitive or severe repetitive loss 	Communities to review and complete worksheets Communities to consider Action Worksheets as pre-work for application development Communities to identify evacuation routes, shelters, temporary housing, and permanent housing locations



Putnam County Hazard Mitigation Plan Update Minutes of Meeting



	<p>properties, these must be addressed with an action worksheet. s</p> <ul style="list-style-type: none"> • Tetra Tech distributed brainstorming worksheets to kick-start the development of problem statements. In addition, they provided all communities with pre-populated Action Worksheets for some initial projects. 	
4.	<p>Development of Actions and Action Worksheets Using Problem Statement Worksheets. Tetra Tech reviewed the following guidelines for the content of Action Worksheets:</p> <ul style="list-style-type: none"> • Projects should have a strong connection to the risk assessment • Projects should be specific in time, place, and location • Projects should be diverse in nature • Communities have been provided a Mitigation Catalog • Action Worksheets to include consideration of priorities, integration with existing programs, timelines, benefits, and costs • Communities pursuing projects such as tree trimming are advised that debris clearing/trimming are in of themselves not mitigation projects—must be proactive 	<p style="text-align: center;">Communities are reminded to populate past event tables</p> <p style="text-align: center;">Provide two action worksheets for qualifying projects that can take place in five years</p> <p style="text-align: center;">Communities to enter all projects into Mitigation Action Table and develop Action Worksheets for at least two projects</p>
6.	<p>Next Steps</p>	<p style="text-align: center;">Tetra Tech twill reach out to municipalities to assist with completing Action Worksheets and Annexes</p>



Putnam Hazard Mitigation Plan Update 2020

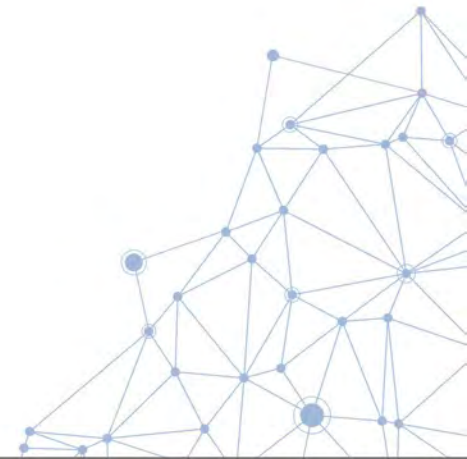
Planning Partnership Meeting – Mitigation Workshop Presentation

August 26, 2020



Agenda

1. Introductions
2. Project Status
3. Developing Mitigation Strategies – NYS DHSES, FEMA
4. Development of Actions and Action Worksheets using Problem Statement Worksheets
5. Review draft action worksheets and begin new action worksheets
6. Discuss opportunities for integrating mitigation into daily operations
7. Next Steps



Hazard Mitigation – What is it?

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).








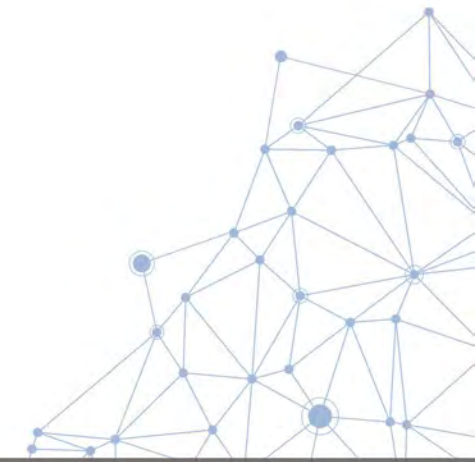


Why are we spending valuable time on this?

Mitigation Works!

- The nation saves \$6 for every \$1 spent through mitigation grants funded via select federal agencies (e.g. FEMA)

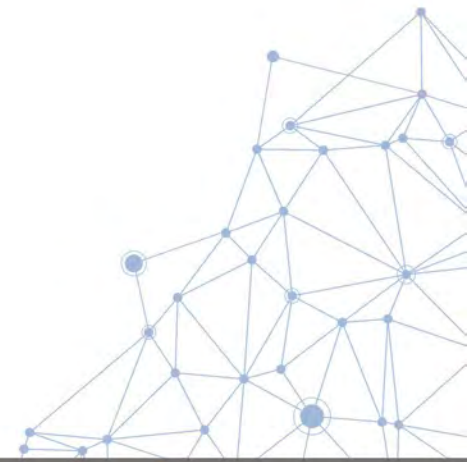
National Benefit-Cost Ratio (BCR) Per Peril <i>*BCR numbers in this study have been rounded</i>		Beyond Code Requirements	Federally Funded
Overall Hazard Benefit-Cost Ratio		\$4:1	\$6:1
 Riverine Flood		\$5:1	\$7:1
 Hurricane Surge		\$7:1	Too few grants
 Wind		\$5:1	\$5:1
 Earthquake		\$4:1	\$3:1
 Wildland-Urban Interface Fire		\$4:1	\$3:1





Our Schedule

Task	Date
Data Collection	Complete
Update Hazard Profiles	Complete
Risk Assessment	Complete
Risk Results Presentation	Complete
Mitigation Strategy Workshop	August 26, 2020 – TODAY!
Review Draft Plan	October 21, 2020
Submit to NYSDHSES	November 18, 2020
Submit to FEMA	TBD





Our Progress Update – Annex Progress

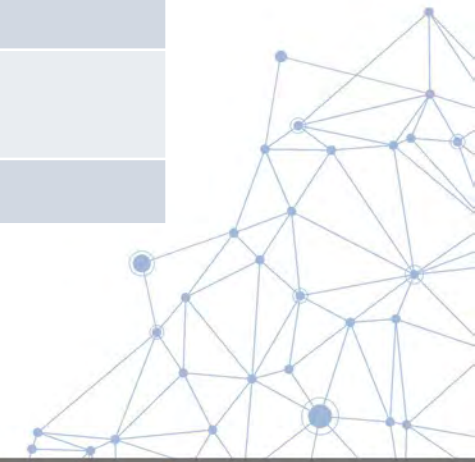
Municipality	LOIP Received	Status
Putnam County		Annex meeting held; follow-ups in progress
Brewster (V)	X	Annex approaching completion
Carmel (T)	X	Annex approaching completion
Cold Spring (V)		No response
Kent (T)	X	Annex meeting held; Tt following up
Nelsonville (V)		Annex approaching completion
Patterson (T)	X	Annex approaching completion
Philipstown (T)	X	Annex meeting held; Tt following up
Putnam Valley (T)	X	Annex approaching completion
Southeast (T)	X	Annex approaching completion





Progress Update - Data Needs

Municipality	Critical Facilities	Permit Data	Risk Ranking Worksheet	Mitigation Brainstorming
Brewster (V)	X			X
Carmel (T)	X		X	
Cold Spring (V)				
Kent (T)		X		
Nelsonville (V)	X			
Patterson (T)	X	X		
Philipstown (T)				
Putnam Valley (T)	X	X	X	
Southeast (T)	X	X	X	X





ACTION! Take and Distribute the Citizen Survey!

- Ready to go – here is the link – post on your municipal websites

<https://www.surveymonkey.com/r/PutnamHMP2020>

- Survey will close on 10/23/20
- Feedback on concerns and projects will be incorporated as applicable in your community annex
- HMP Website available here: <https://www.putnamcountynyhmp.com>

Putnam County Hazard Mitigation Plan Update

Home About What is Mitigation Meetings Calendar Explore the Plan
Additional Information

About the Project

Purpose

Putnam County's Bureau of Emergency Services is leading the update of the Putnam County Hazard Mitigation Plan (HMP) for the County and its jurisdictions. This plan is an opportunity to detail a variety of potential hazards that could affect some or all of our residents and will also allow the County and the participating jurisdictions to be eligible for future mitigation funding from the Federal Emergency Management Agency (FEMA). The goal of this plan is to identify projects that can reduce damages from future natural and non-natural hazards. The plan will include a risk assessment and a hazard mitigation strategy. The study will focus on existing buildings and potential future development, infrastructure, and critical facilities that might be impacted. Critical Facilities are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard. Critical facilities include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous material facilities.

Scope

During the planning process, the Planning Partnership will actively be involving private sector, non-profit, and other community partners in the planning process. The approach is consistent with the "Whole Community Approach," which seeks to involve the entire community in disaster and hazard planning.

Objectives

The objectives of the Putnam County HMP planning process are:

- Provide the public opportunities throughout the plan development and drafting process to provide input.
- Conduct a thorough risk assessment using the most recent disaster data and information.
- Formulate hazard mitigation goals, objectives, and actions as they relate to reducing loss of life and property from natural and human-caused hazards.
- Obtain state and federal approval of the HMP.

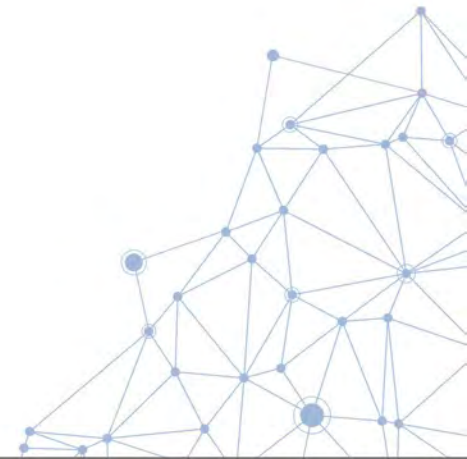
Citizen Survey (74 responses)

➤ Top hazards experienced in last 10 years

- Severe Storm 95%
- Severe Winter Storm 90%
- Extreme Temperature 46%
- Drought 34%

➤ Top Hazards of Concern (>50% very concerned or extremely concerned)

- Extreme Temperature
- Severe Storm (Nor'Easter)
- Severe Winter Storm (Ice Storms)



Citizen Survey (continued)

➤ Top projects to implement to reduce the damage due to natural hazards

- Work on improving the damage resistance of utilities (electricity, communications, water/wastewater facilities etc.) **86%**
- Retrofit infrastructure, such as elevating roadways and improving drainage systems **46%**
- Inform property owners of ways they can mitigate damage to their properties **39%**
- Improve access to information about hazard risks and high-hazard areas **39%**

➤ Additional types of projects to reduce damage and disruption in Putnam County

- Unhealthy tree mitigation, tree inspection and maintenance program
- Undergrounding utility wires
- Dredge the great swamp
- Stock utility poles, transformers etc.
- Develop town and County disaster plans
- Stormwater drainage systems
- Expand town sewer system to avoid well customer loss of sanitary system use due to power outages
- Generator incentive program



Stakeholder Outreach

➤ Stakeholder surveys to inform the mitigation strategy

- Business/Commerce,
- Utilities
- Health Care/Medical
- Academia
- Social Services
- Transportation/DPW
- Emergency Services

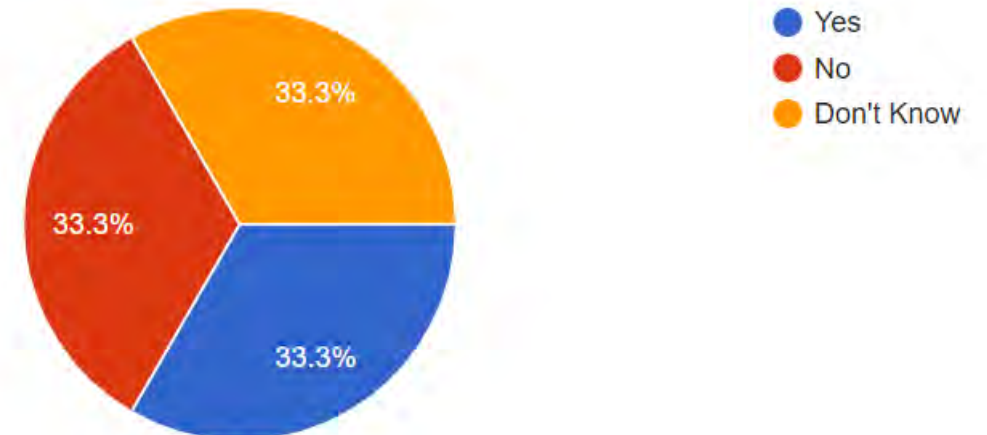
➤ 3 Responses as of 8/24/20

- Putnam Hospital
- Danbury Department of Health and Human Services
- American Red Cross

➤ Main Concerns

- Power supply
- Access to roads

Do you believe that local government understands, supports, and possesses adequate resources for hazard risk reduction efforts in the community?



Stakeholder Feedback

- Projects Identified
 - Cut the trees around the power lines servicing the hospital.
 - Increased community outreach and awareness.
 - Housing of the most vulnerable populations and better coordination between private and governmental agencies will be areas that must be improved.

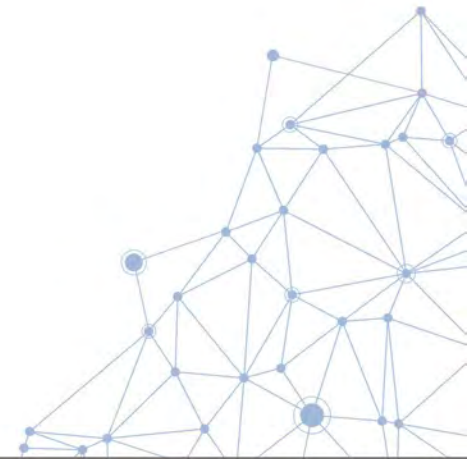


Mitigation Strategy



Hazards of Concern

- Drought 
- Earthquake 
- Extreme Temperature 
- Flood 
- Harmful Algal Bloom 
- Disease Outbreak 
- Severe Storm 
- Severe Winter Storm 
- Terrorism 
- Wildfire 



Risk Reduction

To Reduce Risk:

➤ *Manipulate the Hazard:*

- **Structural flood control**

➤ *Reduce/Eliminate Exposure:*

- **Property acquisition**

➤ *Reduce Vulnerability:*

- **Retrofit**

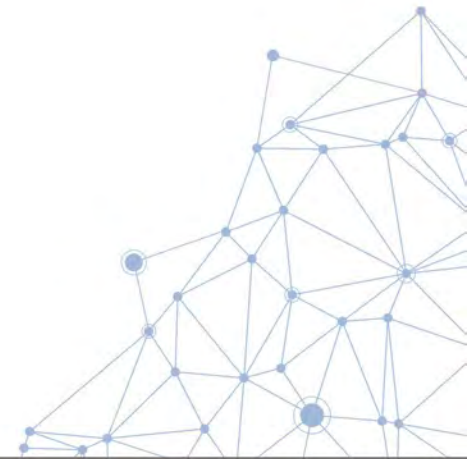
➤ *Increase Capability:*

- **\$, preparation, technical assistance, planning, enforcement**



NYS Requirements for Mitigation Strategy Update

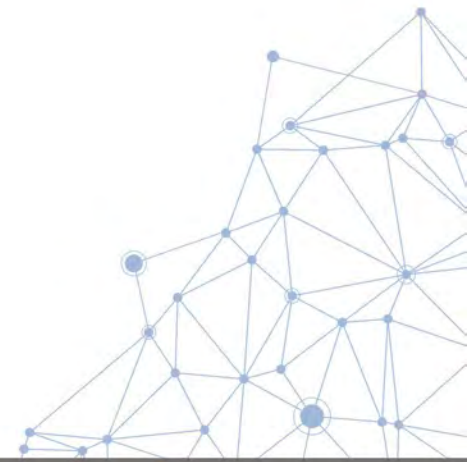
- **Need to develop at least 2 Action Worksheets**
- **Repetitive and Severe Repetitive Loss Properties - need an action with specific details (street or neighborhood names)**
- **Identify critical facilities, assess vulnerabilities and ensure protection to the 500-year flood event or worst-case scenario**
 - If already protected, we must note how
 - If not protected, a mitigation action must be developed
- **Plan for Climate Change and propose actions to address**





NYS Requirements for Mitigation Strategy Update

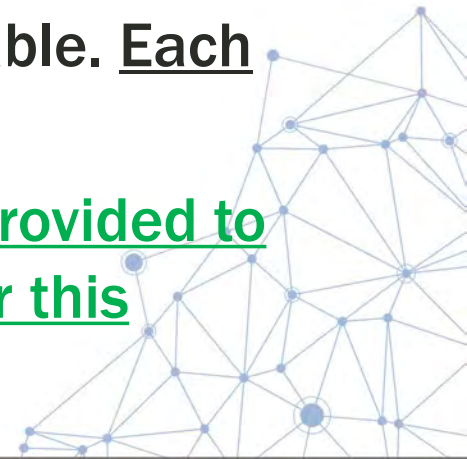
- MUST identify evacuation routes and shelters in the plan
 - Identify actions to make evacuation routes and shelters viable, if not already
- MUST identify temporary housing and permanent housing locations in the plan
 - Identify actions to develop these locations, even if outside of jurisdictional boundaries





NYS Requirements for Mitigation Strategy Update

- Proposed actions **MUST** have specific information identified including:
 - Project lead
 - Estimated cost
 - Timeline
 - Whether the action involves a critical facility
 - Etc.
- All of these required items are identified within the proposed action table. Each cell of the table MUST be filled out!
- Initial worksheets pre-populated with BRAINSTORMING ideas will be provided to each community to jump start the process and will be distributed after this meeting.



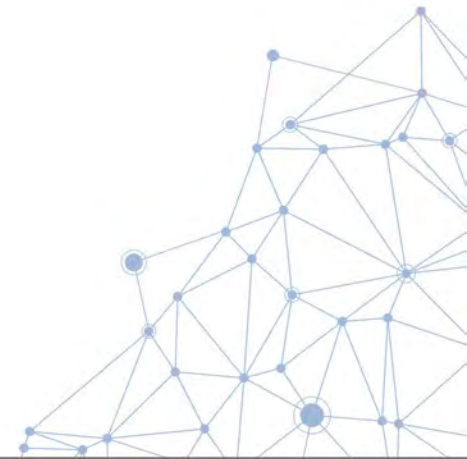
Connection to the Mitigation Strategy

- Need a clear connection between vulnerability and proposed mitigation actions.
- Capability assessment provides insight into challenges/opportunities for the mitigation strategy as well.
- Provides the factual basis for activities proposed in the mitigation strategy.

**Risk and
Capability
Assessments**



**Mitigation
Strategy**



Collaborative Solutions for Mitigation

➤ Distribution of Problems in the County

- Based on risk ranking, survey results, and local officials' input


County-Wide Project Distribution	
Type	No.
Critical facility outreach	41
Emergency generator-traffic lights	1
General outreach	1
Generators, utility hardening	1
HAB mitigation	4
RL mitigation	2
Tree maintenance, bury utilities	5
Stormwater flooding	4
Sheltering plan	4
RL mitigation	4
Generator and water pressure	1
Flood mitigation	1
Tree maintenance, bury utilities, public sewer	1
Grand Total	70

Projects by Municipality	No.
Brewster	5
Critical facility outreach	1
Emergency generator-traffic lights	1
General outreach	1
Tree maintenance, bury utilities	1
Stormwater flooding	1
Carmel	15
Critical facility outreach	11
HAB mitigation	1
RL mitigation	1
Tree maintenance, bury utilities	1
Stormwater flooding	1
Cold Spring	4
Critical facility outreach	3
RL mitigation	1
Kent	7
Critical facility outreach	2
Generators, utility hardening	1
Tree maintenance, bury utilities	1
Stormwater flooding	1
Sheltering plan	1
RL mitigation	1

Nelsonville	4
Critical facility outreach	3
Generator and water pressure	1
Patterson	14
Critical facility outreach	11
HAB mitigation	1
Tree maintenance, bury utilities	1
Sheltering plan	1
Philipstown	1
RL mitigation	1
Putnam Valley	7
Critical facility outreach	3
HAB mitigation	1
Tree maintenance, bury utilities	1
Sheltering plan	1
RL mitigation	1
Southeast	13
Critical facility outreach	7
HAB mitigation	1
Stormwater flooding	1
Sheltering plan	1
RL mitigation	1
Flood mitigation	1
Tree maintenance, bury utilities, public sewer	1



Tetra Tech has sent out the pre-populated Problem Statement Brainstorming Worksheets as a starting point

Mitigation Brainstorming 

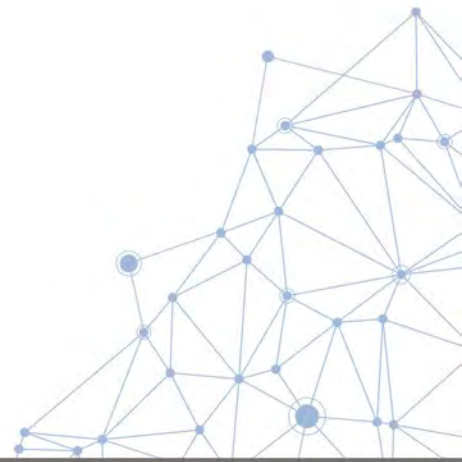
Name: _____ Jurisdiction: Brewster

How to describe the problem – provide a detailed description of the problem area, including its impacts to your jurisdiction, past damages, loss of service, etc. Be sure to include the street address of the property/project location (if applicable), adjacent streets, water bodies, and well-known structures. End the statement with a brief description of existing conditions (topography, terrain, hydrology) of the site.

How to describe the solution – provide a detailed description of the solution. Describe the physical area to be affected, both by direct work and the project’s effects; how the solution will address the problem; and proposed construction methods. Also include where you are in the development process (i.e. has a study already been completed, are there drawings of the project, etc.).

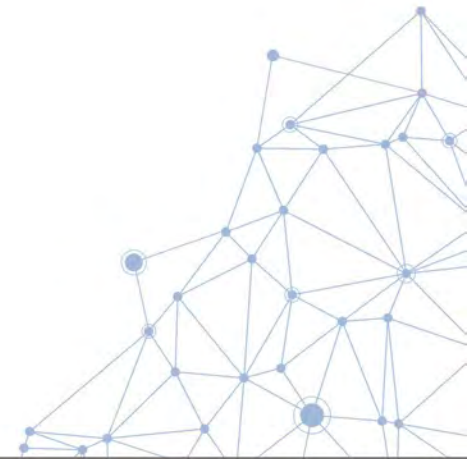
While solutions aren’t required for this process, having a general idea of what you would like to see accomplished would be beneficial. If you have any questions, please reach out to your Tetra Tech planner: *Brian Kempf* (brian.kempf@tetratech.com or 212-615-3720).

Hazard	Problem Areas/ Challenges/Questions/Ideas	Location	Lead Agency	Potential Solutions
All hazards	Residents receive hazard information through a diverse array of sources.			<i>Explore methods to communicate hazards and preparation information.</i>
All hazards	The Village has experienced utility failures owing to severe weather events. This has resulted in a loss of water and electric services.	Village-wide	NYSEG	<i>Explore feasibility of hardening or burying electric infrastructure. Create and implement a tree maintenance program, including a tree inventory to identify vulnerable trees and developing a schedule to trim or remove trees.</i>
All hazards	Visibility is reduced on local roadways during power outages resulting from severe storms, creating hazardous conditions.			<i>Install emergency lighting and backup power for street lights and traffic lights.</i>
Flood; Severe Storm	<i>The Village experiences drainage issues that can result in road flooding.</i>			<i>Identify and address drainage hotspots; re-examine stormwater regulations and determine if enhanced standards can address flooding.</i>
Flood	<i>Brewster Metro North Rail Facility is</i>			<i>Community to reach out to the facility owner to</i>



What are we focusing on for our mitigation strategy?

- Stronger connection between the risk assessment and mitigation strategy
- More specific actions
 - Specific projects, in specific locations, in a specific timeframe
- Diverse actions
 - Focus on highest ranked hazards but also look to address other hazards
 - Include a variety in the types of actions



FEMA Mitigation Action Types



Plans and regulations include government authorities, policies, or codes that encourage risk reduction, such as building codes and state planning regulations. This may also include planning studies.



Structure and infrastructure projects involve modifying existing structures and infrastructure or constructing new structures to reduce the impact of hazards.



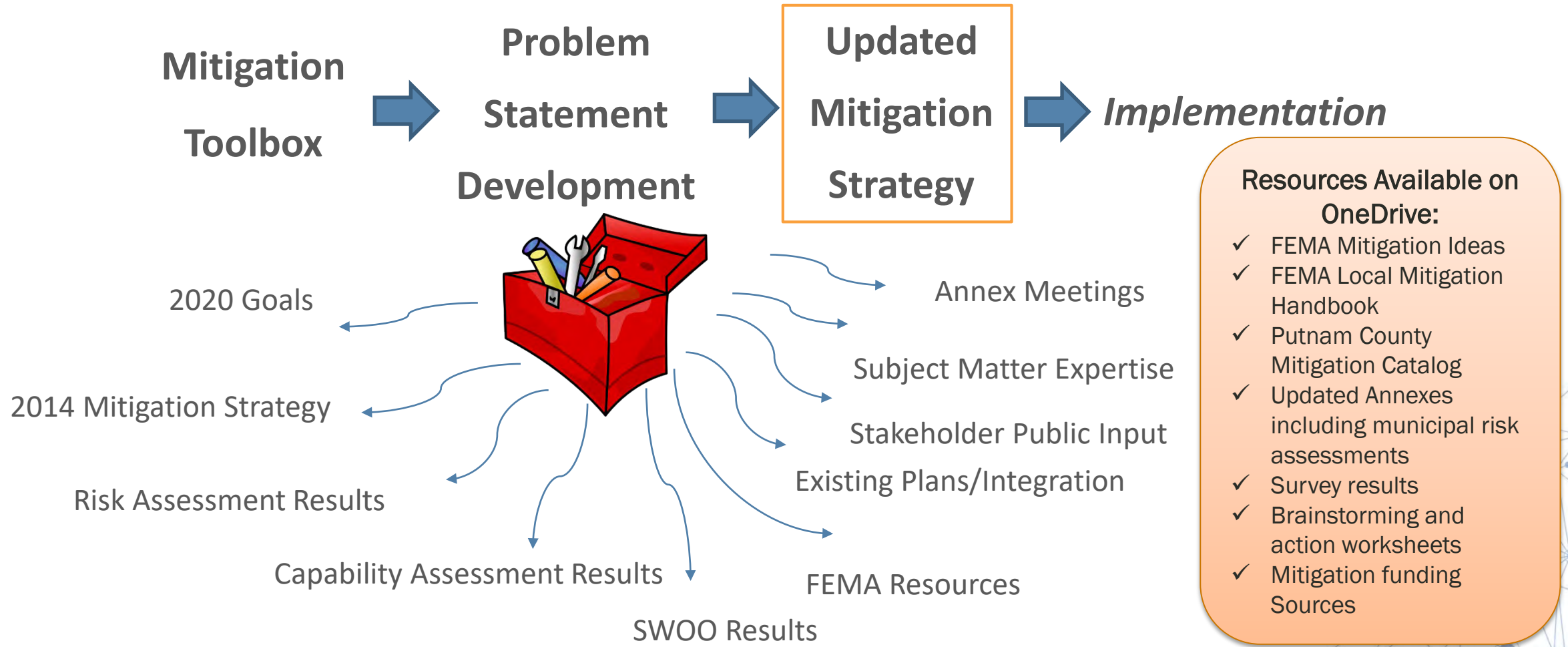
Natural systems protection projects minimize losses while also preserving or restoring the function of natural systems.



Education and awareness programs include long-term, sustained programs to inform and educate citizens and stakeholders about hazards and mitigation options. This category could also include training.

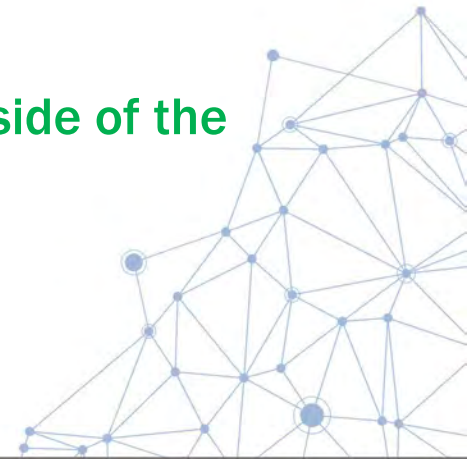


Please Refer to the Mitigation Toolbox on OneDrive to Aid in Developing your Mitigation Strategy!



Update the Mitigation Strategy

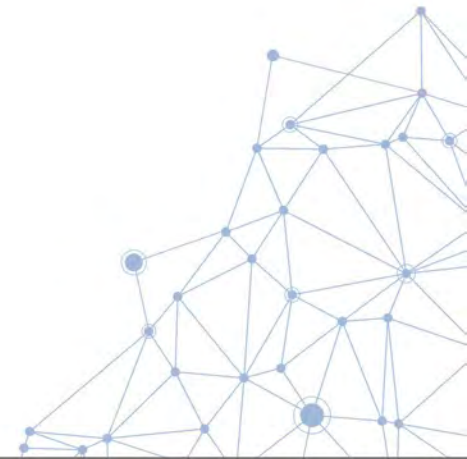
- Review our Goals and Objectives
- Start with Problems (many identified on your Problem Statement Brainstorming Worksheets)
 - Areas that have been impacted
 - Recurring issues
 - Critical/Lifeline facilities in the floodplain
 - RL/SRL properties need mitigating
 - Lack of identified locations for temporary housing and permanent housing (outside of the floodplain)





Update the Mitigation Strategy

- Identify New Mitigation Actions/Projects
- Modify 'Carry-Over' projects from the 2015 HMP
 - More specific or to address different aspect of original problem



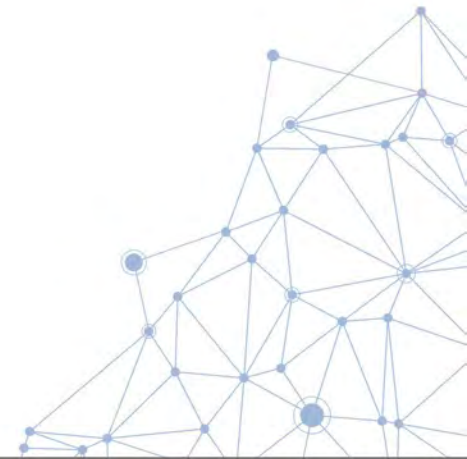
Making Previous Actions More Specific





Previous Problem and Action

- **Problem:** Critical facilities require backup power.
- **Solution:** Acquire backup power for critical facilities.



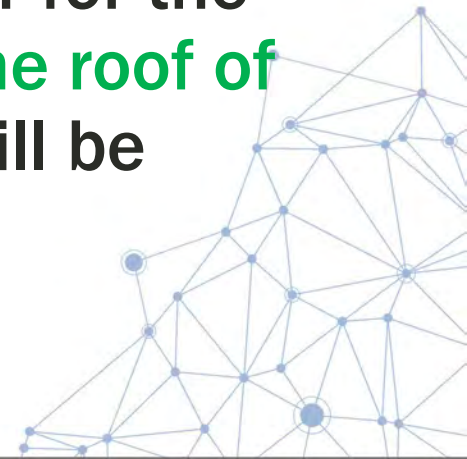
Improved Problem and Action

- **Problem:** Town Hall lacks a backup power source. The Town Hall houses the Emergency Operations Center and also can serve as a backup shelter. Lack of power results in a breakdown of continuity of operations and prevents the Town Hall from providing critical services during a hazard event.
- **Solution:** The Town Engineer will work with the Office of Emergency Management to research and purchase the appropriately sized backup generator for the Town Hall. The DPW will install the backup generator and necessary electrical components and will be responsible for testing and upkeep of the generator after installation.



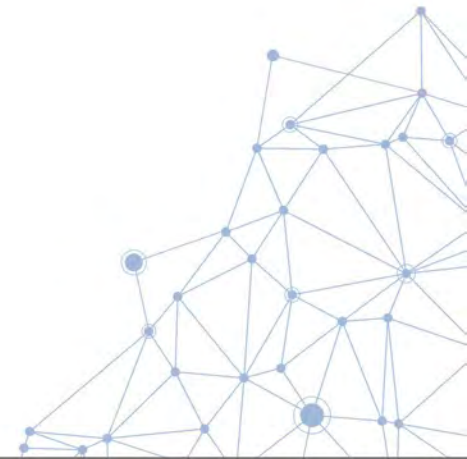
EVEN MORE Improved Problem and Action

- **Problem:** Town Hall lacks a backup power source. The Town Hall houses the Emergency Operations Center and also can serve as a backup shelter **for approximately 100 people**. Lack of power results in a breakdown of continuity of operations and prevents the Town Hall from providing critical services during a hazard event.
- **Solution:** The Town Engineer will work with the Office of Emergency Management to research and purchase **a 75 kW** generator for the Town Hall. The DPW will install the backup generator **on the roof of the Town Hall** and necessary electrical components and will be responsible for testing and upkeep of the generator after installation.



Previous Problem and Action

- **Problem:** Falling trees result in power outages.
- **Solution:** Complete tree trimming.



Improved Problem and Action

- **Problem:** High hazard trees pose a risk for falling on private property and utilities during storm events. The town does not have a program in place to monitor and inspect trees and identify ones that need to be trimmed or removed.
- **Solution:** The town will develop a vegetation management program. This program will include routine inspections of trees in the municipal rights-of-way, identify trees that are in need of trimming or removal, and conduct the trimming and removal. This will help reduce tree damage, road closures, and power outages during severe weather events. A majority of the tree work will be conducted by the Highway Department; however, outside contractors might be used if removal is beyond the Department's capability.



Proposed Action Table

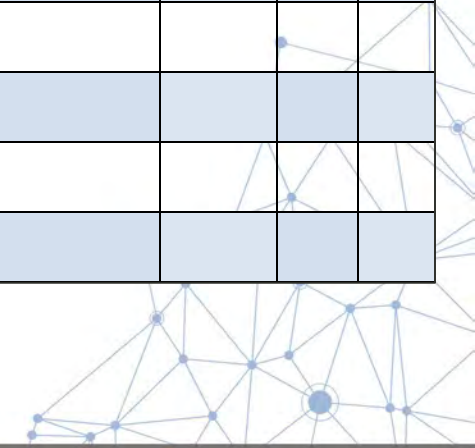




Mitigation Action Table

- Complete this table noting your proposed projects and related information.
- *At least 2 of these projects will be detailed on an Action Worksheet*

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				Problem:										
				Solution:										
				Problem:										
				Solution:										
				Problem:										
				Solution:										
				Problem:										
				Solution:										

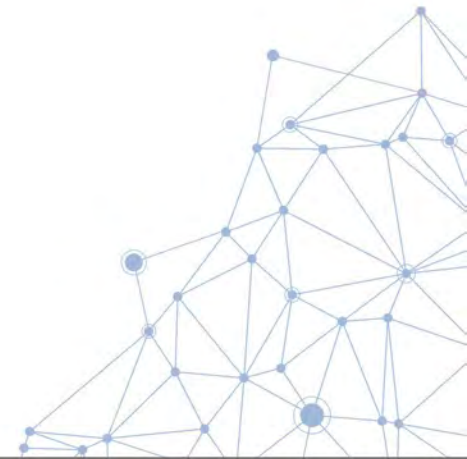


Action Worksheets



Action Worksheets

- Should also develop additional Action Worksheets for projects you plan to apply for FEMA funding support for within the next 5 years
- Not every action requires an Action Worksheet to be developed but the same sort of information about those actions are still needed in the Proposed Actions table of the annex
- Fill out the highlighted areas
- Areas not highlighted will be filled out by Tetra Tech staff
- **Develop at least 2 Action Worksheets for your municipality**



Action Worksheet

- Description of the Problem
 - What is the problem?
 - What is the risk?
 - Where is the problem occurring?
 - Who is the problem impacting?
 - Have there been past damages?
 - How frequently does the problem occur?

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
<small>(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)</small>			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet

- Description of the Solution
 - How do you propose to solve or mitigate the problem?
 - What are the design specifications?
 - Height and length of a floodwall
 - kW for backup generators
 - Number of structures to be bought out or elevated
 - Etc.
 - Who is responsible for what aspects of the project?

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:	←		
Is this project related to a Critical Facility?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
<small>(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)</small>			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet

- Level of Protection
 - What level event is the project being designed to protect to?
 - For flood protection: 100-year flood, 500-year flood
 - For stormwater improvements: 5 year, 10 year rain events
 - If not a specific level, include brief description of what protections are
 - For generators: Prevents power loss

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
<small>(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)</small>			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Action Worksheet

- Estimated cost
 - What will the project cost?
 - If project includes phases or components, what will each phase or component cost?
 - New generator: \$25K, elevation platform for generator: \$1K

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
<small>(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)</small>			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Action Worksheet

- Estimated Benefits
 - Provide a description of the estimated benefits, either quantitative and/or qualitative
 - Identify the benefits that implementation of this project will provide. If dollar amounts are known, include them. If dollar amounts are unknown or are unquantifiable, describe the losses that will be avoided.

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
<small>(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)</small>			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Action Worksheet

➤ Prioritization

- High, Medium, or Low
- Use the second page of Action Worksheet to evaluate each action and assist in the determination of priority (to be discussed shortly)

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
<small>(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)</small>			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Action Worksheet

- Responsible Organization
 - Identify the lead organization/department/individual for the project
 - Identify any supporting organizations/departments/individuals for the project.

Action Worksheet					
Project Name:					
Project Number:					
Risk / Vulnerability					
Hazard(s) of Concern:					
Description of the Problem:					
Action or Project Intended for Implementation					
Description of the Solution:					
Is this project related to a Critical Facility?		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
<small>(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)</small>					
Level of Protection:		Estimated Benefits (losses avoided):			
Useful Life:		Goals Met:			
Estimated Cost:		Mitigation Action Type:			
Plan for Implementation					
Prioritization:		Desired Timeframe for Implementation:			
Estimated Time Required for Project Implementation:		Potential Funding Sources:			
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:			
Three Alternatives Considered (including No Action)					
Alternatives:	Action	Estimated Cost	Evaluation		
	No Action	\$0	Current problem continues		
Progress Report (for plan maintenance)					
Date of Status Report:					
Report of Progress:					
Update Evaluation of the Problem and/or Solution:					

Action Worksheet

- Estimated Time Required for Project Implementation
- Provide the estimated time required to complete the project from start to finish.

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
<small>(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)</small>			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet

➤ Alternatives

- Three alternatives are needed for each action worksheet.
 - 1st alternative can be no action
 - 2nd and 3rd alternatives – include estimate cost and a description of the pros/cons of the alternatives

Action Worksheet			
Project Name:			
Project Number:			
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:			
Action or Project Intended for Implementation			
Description of the Solution:			
Is this project related to a Critical Facility?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Is the critical facility located in the 1% annual chance flood area?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
<small>(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)</small>			
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	
Estimated Cost:		Mitigation Action Type:	
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
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Responsible Organization:		Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Evaluation of Actions

- Consider the benefits and costs
- Consider the implementation timeline
- Consider the areas/problems of greatest need
- Consider the funding sources
- High/Medium/Low priority

1 = highlight effective or feasible

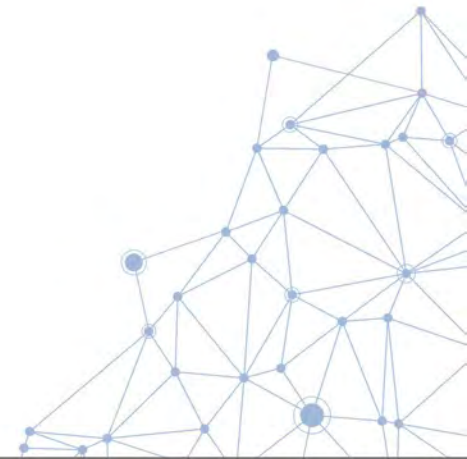
0 = neutral

-1 = ineffective or not feasible

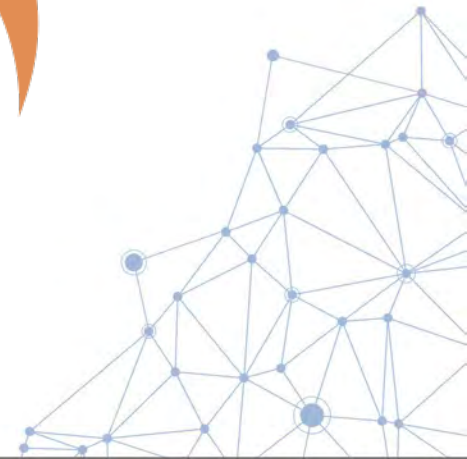
Evaluation and Prioritization		
Project Name:		
Project Number:		
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety		
Property Protection		
Cost-Effectiveness		
Technical		
Political		
Legal		
Fiscal		
Environmental		
Social		
Administrative		
Multi-Hazard		
Timeline		
Agency Champion		
Other Community Objectives		
Total		
Priority (High/Med/Low)		



The Plan's Direction



Questions?



Putnam County Project Contact

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845-808-4000 | Robert.Lipton@putnamcountyny.gov

Tetra Tech Project Contacts

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Heather Apgar, CFM
(973) 630-8046 | heather.apgar@tetrattech.com

Brian Kempf, AICP, CFM
(212) 615-3720 | brian.kempf@tetrattech.com



Thank
You!



Putnam Hazard Mitigation Plan Update 2021

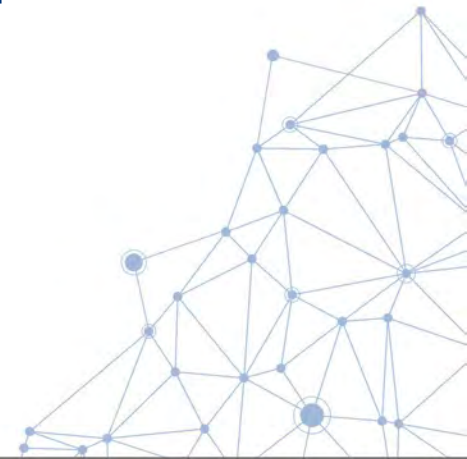
Steering Committee Meeting #4 – Draft Plan Presentation

October 21, 2020



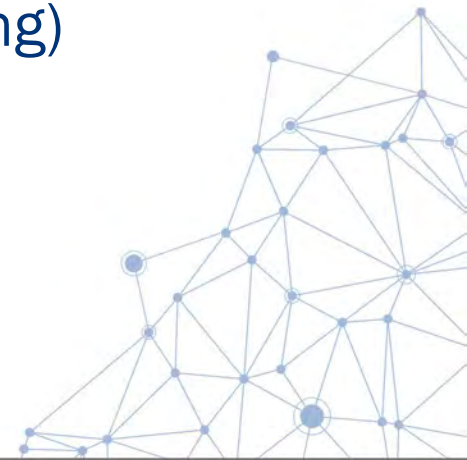
Agenda

- Welcome
- Draft Plan Review
 - What is new?
 - Section-by-section content overview
 - Information gaps to address and finalize the plan
 - Next Steps
- Questions



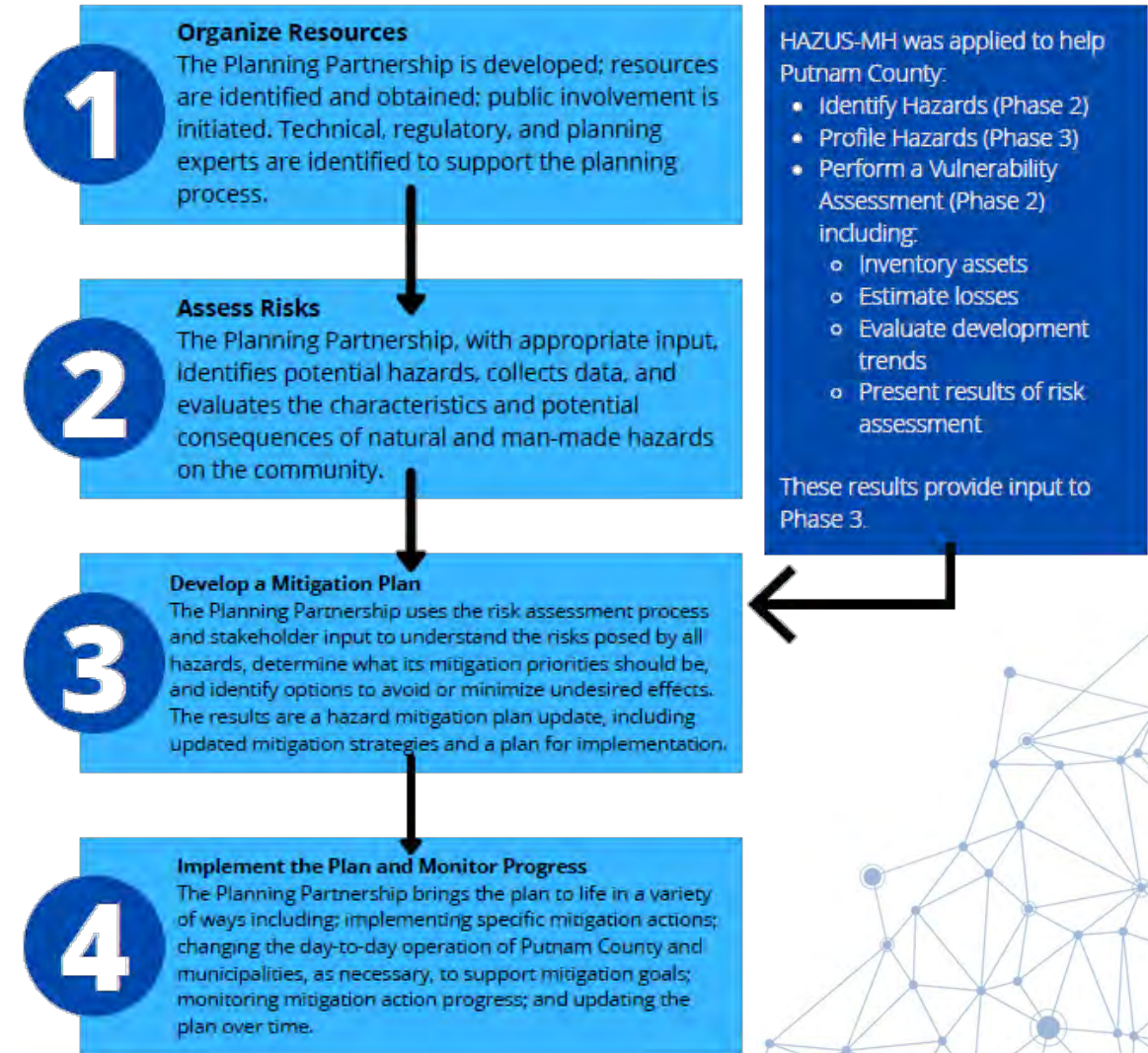
What's New in the 2021 Update?

- Updated critical facility inventory and identified which facilities are lifelines
- More concise hazard profiles, incorporating potential impacts of climate change on each hazard of concern
- Updated risk assessments to support policy and planning
- Plan development in accordance to FEMA (2013) and NYSDHSES (2017) guidance
 - Planning for displaced residents (short-term and long-term housing)
 - Evacuation routes
 - Shelter locations
 - Minimum of 2 mitigation action worksheets for each annex



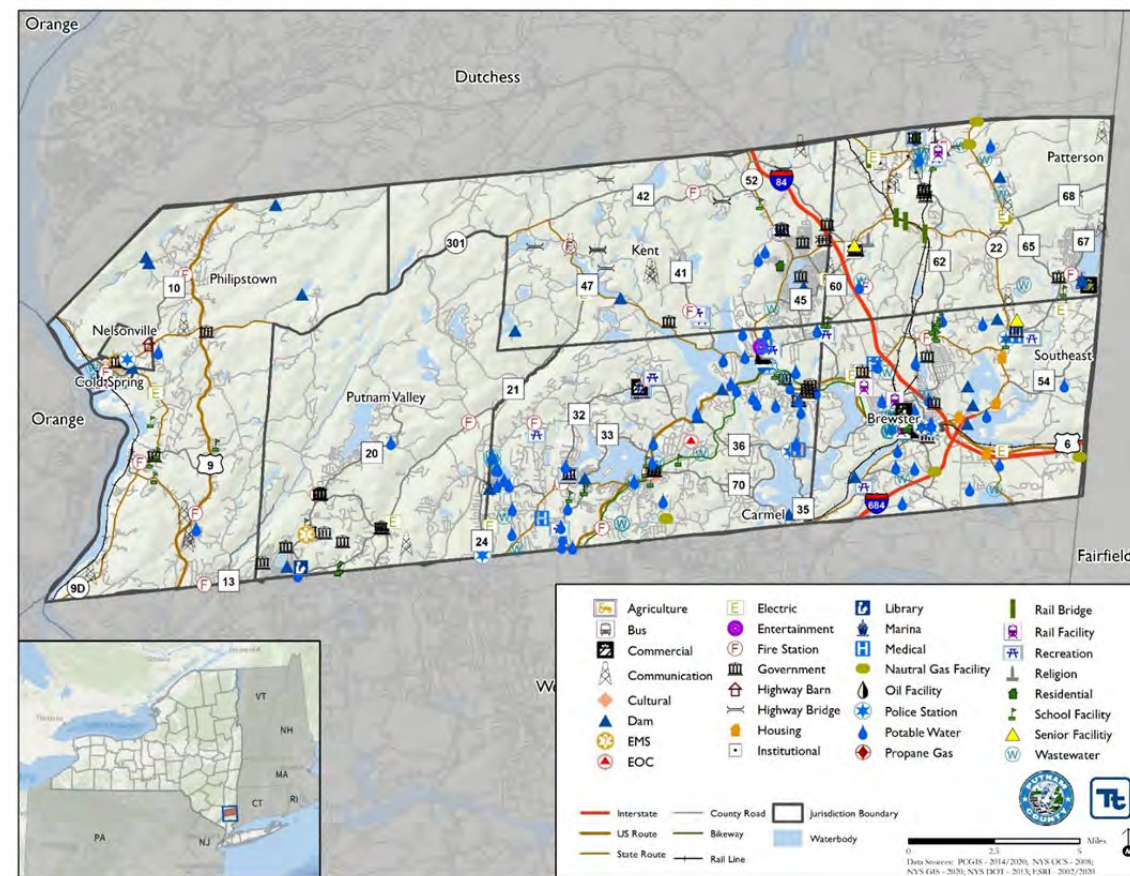
Draft Plan Review – What’s in each section?

- Section 1 – Introduction
 - Overview of mitigation planning
 - List of municipalities participating
 - Overview of plan
- Section 2 – Plan Adoption
 - Adoption plan
- Section 3 – Planning Process
 - Who participated – Steering Committee, Planning Partnership, and Stakeholders
 - Documentation of Activities
 - Ongoing process



Draft Plan Review – What’s in each section?

- Section 4 – County Profile
 - General overview – history, physical setting, etc.
 - Population and demographics
 - General building stock
 - Land use and population trends
 - Evacuation routes, sheltering, temporary housing, and long-term housing
 - Critical facilities



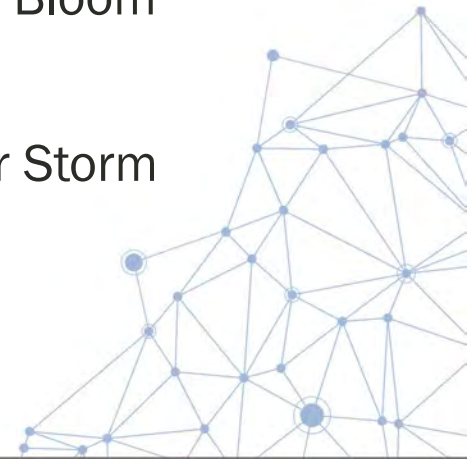
Draft Plan Review – What’s in each section?

Section 5 – Risk Assessment

- Section 5.1 – Methodology and Tools
- Section 5.2 – Identification of Hazards of Concern
- Section 5.3 – Hazard Ranking
- Section 5.4 – Hazard Profiles

Hazards of Concern:

-  Disease Outbreak
-  Drought
-  Earthquake
-  Extreme Temperature
-  Flood
-  Harmful Algal Bloom
-  Severe Storm
-  Severe Winter Storm
-  Terrorism
-  Wildfire





Draft Plan Review – What’s in each section?

- Section 6 – Mitigation Strategy
 - Past accomplishments
 - Goals and objectives
 - Capability assessment
 - Plans, programs, resources available
 - Administrative and technical capabilities
 - Fiscal capabilities
 - Mitigation strategy development and update
 - Action identification
 - Evaluation and prioritization
 - Benefit/cost review

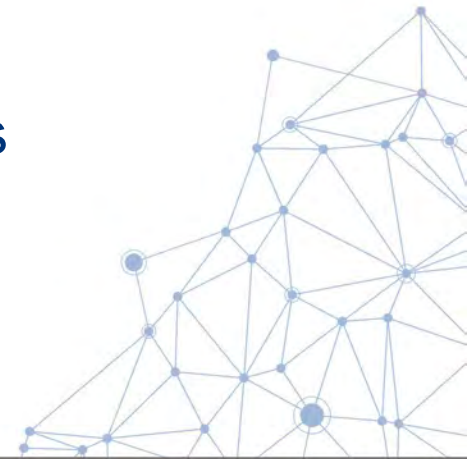
2021 HMP Goals

1. Identify and implement mitigation actions and initiatives that address life-safety issues.
2. Protect property, including public and private property, critical facilities and infrastructure.
3. Increase education and awareness, and promote relationships with stakeholders, citizens, elected officials, and property owners to develop opportunities for mitigation of natural hazards.
4. Encourage the development and implementation of long-term, cost-effective, and resilient mitigation projects to preserve or restore the functions of natural systems.
5. Enhance or develop programs to build regional, county and local mitigation and related emergency management capabilities.
6. Support comprehensive county and local mitigation through the integration of hazard mitigation planning into related county and local plans and programs.



Draft Plan Review – What's in each section?

- Section 7 – Plan Maintenance
 - HMP Coordinator
 - Ongoing Planning Committee
 - Monitoring
 - Continuous evaluation and progress reports
 - FEMA Worksheets and BAToolSM
 - Updating
 - Integration of hazard mitigation with existing and future programs
 - Continued public involvement



BAToolSM

- Online progress reporting for individual mitigation actions – pre-populated

Prev Action Next Action

* Action ID: TPO-1 Add New Action

Review of this Action has not started

> View Update History

Please review and update this action by following the steps below and updating any/all fields (as needed).

Step 1: Enter your name as the 'Reviewer' (then step 2 will be enabled for selection).

* Reviewer: Alison Miskiman

Step 2: Update the 'Action Status' field. Please continue to review and update all other fields, as needed.

* Action Status: -
No Progress
In Progress
Completed
Discontinued
Ongoing Capability

Previous Action Status:

Project/Action Status Comments:

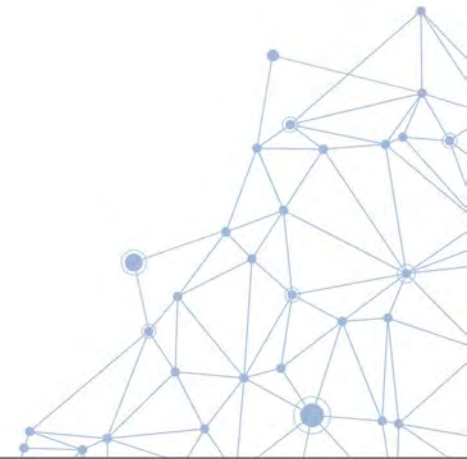
* Description of the Action: Chilton Memorial Hospital Nuclear Medicine Department: hazard identification marking.

Specific Problem Mitigated: All Hazards



Draft Plan Review – What’s in each section?

- Appendices
 - Appendix A – Resolution of Plan Adoption
 - Appendix B – Participation Matrix
 - Appendix C – Meeting Documentation
 - Appendix D – Public and Stakeholder Outreach
 - Appendix E – Supplementary Data
 - Appendix F – Critical Facilities
 - Appendix G – FEMA Plan Review Tools
 - Appendix H – Putnam County Mitigation Catalog
 - Appendix I – Linkage Procedures



Draft Plan Review – What’s in each section?

Volume II

- Section 8 – Planning Partnership
 - Participating jurisdictions
 - Introduce jurisdictional annexes
- Section 9 – Annexes
 - Point of Contact
 - Municipal Profile
 - Risk Assessment
 - NFIP
 - Critical Facilities
 - Capabilities
 - Status of Past Mitigation Actions
 - Current Mitigation Actions
 - Future Needs

9.3 Village of Brewster

This section presents the jurisdictional annex for the Village of Brewster. It includes resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance on what to do when a disaster occurs. Rather, this annex concentrates on actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. This annex includes a general overview of the municipality and who in the Village participated in the planning process; an assessment of the Village of Brewster's risk and vulnerability; the different capabilities utilized in the Village; and an action plan that will be implemented to achieve a more resilient community.

9.3.1 Hazard Mitigation Planning Team

The following individuals have been identified as the Village of Brewster's hazard mitigation plan primary and alternate points of contact.

Table 9.3-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Michelle Chiodini, Village Clerk & Treasurer 50 Main Street, Brewster, NY 845-279-2760 michiodini@brewstervillage-ny.gov	Dominic Consentino, DPW Supervisor 50 Main Street, Brewster, NY 845-279-2456 dcconsentino@brewstervillage-ny.gov
NEIP Floodplain Administrator	
Todd Atkinson, Village Engineer of J. Robert Foldvarti & Associates, LLC 31 Sodom Road, Brewster, NY 10509 845-262-1560 todd.atkinson@jrfa.com	

9.3.2 Municipal Profile

Include the history of the jurisdiction, location, major waterbodies, surrounding communities, etc. Include population stats.

The Village of Brewster, incorporated in 1894, physically lies within the Town of Southeast. Walter Brewster initially founded the Village in the 1840s. In 1848, Brewster and his brother James purchased a 134-acre farm that comprised much of what is now the Village of Brewster, motivated by the prospect of nearby mines, an abundant water supply, and the certainty that the Harlem Line Railroad had plans to pass through the already incorporated Town of Southeast. At the time the Brewster family purchased the farm, there were only a few houses and a Methodist Church already in the area. A one-room schoolhouse was built soon thereafter. In 1849, Walter Brewster himself laid out Main Street Brewster.

The railroad furthermore helped to foster two local industries, iron mining and dairy. Although neither industry remains in function today, at the height of its operation in 1879, the largest and most prosperous mine in Southeast, two miles north of the Village (Tilly Foster Mine). By the 1870s, the Village was a thriving community and by the later part of the 19th century, the Croton Reservoir System was constructed.

The governance structure of the Village board includes a mayor, deputy mayor, and three board members. The group convenes to vote and act on Village business.

The Village of Brewster is located on the eastern edge of Putnam County, just above Westchester County line and situated within a one-half square mile area. The Village is known as the "Hub of the Hudson Valley". It

Putnam County, New York Hazard Mitigation Plan
MONTH

9.3-1



Putnam County Annex

- The following are the mitigation actions (in draft) that will be included in the 2021 update:

Description of Problem and Solution

Problem: Highway facilities not on generators—(Patterson garage is on generator, not the other bldgs.) Donald B Smith campus- only emergency services are on generator, others are not. There are two mobile generators; during recent storm ended up requesting smaller generators for traffic lights. Supplied state-issued small KW generators to get generators up and running. Larger, whole bldg. generator. Needed 800 kw generator for hospital. Took generator to adult care center

- 1) Large fixed generators
- 2) Mobile generators

Solution: TBD

Problem: Gas stations need generators (2013 Halloween storm). County legislatures suggested getting emergency generators. Need incentive for generator.

Solution: TBD

Problem: Get a more comprehensive debris management plan. No one was pushing for State to clean up their mess. Don't want debris sitting here forever- can only use so much wood chips. Can't give away to private contractor without plan in place. In most recent storms- Centrally dispatched by County. Can be managed better. County is pushing , need make safe crew to check for energized. Work way out from substation restoring power. Just adding that things need to be centralized.

Solution: Seek and secure training resources for health and terrorism incidents and funding to fill permanent positions and build expertise.

Problem: The Department of Health lacks personnel capacity and suffers turnover and loss of institutional expertise due to grant-funded positions and attrition.

Solution: TBD



Putnam County Annex

- The following are the mitigation actions (in draft) that will be included in the 2021 update:

Description of Problem and Solution

Problem: Storage of materials (particularly temperature-sensitive supplies) is extremely limited.

Solution: Construct a climate-controlled stockpile building to store temperature-sensitive supplies such as vaccines and PPE.

Problem: Re-Establish Local Emergency Planning Committees (LEPCs) within the County, with an emphasis on stronger municipal level participation. The Jan. 2013 NYSDHSES “A Guidance Document for LEPCs” shall be used to support this effort. Further, the County will work with LEPCs to integrate the findings and recommendations of this HMP within the LEPC programs, and conversely to integrate the needs and interests of the LEPCs into annual HMP reviews and 5-year updates, as appropriate.

Solution: TBD

Problem: Enhance Putnam County Fire Training Center Emergency Preparedness Capabilities- construct new tower and repairs

Solution: TBD

Problem: Putnam County Animal Emergency Response Site

Solution: TBD



Putnam County Annex

- The following are the mitigation actions (in draft) that will be included in the 2021 update:

Description of Problem and Solution

Problem: Transportation Hardening and Evacuation upgrades- need to undertake improvements to bridge abutments, stormwater areas, and culverts.

Solution: TBD

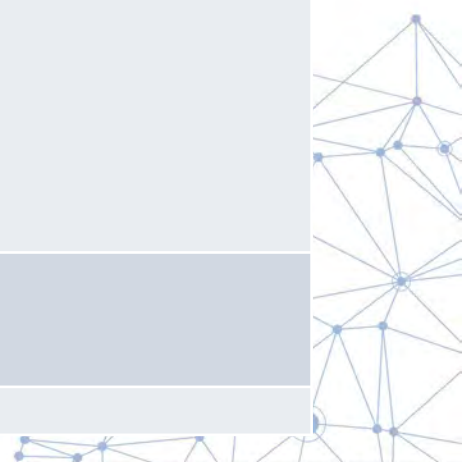
Problem: Facilitate Workshops and Seminars to build local capabilities in floodplain management and disaster recovery, anticipated to include based on municipal and county interest:

- NFIP Community Rating System (CRS)
- Benefit-Cost Analysis (BCA)
- Substantial Damage Estimating (SDE)
- NFIP Elevation Certificates (EC)
- Certified Floodplain Manager (CFM) Training and Certification

Solution: TBD

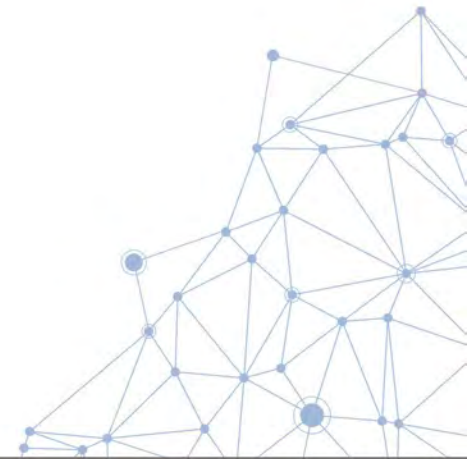
Problem: UST/AST Continuity of Service and Hardening

Solution: TBD

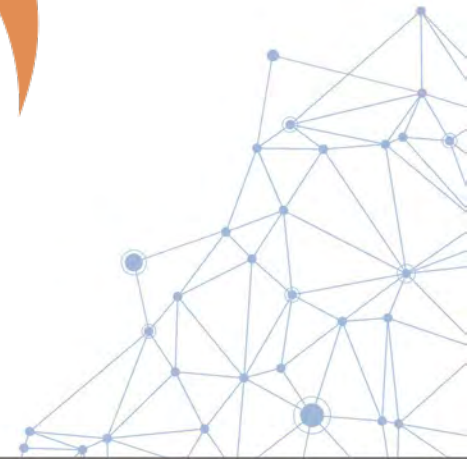


Next Steps

- Steering Committee Plan Review (now through 10/28)
- Update Plan based on Steering Committee Feedback
- Finalize Jurisdictional Annexes (Wednesday 10/28 deadline)
- Draft post for public review and comment (30 days)
- Submit to NYSDHSES and FEMA
 - Estimated 30 to 90-day review period
- BAToolSM webinar to review plan maintenance
- Adoption by County and each participating municipality
- Leverage your plan to create a culture of mitigation!



Questions?



Putnam County Project Contact

Robert Lipton, Deputy Commissioner
845-808-4000 | Robert.Lipton@putnamcountyny.gov

Tetra Tech Project Contacts

Cynthia Addonizio-Bianco, AICP, CFM
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Heather Apgar, CFM
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Thank
You!