GENESEE COUNTY HAZARD MITIGATION PLAN UPDATE
Mitigation Strategy Workshop – AGENDA
MEETING DATE/TIME: March 18, 2025 @ 6:00PM

In-Person Meeting
Genesee County Office of Emergency Management
7690 State St. Rd., Batavia, NY 14020

1. **Opening Remarks**
2. **Project Status**
    - Where we are in the process
    - Public outreach
3. **Identifying and Developing Mitigation Strategies**
4. **Review Previous Actions**
5. **Developing New Potential Actions**
6. **Next Steps**
    - Continue developing actions
    - Work with Tetra Tech staff to complete outstanding worksheets
7. **Questions**
8. **Workshop**

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Genesee County, NY – Hazard Mitigation Plan 2025 Update
Mitigation Strategy Workshop | Meeting Minutes

Purpose of Meeting:	Mitigation Strategy Workshop
Location of Meeting:	Genesee County Office of Emergency Management (7690 State St. Rd., Batavia, NY 14020)
Date of Meeting:	March 18, 2025 (6:00 pm – 8:00 pm)

Attendees:

- **Genesee County Emergency Management Services**
  - Tim Yaeger, Coordinator
  - Gary Patnode, Deputy Coordinator
  - Elizabeth Allen, Financial Management Assistant
- **Genesee County Planning Department**
  - Felipe Oltramari, Director
- **Batavia (T)**
  - Raymond Tourt, Highway Superintendent
- **Towanda Seneca Nation**
  - Christina Abrami, Office Administrator
- **NYS DHSES**
  - Kevin Clapp, HMP Supervisor
- **Tetra Tech**
  - Jessica Stokes, Project Manager
  - Emily Vassallo, Lead Planner

Agenda Summary: The purpose of the meeting was to describe the contains within the mitigation strategy, provide an opportunity for jurisdictions to review their previous mitigation actions, complete outstanding worksheets with assistance from Tetra Tech planners, discuss what makes a good mitigation action, review previous goals and objectives, and identify potential 2025 mitigation actions.

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

2	**Project Status**
	• Public Outreach Toolkit
	  ○ Social media templates and posts
	  ○ Press release templates
	  ○ Printable materials
	• Surveys
	  ○ Stakeholders – 0 responses
	  ○ Neighboring communities – 2 responses
	  ○ Public – 0 responses
	• HMP Website
		Planning Partnership
		• Post about the plan update and complete/send out surveys.
		
		Tetra Tech
		• Resend outreach materials to Planning Partnership.

3	**Identifying and Developing Mitigation Strategies**
	• The **Mitigation Strategy** is the County's roadmap to reduce the risk of hazards identified in the HMP. The strategy is based on hazard impacts, asset vulnerability, and the County's capabilities.
	• **Mitigation Actions** are specific activities, such as policies, projects, and studies, that stakeholders identify to reduce risk.
	  ○ Forward-looking and incorporate changing conditions for the life of the County's assets
	  ○ Consider changing demographics, development patterns, impacts of climate change.
	  ○ Examples of actions may include elevating electrical and HVAC equipment to reduce the likelihood of damage from floodwaters or planting trees to lower temperatures exacerbated by pavement.
	• What is a ***Mitigation Strategy***?
	  ○ A group of projects or actions to reduce the impacts of the hazards of concern on your community
	  ▪ Plans and Regulations
	  ▪ Structure and Infrastructure Studies and Projects
		-

	▪ Natural Systems Protection Studies and Projects ▪ Education and Awareness Programs • Terms to describe the *Mitigation Strategy include*: ○ **Mitigation Action Plan** or **Action Plan** ○ **Mitigation Projects** or **Initiatives** or **Actions** • Need a clear connection between vulnerabilities identified in the risk assessment and proposed mitigation actions. • The capability assessment can provide insight into challenges and opportunities for the mitigation strategy. • All actions proposed in the mitigation strategy must have a factual basis tied to hazards (*this shouldn't be a wish list*!)	
4	**Hazards of Concern** • Civil Unrest, Dam Failure, Drought, Earthquake, Epidemic, Extreme Temperature, Flood, Hazardous Materials, Severe Storm, Severe Winter Storm, Terrorism, Transportation Accidents, Utility Interruption, Wildfire	-
5	**Developing New Potential Actions** • Quality not quantity 1. Each action needs detailed information on the why, who, what, and when of the action. • 2019 projects 1. If a project is not finished and still a priority, include in 2025 HMP 2. Remove general projects or make more specific 3. Remove ongoing capabilities like maintenance or annual outreach • **Each hazard needs at least one mitigation action** • If your jurisdiction has Repetitive Loss Properties - an action is needed to mitigate the properties (elevation or acquisition) with specifics (street or neighborhood names, not specific addresses) • Four types of Mitigation Actions 1. Plans and regulations 2. Structure and Infrastructure 3. Natural systems protection 4. Education and awareness	-
6	**2025 HMP Suggested Goals and Objectives** 1. Reduce the likelihood and impacts of hazards on life, property, and the environment. ○ Objective 1.1: Develop and/or update local regulations based on current information and best practices. ○ Objective 1.2: Maintain natural systems to reduce the impacts of hazards. ○ *Objective 1.3: Strengthen understanding of, and adaptation to, a changing climate* ○ *Objective 1.4: Encourage the use of green and natural infrastructure* 2. Protect life, property, critical infrastructure, the environment, and the economy from the impacts of natural, technological, and human-caused disasters. ○ Objective 2.1: Acquire, retrofit, or relocate structures from flood-prone areas.	-

	○ Objective 2.2: Retrofit critical infrastructure to protect against hazard impacts. ○ Objective 2.3: Ensure that critical facilities can continue to function during and after hazard impacts. ○ Objective 2.4: Work with residents to maintain drainage ditches on private property. ○ Objective 2.5: Encourage residents and business owners to insure their property against hazard impacts, including through flood insurance through the National Flood Insurance Program (NFIP). 3. Educate the public, officials, and other stakeholders about the hazards they face and what can be done to mitigate hazard impacts. ○ Objective 3.1: Work with legislators to develop and enact legislation that reduces long-term vulnerability to hazards. ○ Objective 3.2: Increase public awareness of the hazards and risks faced by the County's residents and businesses, and what measures they can take to protect their property. ○ *Objective 3.3: Increase local government official awareness regarding funding opportunities for mitigation and participating/contributing to plan updates.* *4. Reduce the risk of natural hazards for socially vulnerable populations.* ○ *Objective 4.1: Identify and provide additional resources to vulnerable and marginalized populations that have reduced capacity to respond to hazards compared with the general population.* ○ *Objective 4.2: Encourage the establishment of policies to help ensure the prioritization and implementation of mitigation actions and/or projects designed to benefit socially vulnerable populations and underserved communities* **5.** *Address long-term vulnerabilities from hazardous dams.* ○ *Objective 5.1: Ensure dam infrastructure is maintained.* ○ *Objective 5.2: Support the identification of and access to funding for the repair or replacement of dams.* ○ *Objective 5.3: Ensure emergency action plans are developed and updated.* **Comments:** • Recommendation to update Goal 4 to include human-caused hazards.	
7	**Workshop** • Work on New Action Development Workshop to identify problem areas within your jurisdiction • Work with Tetra Tech Planner(s) to complete missing worksheets	-
8	**Next Steps** • Share information about the HMP Update via social media, community groups, and networks • Schedule meeting with Tetra Tech planner to complete annex • Complete and return the New Action Development worksheet within 2 weeks	-
9	**Questions/Discussion** • Add that new FEMA maps have come out since the Risk Assessment was performed.	-

	• There is HMGP funding available through DHSES. Grant applications are due at the end of April. More information for these opportunities can be found on the DHSES website (www.dhses.ny.gov/hazard-mitigation).	

Types of Mitigation Actions

A mitigation action is a specific action, project, activity, or process taken to reduce or eliminate long-term risk to people and property from hazards and their impacts. Implementing mitigation actions helps achieve the plan's mission and goals. The actions to reduce vulnerability to threats and hazards form the core of the plan and are a key outcome of the planning process.

The primary types of mitigation actions to reduce long-term vulnerability are:

- Local Plans and Regulations (LPR)
- Structure and Infrastructure Projects (SIP)
- Natural Systems Protection (NSP)
- Education and Awareness Programs (EAP)

Mitigation Type	Description	Examples
Local Plans and Regulations	These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.	▪ Comprehensive plans ▪ Land use ordinances ▪ Subdivision regulations ▪ Development review ▪ Building codes and enforcement ▪ NFIP Community Rating System ▪ Capital improvement programs ▪ Open space preservation ▪ Stormwater management regulations and master plans
Structure and Infrastructure Projects	These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards. Many of these types of actions are projects eligible for funding through the FEMA Hazard Mitigation Assistance program.	▪ Acquisitions and elevations of structures in flood prone areas ▪ Utility undergrounding ▪ Structural retrofits ▪ Floodwalls and retaining walls ▪ Detention and retention structures ▪ Culverts ▪ Safe rooms
Natural Systems Protection	These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.	▪ Sediment and erosion control ▪ Stream corridor restoration ▪ Forest management ▪ Conservation easements ▪ Wetland restoration and preservation
Education and Awareness Programs	These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady or Firewise Communities. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions.	▪ Radio or television spots ▪ Websites with maps and information ▪ Real estate disclosure ▪ Presentations to school groups or neighborhood organizations ▪ Mailings to residents in hazard-prone areas ▪ StormReady ▪ Firewise Communities


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Genesee County, NY Hazard Mitigation Plan – 2025 Update
Mitigation Strategy Workshop
March 18, 2025
While waiting for the meeting to start, please sign-in and grab your worksheets!
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Today's Agenda
1. Identifying and Developing Mitigation Strategies
2. Developing New Potential Actions
3. Workshop
o Review Previous Actions
o Identify New Actions
o Complete Municipal Annexes
4. Check in with Tetra Tech staff before leaving

2


Project Status

3

Planning Process

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Public Outreach Strategy

- Public Outreach Toolkit
  - Social media templates and posts
  - Press release templates
  - Printable materials
- Surveys
  - Stakeholders - 0
  - Neighboring communities - 2
  - Public - 0
- County HMP Website
  - https://www.geneseecountynyhmp.com/

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Identifying and Developing Mitigation Strategies

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Purpose of Mitigation Strategy

- The **Mitigation Strategy** is the County's roadmap to reduce the risk of hazards identified in the HMP. The strategy is based on hazard impacts, asset vulnerability, and the County's capabilities.
- **Mitigation Actions** are specific activities, such as policies, projects, and studies, that stakeholders identify to reduce risk.
  - Forward-looking and incorporate changing conditions for the life of the County's assets
  - Consider changing demographics, development patterns, impacts of climate change.
  - Examples of actions may include elevating electrical and HVAC equipment to reduce the likelihood of damage from floodwaters or planting trees to lower temperatures exacerbated by pavement.
  - ***Actions included in the plan are eligible for certain types of FEMA funding.***

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Using Your Mitigation Strategy to Reduce Risk

- What is a ***Mitigation Strategy***?
  - A group of projects or actions to reduce the impacts of the hazards of concern on your community
    - Plans and Regulations
    - Structure and Infrastructure Studies and Projects
    - Natural Systems Protection Studies and Projects
    - Education and Awareness Programs
- Terms to describe the *Mitigation Strategy* include:
  - **Mitigation Action Plan** or **Action Plan**
  - **Mitigation Projects** or **Initiatives** or **Actions**

Your Mitigation Strategy is included in your annex. Each action will be developed on individual Action Worksheets to include detailed information that can serve as starting points for grant applications and guide implementation

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Connecting to the Mitigation Strategy

- Need a clear connection between vulnerabilities identified in the risk assessment and proposed mitigation actions.
- The capability assessment can provide insight into challenges and opportunities for the mitigation strategy.
- All actions proposed in the mitigation strategy must have a factual basis tied to hazards (*this shouldn't be a wish list*!)

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Hazards of Concern

Civil Unrest	Dam Failure	Drought	Earthquake	Epidemic
Extreme Temperature	Flood	Hazardous Materials	Severe Storm	Severe Winter Storm
Terrorism	Transportation Accident	Utility Interruption	Wildfire	

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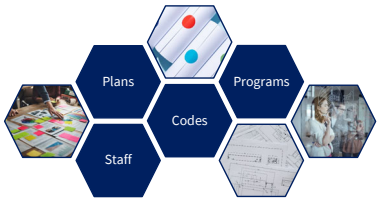
Capability Assessment

- Capabilities
  - What does your jurisdiction use to reduce risk to hazards?



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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?

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2025 HMP Goals and Objectives

Goal	
1	Reduce the likelihood and impacts of hazards on life, property, and the environment.
Objectives	
1.1	Develop and/or update local regulations based on current information and best practices.
1.2	Maintain natural systems to reduce the impacts of hazards.
1.3	*Strengthen understanding of, and adaptation to, a changing climate*
1.4	*Encourage the use of green and natural infrastructure*

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2025 HMP Goals and Objectives

Goal	
2	Protect life, property, critical infrastructure, the environment, and the economy from the impacts of natural, technological, and human-caused disasters
Objectives	
2.1	Acquire, retrofit, or relocate structures from flood-prone areas.
2.2	Retrofit critical infrastructure to protect against hazard impacts.
2.3	Ensure that critical facilities can continue to function during and after hazard impacts.
2.4	Work with residents to maintain drainage ditches on private property.
2.5	Encourage residents and business owners to insure their property against hazard impacts, including through flood insurance through the National Flood Insurance Program (NFIP).

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2025 HMP Goals and Objectives

Goal	
3	Educate the public, officials, and other stakeholders about the hazards they face and what can be done to mitigate hazard impacts.
Objectives	
3.1	Work with legislators to develop and enact legislation that reduces long-term vulnerability to hazards.
3.2	Increase public awareness of the hazards and risks faced by the County's residents and businesses, and what measures they can take to protect their property.
3.3	*Increase local government official awareness regarding funding opportunities for mitigation and participating/contributing to plan updates.*

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2025 HMP Goals and Objectives

Goal	
4	*Reduce the risk of natural hazards for socially vulnerable populations.*
Objectives	
4.1	*Identify and provide additional resources to vulnerable and marginalized populations that have reduced capacity to respond to hazards compared with the general population.*
4.2	*Encourage the establishment of policies to help ensure the prioritization and implementation of mitigation actions and/or projects designed to benefit socially vulnerable populations and underserved communities*

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2025 HMP Goals and Objectives

Goal	
5	*Address long-term vulnerabilities from hazardous dams.*
Objectives	
5.1	*Ensure dam infrastructure is maintained.*
5.2	*Support the identification of and access to funding for the repair or replacement of dams.*
5.3	*Ensure emergency action plans are developed and updated.*

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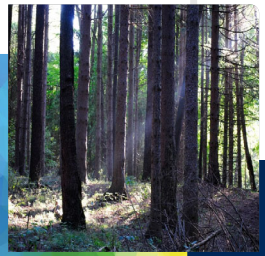

Developing New Potential Actions

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Requirements for the Mitigation Strategy Update

- Quality not quantity
  - Each action needs detailed information on the why, who, what, and when of the action.
- 2019 projects
  - If a project is not finished and still a priority, include in 2025 HMP
  - Remove general projects or make more specific
  - Remove ongoing capabilities like maintenance or annual outreach
- **Each hazard needs at least one mitigation action**
- If your jurisdiction has Repetitive Loss Properties - an action is needed to mitigate the properties (elevation or acquisition) with specifics (street or neighborhood names, not specific addresses)
- If your jurisdiction has a High Hazard Potential Dam, an action will be included to work with the dam owner to assess the integrity of the dam and ensure EAPs are up to date and shared.
- If your jurisdiction has Critical Facilities identified to be in the flood hazard area, an action will be included to notify the facility manager(s) of the risk and inform them of flood mitigation methods.

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Where do you need to focus?

- **Stronger connection** between the risk assessment and mitigation strategy
- **More specific, achievable actions**
  - Specific projects, in specific locations, in a specific timeframe
  - Focus on socially vulnerable populations and underserved communities
- **Diverse actions**
  - You need at least **one action per hazard of concern**. Think about actions that can cover multiple hazards.
  - Include a variety of action types (e.g., plans, floodproof critical facilities, outreach programs, etc.)

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Examples of Hazard Mitigation

✓

- Enlarging the size of a culvert to increase capacity
- Implementing zoning to restrict development in hazard prone areas
- Public awareness campaigns aimed at educating the public on risk

✗

- Conducting tabletop exercises and drills
- Stockpiling essential supplies and equipment
- Informing the public about emergency procedures

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Other Mitigation Actions to Consider

- Substantial Damage Management Plan
- Actions to address high-hazard or significant-hazard dams
- Generators at critical facilities and community lifelines
- Floodproofing critical facilities and community lifelines
- Addressing repetitive and severe repetitive loss properties

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Mitigation 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.

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Hazard Mitigation Planning

- Proactive process to assess risk and reduce vulnerabilities.
- Provides an overview of the impact hazards may have on the community.
- Serves as a roadmap to reducing the impact of these hazards.
- Assist with building relationships and partnerships in the community.
- FEMA requires a hazard mitigation plan for certain grant funding.

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Time to Workshop!

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Municipal Participation Status

- To date, we have not received all municipal worksheets. We can help you complete these!

Municipality	Worksheets
Town of Alabama	HE, CA, NFIP, PA, PER, HR
Town of Alexander	HR
Village of Alexander	HE, CA, NFIP, PA, PER, HR
Village of Attica	HE, CA, NFIP, PA, PER, HR
City of Batavia	PA, HR
Town of Batavia	HE, CA, NFIP, PA, PER
Town of Bergen	HR
Town of Bethany	HE, CA, NFIP, PA, PER, HR
Town of Byron	HE, CA, NFIP, PA, PER, HR

Municipality	Worksheets
Village of Corfu	HE, CA, NFIP, PA, PER, HR
Town of Darien	PA
Town of Elba	HE, CA, NFIP, PA, PER, HR
Town of Le Roy	PA, HR
Town of Oakfield	HE, CA, NFIP, PA, PER, HR
Village of Oakfield	HE, CA, NFIP, PA, PER, HR
Town of Pavilion	HE, CA, NFIP, PA, PER, HR
Town of Pembroke	HR
Town of Stafford	HE, CA, NFIP, PA, PER, HR

(HE) – Hazard Events; (CA) – Capability Assessment; (NFIP) – National Floodplain Insurance Program; (PA) – Previous Actions; (PER) – Permitting; (HR) – Hazard Ranking

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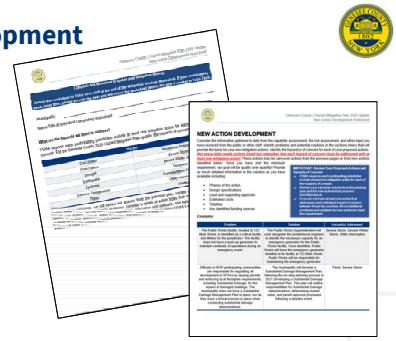
New Action Development

- Consider information gathered to date from the capability assessment, risk assessment, and other input received from the public or other staff.
- Identify problems and potential solutions in the sections below that will provide the basis for your new mitigation actions. Identify the hazard(s) of concern for each of your proposed actions.
- Not every table needs actions listed but remember that each hazard of concern must be addressed with at least one mitigation action!



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Next Steps

- NOW: Complete your worksheets, ask questions, and provide to Tetra Tech staff
- NOW: Provide update to Tetra Tech staff on any missing worksheets, when you will submit them, and how Tetra Tech can assist you
- AFTER WORKSHOP: Continue to share information about the HMP Update via social media, community groups, and networks. Let us know who you share information with!
- NEXT MONTH: Work with Tetra Tech planners to complete annexes and finalize actions.

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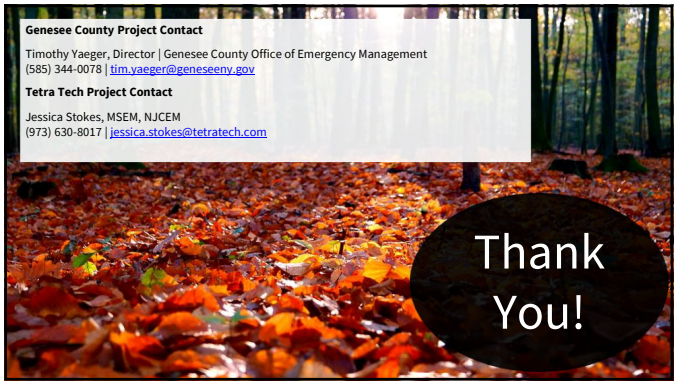

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DAM FAILURE		
Personal Scale	**Corporate Scale**	**Government Scale**

• ***Manipulate the hazard:***
  ○ None
• ***Reduce exposure to the hazard:***
  ○ Relocate out of dam failure inundation areas.
• ***Reduce vulnerability to the hazard:***
  ○ Elevate home to appropriate levels.
• ***Increase Capability:***
  ○ Learn about risk reduction for the dam failure hazard.
  ○ Learn the evacuation routes for a dam failure event.
  ○ Educate yourself on early warning systems and the dissemination of warnings.
	• ***Manipulate the hazard:***
	  ○ Remove dams.
	  ○ Harden dams.
	• ***Reduce exposure to the hazard:***
	  ○ Replace earthen dams with hardened structures.
	  ○ Relocate facilities out of dam failure inundation areas.
	• ***Reduce vulnerability to the hazard:***
	  ○ Floodproof facilities within dam failure inundation areas.
	• ***Increase Capability:***
	  ○ Educate employees on the probable impacts of a dam failure.
	  ○ Develop a continuity of operations plan.
		• ***Manipulate the hazard:***
		  ○ Remove dams.
		  ○ Harden dams.
		• ***Reduce exposure to the hazard:***
		  ○ Replace earthen dams with hardened structures.
		  ○ Relocate critical facilities out of dam failure inundation areas.
		  ○ Consider open space land use in designated dam failure inundations areas.
		• ***Reduce vulnerability to the hazard:***
		  ○ Adopt higher floodplain standards in mapped dam failure inundation areas.
		  ○ Retrofit critical facilities within dam failure inundation areas.
		• ***Increase Capability:***
		  ○ Map dam failure inundation areas.
		  ○ Enhance emergency operations plans to include a dam failure component.
		  ○ Institute monthly communications checks with dam operators.
		  ○ Inform the public on risk reduction techniques.
		  ○ Adopt real-estate disclosure requirements for the re-sale of property located within dam failure inundation areas.
		  ○ Consider the probable impacts of climate change in assessing the risk associated with the dam failure hazard.
		  ○ Establish early warning capability downstream of listed high-hazard dams.
		  ○ Consider the residual risk associated with protection provided by dams in future land use decisions.

DROUGHT		
Personal Scale	**Corporate Scale**	**Government Scale**

• ***Manipulate the Hazard:***
  ○ None
• ***Reduce exposure to the hazard:***
  ○ Consider stored water/captured water techniques during dry seasons.
  ○ Establishing an irrigation time/scheduling program or process so that all agricultural land gets the required amount of water. Through incremental timing, each area is irrigated at different times so that all water is not consumed at the same time. Spacing usage may also help with recharge of groundwater.
• ***Reduce vulnerability to the hazard:***
  ○ Drought resistant landscapes.
  ○ Reduce water system losses.
  ○ Regularly check for leaks to minimize water supply losses.
  ○ Install low-flow water saving showerheads and toilets.
  ○ Turn water flow off while brushing teeth or during other cleaning activities.
  ○ Adjust sprinklers to water the lawn and not the sidewalk or street.
  ○ Run the dishwasher and washing machine only when they are full.
  ○ Check for leaks in plumping or dripping faucets.
  ○ Install rain-capturing devices for irrigation.
  ○ Install graywater systems in homes to encourage water reuse.
  ○ Rotate crops by growing a series of different types of crops on the same fields every season to reduce soil erosion.
	• ***Manipulate the Hazard:***
	  ○ None
	• ***Reduce exposure to the hazard:***
	  ○ Consider stored water/captured water techniques during dry seasons.
	• ***Reduce vulnerability to the hazard:***
	  ○ Drought resistant landscapes.
	  ○ Reduce private water system losses.
	  ○ Identify alternate water supply sources.
	  ○ Install low-flow water saving showerheads and toilets.
	  ○ Adjust sprinklers to water the lawn and not the sidewalk or street.
	• ***Increase Capability:***
	  ○ Practice active water conservation.
	  ○ Develop a COOP.
	  ○ Create a water conservation plan.
		• ***Manipulate the Hazard:***
		  ○ Ground Water Recharge through stormwater management.
		  ○ Implement cloud seeding techniques during dry seasons.
		• ***Reduce exposure to the hazard:***
		  ○ Identify and create ground water back up sources.
		  ○ Create /identify new impounded water supply points.
		  ○ Developing new or upgrading existing water delivery systems to eliminate breaks and leaks.
		• ***Reduce vulnerability to the hazard:***
		  ○ Water use conflict regulations.
		  ○ Reduce water system losses.
		  ○ Distribute water saving kits.
		  ○ Identify sites ideally suited for ground water recharge.
		  ○ Implement stormwater retention in regions ideally suited for groundwater recharges.
		  ○ Utilize drought resistant landscapes on community owned facilities.
		  ○ Encourage citizens to take water-saving measures.
		• ***Increase Capability:***
		  ○ Public education on drought resistance.
		  ○ Identify alternative water supplies for time of drought. Mutual aid agreements with alternative suppliers.
		  ○ Develop a drought contingency plan.
		  ○ Develop criteria-"triggers" for drought related actions.
		  ○ Improve accuracy of water supply forecasts.

DROUGHT		
○ Planting “cover crops,” such as oats, wheat, and buckwheat, to prevent soil erosion. • ***Increase Capability:*** ○ Practice active water conservation techniques. ○ Seek ways to operate wells in such a way to enhance their functional longevity and supply capability.		○ Provide incentives to influence active water conservation techniques such as water user rate reductions. ○ Consider providing incentives to property owners that utilize drought resistant landscapes in the design of their homes. ○ Use of water buffalo tankers. ○ Promote well usage techniques that strive to enhance functional longevity and supply capability of private water supply wells. ○ Develop an ordinance to restrict the use of public water resources for non-essential usage, such as landscaping, washing cars, filling swimming pools, etc.

EARTHQUAKE		
Personal Scale	**Corporate Scale**	**Government Scale**

• ***Manipulate the Hazard***:
  ○ None
• ***Reduce exposure to the hazard***:
  ○ Locate outside of hazard area (off soft soils).
• ***Reduce vulnerability to the hazard:***
  ○ Retrofit structure (anchor house structure to foundation).
  ○ Secure household items that can cause injury or damage such as water heaters, bookcases, and other appliances.
  ○ Build to higher design standards.
• ***Increase Capability:***
  ○ Practice "drop, cover and hold"
  ○ Develop household mitigation plan, such as creating a retrofit savings account, communication capability with outside, 72 hr. self-sufficiency during an event.
  ○ Increase capability by having cash reserves for reconstruction.
  ○ Become informed on the hazard and risk reduction alternatives available.
  ○ Develop a post-disaster action plan for your household.
	• ***Manipulate the Hazard:***
	  ○ None
	• ***Reduce exposure to the hazard:***
	  ○ Locate/relocate mission critical functions outside hazard area where possible.
	• ***Reduce vulnerability to the hazard:***
	  ○ Build redundancy for critical functions/facilities.
	  ○ Retrofit critical buildings/areas housing mission critical functions.
	• ***Increase Capability:***
	  ○ Adopt higher standard for new construction -- Consider "performance-based design' when building new structures.
	  ○ Increase capability by having cash reserves for reconstruction.
	  ○ Inform your employees on the possible impacts of earthquake and how to deal with them at your work facility.
	  ○ Develop a Continuity of Operations Plan (COOP).
		• ***Manipulate the Hazard:***
		  ○ None
		• ***Reduce exposure to the hazard:***
		  ○ Locate critical facilities or functions outside of hazard area where possible.
		• ***Reduce vulnerability to the hazard:***
		  ○ Harden infrastructure.
		  ○ Provide redundancy for critical functions.
		  ○ Adopt higher regulatory standards for structures.
		  ○ Conduct "rapid screening" programs for critical facilities to identify facilities that may be particularly prone to EQ damage, then develop investigation/action plans to address such structures.
		• ***Increase Capability:***
		  ○ Provide better hazard maps.
		  ○ Provide technical information and guidance.
		  ○ Enact tools to help manage development in hazard areas: tax incentives, information.
		  ○ Include retrofitting/replacement of critical system elements in CIP.
		  ○ Develop strategy to take advantage of post disaster opportunities.
		  ○ Warehouse critical infrastructure components such as pipe, power line, and road repair material.
		  ○ Develop and adopt a Continuity of Operations / Continuity of Government Plan (COOP/COG).
		  ○ Initiate triggers guiding improvements such as: (< 50% substantial damage/improvements).
		  ○ Further enhance seismic risk assessment to target high hazard

EARTHQUAKE		
Personal Scale	**Corporate Scale**	**Government Scale**
		buildings for mitigation opportunities. ○ Develop a post disaster action plan that includes a grant funding and debris removal components. ○ Utilize warning systems. ○ Educate builders and developers on seismic construction standards.

EXTREME TEMPERATURE		
Personal Scale	**Corporate Scale**	**Government Scale**

• ***Manipulate the Hazard***:
  ○ Increase tree plantings
  ○ Installation of green roofs to provide shade and remove heat
  ○ Use cool roofing products that reflect sunlight and heat away from a building
• ***Reduce exposure to the hazard***:
  ○ None
• ***Reduce vulnerability to the hazard:***
  ○ Retrofit pipes including locating water pipes on the inside of building insulation or keeping them out of vulnerable spaces to extreme cold
• ***Increase Capability:***
  ○ None
	• ***Manipulate the Hazard:***
	  ○ Increase tree plantings
	  ○ Installation of green roofs to provide shade and remove heat
	  ○ Use cool roofing products that reflect sunlight and heat away from a building
	• ***Reduce exposure to the hazard:***
	  ○ None
	• ***Reduce vulnerability to the hazard:***
	  ○ Retrofit pipes including locating water pipes on the inside of building insulation or keeping them out of vulnerable spaces to extreme cold
	• ***Increase Capability:***
	  ○ Set rules restricting outdoor work during extreme temperature events
		• ***Manipulate the Hazard:***
		  ○ Increase tree plantings
		  ○ Encourage installation of green roofs to provide shade and remove heat
		  ○ Encourage the use of cool roofing products that reflect sunlight and heat away from a building
		• ***Reduce exposure to the hazard:***
		  ○ None
		• ***Reduce vulnerability to the hazard:***
		  ○ Require minimum temperatures in housing/landlord codes
		• ***Increase Capability:***
		  ○ Educate citizens regarding the dangers of extreme heat and cold and the steps they can take to protect themselves when extreme temperatures occur
		  ○ Establish warming and cooling centers
		  ○ Establish extreme temperature planning in emergency operation plans
		  ○ Create a database to track those individuals at high risk of death such as the elderly, homeless, etc.

FLOOD		
Personal Scale	**Corporate Scale**	**Government Scale**

• ***Manipulate the Hazard:***
  ○ Clear stormwater drains and culverts
• ***Reduce exposure to the hazard:***
  ○ Locate or re-locate outside of hazard area
  ○ Institute low impact development techniques on property
• ***Reduce vulnerability to the hazard:***
  ○ Retrofit existing structures and utilities above Base Flood Elevation (BFE)
  ○ Floodproof existing structures (wet- or dry floodproofing).
  ○ Store hazardous materials above BFE or outside of floodprone areas
• ***Increase Capability:***
  ○ Develop household mitigation plan, such as retrofit savings, communication capability with outside, 72-hr. self-sufficiency during and after an event
  ○ Buy flood insurance
	• ***Manipulate the Hazard:***
	  ○ Clear stormwater drains and culverts
	• ***Reduce exposure to the hazard:***
	  ○ Locate business critical facilities or functions outside hazard area
	  ○ Institute low impact development techniques on property
	• ***Reduce vulnerability to the hazard:***
	  ○ Build redundancy for critical functions/ retrofit critical buildings.
	  ○ Provide flood-proofing measures when new critical infrastructure must be located in floodplains.
	  ○ Harden structures and infrastructure (wet and dry-floodproofing)
	  ○ Store hazardous materials above BFE or outside of floodprone areas
	• ***Increase Capability***
	  ○ Increase capability by having cash reserves for reconstruction
	  ○ Develop and adopt a Continuity of Operations Plan (COOP)
	  ○ Solicit 'cost-sharing" through partnerships with private sector stakeholders on projects with multiple benefits.
	  ○ Dam owner/operators should continue to be aware of and understand dam inspection and reporting requirements.
	  ○ Ensure that all dam EAP's are kept in compliance with State Regulations.
		• ***Manipulate the Hazard:***
		  ○ Clear stormwater drains and culverts
		  ○ Dredging, levee construction, providing retention areas.
		  ○ Structural flood control: levee's, dams, channelization, revetments.
		  ○ Construct regional stormwater control facilities
		  ○ Lead and develop a county-wide stream clearing strategy including the development of thresholds for response/action.
		• ***Reduce exposure to the hazard:***
		  ○ Locate/re-locate critical facilities outside of hazard area
		  ○ Acquire or relocate identified repetitive loss properties.
		  ○ Promote open space uses in identified high hazard areas via techniques such as: PUD's, easements, setbacks, greenways, sensitive area tracks.
		  ○ Adopt land development criteria such as PUD's, Density transfers, clustering
		  ○ Institute low impact development techniques on property
		  ○ Acquire vacant land or promote open space uses in developing watersheds to control increases in runoff
		  ○ Pass an ordinance to incorporate additional zoning classifications into flood zones within each municipality.
		  ○ Increase floodplain standards within municipal ordinances and include provisions for enforcing best practice standards
		  ○ Consider increasing minimum freeboard beyond 1’ freeboard state requirement
		  ○ Continue development application reviews by County Planning Board to reduce risky development practices.
		• ***Reduce vulnerability to the hazard:***

FLOOD		
Personal Scale	**Corporate Scale**	**Government Scale**
		○ Harden structures and infrastructure (wet and dry-floodproofing) ○ Provide redundancy for critical functions and infrastructure ○ Adopt appropriate regulatory standards such as cumulative substantial improvement/damage, freeboard, lower substantial damage threshold, compensatory storage. ○ Stormwater management regulations and master planning. ○ Adopt "no-adverse impact" floodplain management policies that strive to not increase the flood risk on down-stream communities. ○ Participate in the Community Rating System (CRS) ○ Implement as-built regulatory requirements ○ Implement site review ordinances/requirements ○ Establish stream maintenance programs with stakeholders (e.g. Soil and Water Conservation District) - support county leads of such efforts ○ Incorporate retrofitting/replacement of critical facilities and infrastructure in Capital Improvement Plans (CIPs) ○ Promote the use of vegetation/plants as green erosion control measures to reduce localized flooding. ○ Work with environmental groups to address removal of debris, log jams, etc. in flood vulnerable stream sections • ***Increase Capability*** ○ Produce better hazard maps, and improve access to flood hazard mapping ○ Capture/survey "high-water" marks during flood events.

FLOOD		
Personal Scale	**Corporate Scale**	**Government Scale**
		○ Provide technical information and guidance on appropriate mitigation options available to businesses and homeowners ○ Enact tools to help manage development in hazard areas (stronger controls, tax incentives, information) ○ Establish an additional layer of zoning within flood hazard areas ○ Develop strategy to take advantage of post disaster opportunities ○ Improve compliance with and enforcement of the NFIP ○ Develop mitigation partnerships with regional stakeholders ○ Join Community Rating System (CRS) program, or improve level of participation in CRS ○ Develop and implement a public information strategy for flood hazard awareness, flood insurance (NFIP) and mitigation ○ Maintain existing data as well as gather new data needed to define risks and vulnerability. ○ Create a building and elevation inventory of structures in the floodplain ○ Identify flood prone areas that may be in need of new flood studies ○ Establish a program to identify and educate owners of flood-prone properties of potential mitigation options (e.g. elevations, relocations) ○ Charge a hazard mitigation fee on all new permits to create a hazard mitigation funding source for initiatives or grant cost share requirements. ○ Integrate floodplain management policies into other planning mechanisms within the planning area. ○ Establish a Stormwater Utility to deal with urban drainage/flooding issues

FLOOD		
Personal Scale	Corporate Scale	Government Scale
		○ Establish incentives to promote flood hazard mitigation of private property (e.g. permit fee waivers). ○ Adopt ordinances/standards for cumulative damages and/or improvements ○ Upgrade NFIP Floodplain ordinance, as well as other ordinances to current or above current state and federal standards. ○ Develop and adopt a COOP ○ Join "Storm Ready" Program ○ Participate in county and regional training programs ○ Provide additional training/certification to NFIP floodplain administrators and code officials. ○ Implement annual training to account for turnover of municipal officials. ○ Maintain and enhance flood forecasting ability, including the establishment and maintenance of critical stream gages ○ Explore grant funding opportunities and potential partnerships to help maintain existing gages and install additional gages to improve forecasting and flood warning ability. ○ Promote awareness and participation in alert systems ○ Support and participate in regional flood management efforts ○ Support and implement hazard disclosure for the sale/re-sale of property in identified risk zones. ○ Provide continued and enhanced training for emergency responders ○ Establish a revolving "bank" or budget line item to fund grant application support ○ Continue to review updated Flood Insurance Rate Maps to ensure accuracy as well as maintaining lines of communication with homeowners to make them aware of

FLOOD		
Personal Scale	Corporate Scale	Government Scale
		potential changes related to their property status. ○ Provide trainings for FPA's on the NFIP/Floodplain Best Practices and also pursue CFM accreditation for municipal FPA's. ○ Build and maintain relationships to develop regional watershed/floodplain mitigation solutions. ○ Pursue grant funding opportunities to fund repairs of catchments and infrastructure on a proactive basis. ○ Explore grant funding opportunities related to climate change to fund mitigation projects.

SEVERE STORM		
Personal Scale	**Corporate Scale**	**Government Scale**

• ***Manipulate the Hazard:***
  ○ None
• ***Reduce exposure to the hazard:***
  ○ None
• ***Reduce vulnerability to the hazard:***
  ○ Retrofit structures (improved roofing, glazing, insulation, etc.)
  ○ Provide for redundant heat and power
  ○ Contact municipality or utilities to trim or remove trees that could affect power lines
  ○ Plant appropriate trees near home and power lines ("Right tree, right place" National Arbor Day Foundation Program.
• ***Increase Capability:***
  ○ Improve awareness of impending severe weather (e.g. obtain a NOAA weather radio)
  ○ Promote 72-hour self-sufficiency
  ○ Provide for redundant heat and power
	• ***Manipulate the Hazard:***
	  ○ None
	• ***Reduce exposure to the hazard:***
	  ○ None
	• ***Reduce vulnerability to the hazard:***
	  ○ Relocate critical infrastructure, such as power lines, underground
	  ○ Reinforce or relocate critical infrastructure such as powerlines so that it meets performance expectations.
	• ***Increase Capability:***
	  ○ Contact municipality or utilities to trim or remove trees that could affect power lines
	  ○ Create redundancy (e.g. backup generators)
	  ○ Improve awareness of impending severe weather (e.g. obtain a NOAA weather radio)
	  ○ Develop a Continuity of Operations Plan (COOP)
	  ○ Monitor impending storm events so that you can release employees in such a manner as to not negatively impact emergency response personnel/services.
		• ***Manipulate the Hazard:***
		  ○ None
		• ***Reduce exposure to the hazard:***
		  ○ None
		• ***Reduce vulnerability to the hazard:***
		  ○ Harden infrastructure such as locating utilities underground.
		  ○ Trimming trees back from power lines
		  ○ Designate and strengthen critical road sections and bridges.
		  ○ Adopt ordinances that regulate the type and quantity of trees planted near utility lines
		  ○ Relocate critical infrastructure, such as power lines, underground
		• ***Increase Capability:***
		  ○ Support programs such as "Tree Watch" that proactively manage problem areas by use of selective removal of hazardous trees, tree replacement, etc.
		  ○ Enforce building codes
		  ○ Increase communication alternatives
		  ○ Modify land use and environmental regulations to support vegetation management activities that improve reliability in utility corridors.
		  ○ Modify landscape and other ordinances to encourage appropriate planting near overhead power, cable, and phone lines
		  ○ Promote awareness and participation in alert systems
		  ○ Provide NOAA weather radios to the public
		  ○ Create/Enhance "mutual aid" agreements for response to all emergencies

SEVERE STORM		
Personal Scale	**Corporate Scale**	**Government Scale**
		○ Create/identify evacuation routes to be utilized during severe storm events. ○ Develop debris management plans. ○ Join "Storm-Ready" program ○ Provide early warning of impending severe storm events to identified critical or essential facilities. This would include facilities such as large employments centers, schools, hospitals ○ Promote emergency power supplies to private property. ○ Improve, expand or harden communications facilities and services ○ Recruit additional emergency personnel or use mutual aid agreements ○ Increase sheltering capabilities ○ Increase capability to respond to power outages and downed power lines. Establish partnerships with utility providers through pro-active planning.

SEVERE WINTER STORM		
Personal Scale	**Corporate Scale**	**Government Scale**

• ***Manipulate the Hazard***:
  ○ None
• ***Reduce exposure to the hazard***:
  ○ Plant appropriate trees near home and power lines ("Right tree, right place" National Arbor Day Foundation)
• ***Reduce vulnerability to the hazard:***
  ○ Insulate House to provide greater thermal efficiency and reduce heat loss.
  ○ Provide redundant heat and power
  ○ Insulate Structure
  ○ Ensure natural gas input/release valves do not get covered in snow
• ***Increase Capability:***
  ○ Trim or remove trees that could affect power lines
  ○ Prepare emergency food and supplies to be self-sufficient for at least 72 hours in the event of a severe winter storm.
  ○ Be aware of inclement weather conditions and move your vehicles off of the street as severe weather systems approach.
  ○ Retrofit structures
	• ***Manipulate the Hazard:***
	  ○ None
	• ***Reduce exposure to the hazard:***
	  ○ None
	• ***Reduce vulnerability to the hazard:***
	  ○ Relocate critical infrastructure, such as power lines, underground
	  ○ Reinforce or relocate critical infrastructure such as powerlines so that it meets performance expectations.
	  ○ Install tree wire
	• ***Increase Capability:***
	  ○ Trim or remove trees that could affect power lines
	  ○ Create redundancy in utilities and communications
	  ○ Develop a Continuity of Operations Plan (COOP) to address operations before, during and after coastal storm events.
	  ○ Utilize weather radios at the work place to keep your employees aware of severe weather conditions.
		• ***Manipulate the Hazard:***
		  ○ None
		• ***Reduce exposure to the hazard:***
		  ○ None
		• ***Reduce vulnerability to the hazard:***
		  ○ Harden infrastructure such as locating utilities underground where appropriate.
		  ○ Trimming trees back from power lines
		  ○ Designate snow routes and strengthen critical road sections and bridges.
		  ○ Adopt codes and regulations that address the issues of parking of vehicles along roadways during severe weather events.
		  ○ Develop or enhance the capacity/capability of stormwater conveyance systems.
		  ○ Provide backup power sources at vital critical facilities.
		• ***Increase Capability:***
		  ○ Support programs that proactively manage problem areas by use of selective removal of hazardous trees, tree replacement, etc.
		  ○ Establish and enforce building codes that require all roofs to withstand snow loads--Develop/Improve/Enforce building Codes in Hazard Areas
		  ○ Increase communication alternatives
		  ○ Modify land use and environmental regulations to support vegetation management activities that improve reliability in utility corridors.
		  ○ Modify landscape and other ordinances to encourage

SEVERE WINTER STORM		
Personal Scale	**Corporate Scale**	**Government Scale**
		appropriate planting near overhead power, cable, and phone lines ○ Provide weather radios to vulnerable populations ○ Enhance public awareness campaigns to address those issues of alert and warning and actions to take during severe weather events. ○ Utilize the best available technology to enhance the warning systems for all severe weather events (i.e.: tornado warning systems). ○ Coordinate severe weather warning capabilities and the dissemination of warning amongst those agencies within the planning are with the highest degree of capability. ○ Encourage local ordinances for planting tree near lines and join Tree City USA. ○ Increase tree management programs. ○ Join the Community Rating System ○ Join "Storm-Ready" ○ Retrofit critical structures and promote hazard resistant construction ○ Keep open communications and education of hazards for mobile home communities ○ Retrofit above-ground utilities to underground facilities if appropriate ○ Create a salt reserve or research alternates to stretch salt reserve. ○ Ensure accessibility to hospitals. ○ Provide better debris logistics and removal. ○ Provide better communication systems and back-up communication systems to inform

SEVERE WINTER STORM		
Personal Scale	**Corporate Scale**	**Government Scale**
		public of hazards and to communicate during the hazard event.

WILDFIRE		
Personal Scale	**Corporate Scale**	**Government Scale**

• ***Manipulate the Hazard***:
  ○ Clear potential fuels on property; dry, overgrown underbrush; diseased trees
• ***Reduce exposure to the hazard***:
  ○ Clean and maintain defensible space around structures
  ○ Locate outside hazard area
  ○ Mow regularly
• ***Reduce vulnerability to the hazard:***
  ○ Create and maintain defensible space around structures, provide water on site.
  ○ Use fire-retardant building materials
  ○ Create defensible spaces around your home.
• ***Increase Capability:***
  ○ Employ Firewise techniques to safeguard your home
  ○ Identify alternative water supply points proximate to your home such as swimming pools, lakes, streams
  ○ Support your local fire department
  ○ Be aware of weather conditions that support/enhance the probability of wildfires
	• ***Manipulate the Hazard:***
	  ○ None
	• ***Reduce exposure to the hazard:***
	  ○ None
	• ***Reduce vulnerability to the hazard:***
	  ○ Create and maintain defensible space around structure and infrastructure and provide water onsite
	  ○ Use fire-retardant building materials
	  ○ Provide stored water to be utilized for firefighting with appropriate fire department connections at facilities not equipped with fire hydrants or inadequate fire hydrant spacing
	• ***Increase Capability:***
	  ○ Support Firewise community initiatives
		• ***Manipulate the Hazard:***
		  ○ None
		• ***Reduce exposure to the hazard:***
		  ○ Clear fuels (dry underbrush, diseased trees) on land that can trigger and maintain wildfires
		  ○ Implement Best Management Practices on public lands
		• ***Reduce vulnerability to the hazard:***
		  ○ Create and maintain defensible space around structure and infrastructure
		  ○ Higher regulatory standards
		  ○ Establish water main supply and hydrants in unhydranted areas
		  ○ Decrease hydrant spacing
		• ***Increase Capability:***
		  ○ Public outreach and education efforts
		  ○ Identify fire response and alternative evacuation routes
		  ○ Seek alternative water supplies in urban wildland interface areas.
		  ○ Become a "Firewise" community
		  ○ Increase capability to fight wildfires utilizing equipment that can support wildfire fighting such as: tankers, engines with "pump-and-run" capabilities, dump tanks for tanker shuttle operations.
		  ○ Develop and implement wildfire management plans.
		  ○ Establish Mutual Aid Agreements with the Tender Task Force
		  ○ Develop a Water Supply Plan