



# Harris County Water Control and Improvement District No. 110 (HCWCID 110)

## Hazard Mitigation Plan

Stakeholder Presentation

December 27, 2023

# What is Hazard Mitigation?

- One of the four components to disaster preparedness.
- Reduces impacts from natural hazards through plans, projects and services.
- There are several steps a community can take to help mitigate hazards - developing a Hazard Mitigation Plan (HMP) is one of them.



# What is a Hazard Mitigation Plan?

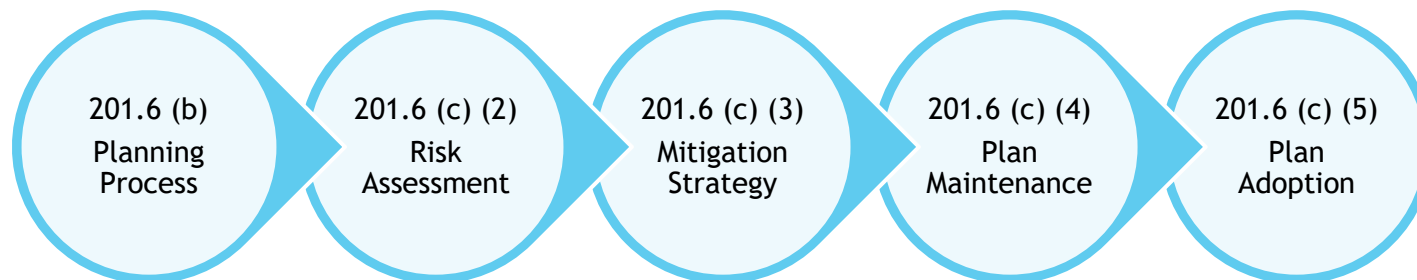
- Mitigation is most effective when it is based on a comprehensive, long-term plan that is developed BEFORE a disaster occurs.
- A Hazard Mitigation Plan (HMP) is used to identify policies and actions that can be implemented to reduce risk and future losses from hazards and disasters.
- It is a community-driven, living document that encourages communities to integrate mitigation into their day-to-day operations and decisions.

# Why Prepare a Hazard Mitigation Plan?

- The mitigation plan:
  - Provides a framework to lessen the impacts of natural disasters
  - Analyzes and assesses natural hazards and their risk on the community
  - Establishes a mitigation strategy that encompasses goals, actions to reduce risk that are prioritized, and an implementation plan for the prioritized actions
  - Engages the whole community (e.g., surveys, meetings)
  - Allow HCWCID110 to be eligible for pre- and post-disaster mitigation funding
  - Gives an opportunity to integrate plan with other community planning initiatives (comprehensive plan, CRS as examples)



## Requirements for the plan



# PLANNING PROCESS - Building the planning team

## Board, Staff, Consultants



**Mitigation Planning Committee (MPC)** - The core group responsible for making decisions, guiding the planning process, and agreeing upon the final contents of the plan. These are often leaders from the local communities that will adopt the plan (mayors, town administrators, county commissioners, etc.).

## Stakeholders



**Stakeholders** - Individuals or groups that affect or can be affected by a mitigation action or policy.

## Public



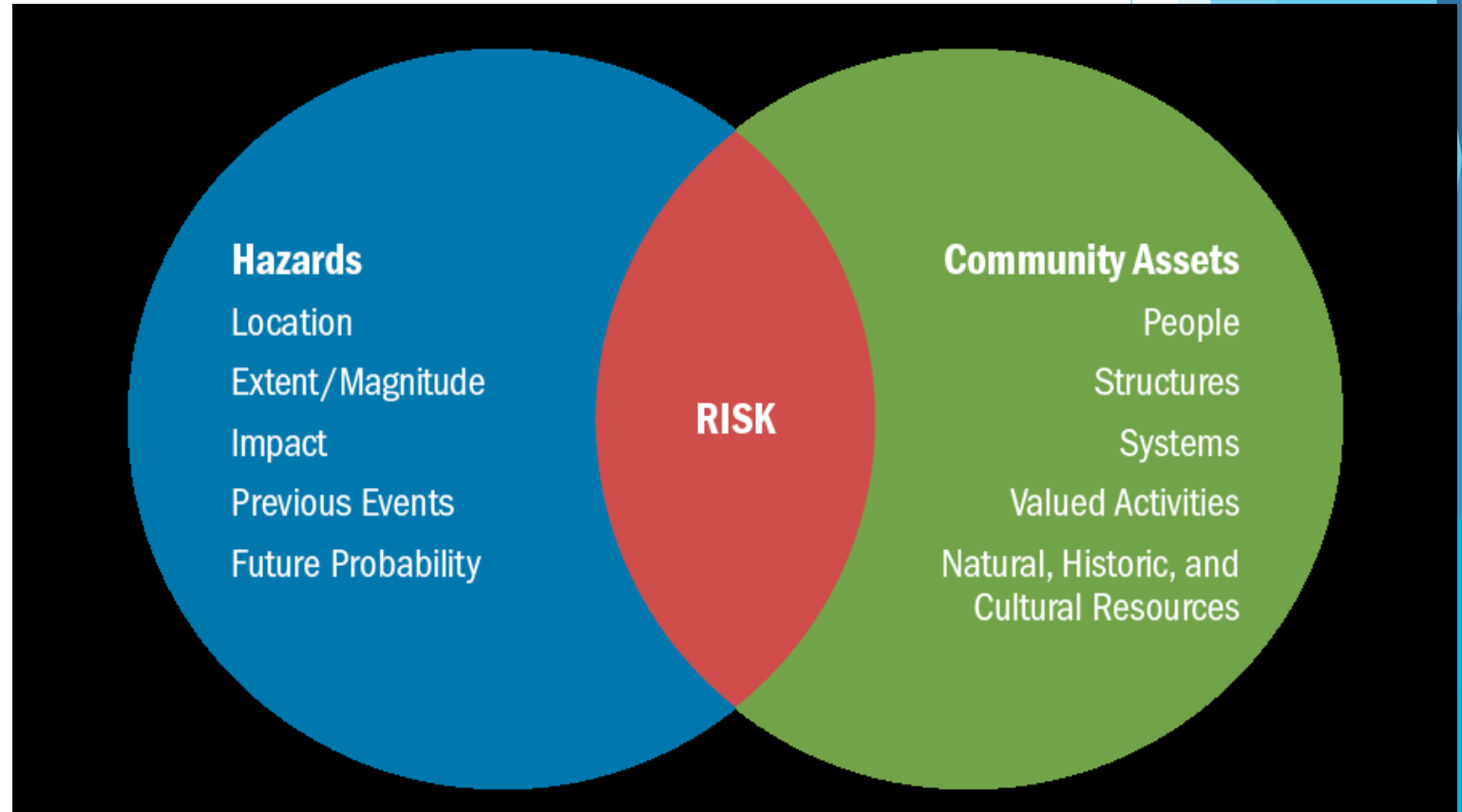
**Public Engagement** - Input from community members can strengthen the content and outcomes of the mitigation plan.

Community input and public participation are key to a successful mitigation plan

# Risk Assessment

- ▶ Identify hazards
- ▶ Describe each hazard
- ▶ Profile each hazard
  - ▶ Location - where it might happen in the planning area
  - ▶ Extent - how minor or severe it may be
  - ▶ Previous Events - how often and where it has happened in the past
  - ▶ Future Probability - how likely it is to occur and how it may change (frequency/intensity) in the future

- ▶ Identify community assets
- ▶ Analyze impacts - the effects on assets
- ▶ Summarize vulnerability - which assets are at risk



# Identified Hazards

# Hazard Profile

2024 Hazards
Drought
Extreme Cold/Freezes
Extreme Heat
Flooding
Hail
Hurricanes/Tropical Storms
Lightning
Thunderstorms/Damaging Winds
Tornados
Wildfire
Winter storms
Wildfire
Omitted from consideration: coastal erosion; dam/levee failure; and earthquake

## DROUGHT

- Location** - Chambers County is susceptible to all categories of drought defined by the Palmer Drought Severity Index (PDSI). Entire area is equally at risk since drought occurs on a regional scale.
- Extent** - Palmer Drought Severity Index (indices that indicates the prolonged and abnormal moisture deficiency) and US Drought Monitor (map released each week to show where drought is and how bad it is based on color coded classifications).
- Previous Occurrences** - Drought.gov data recorded droughts - 2000, 2003, 2006, 2011, 2012, 2013, 2014, 2022, 2023 (9 years since 2000 of at least severe drought)
- Future Probability** - With 9 events over the last 23 years you could expect a drought every ~2.5 years or 39% chance per year.
- What assets are at risk?**
- Overall Significance**

Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought: <ul style="list-style-type: none"> <li>short term dryness slowing planting, growth of crops or pastures</li> </ul> Coming out of drought: <ul style="list-style-type: none"> <li>some lingering water deficits</li> <li>pastures or crops not fully recovered</li> </ul>
D1	Moderate Drought	<ul style="list-style-type: none"> <li>Some damage to crops, pastures</li> <li>Streams, reservoirs, or wells low, some water shortages developing or imminent</li> <li>Voluntary water-use restrictions requested</li> </ul>
D2	Severe Drought	<ul style="list-style-type: none"> <li>Crop or pasture losses likely</li> <li>Water shortages common</li> <li>Water restrictions imposed</li> </ul>
D3	Extreme Drought	<ul style="list-style-type: none"> <li>Major crop/pasture losses</li> <li>Widespread water shortages or restrictions</li> </ul>
D4	Exceptional Drought	<ul style="list-style-type: none"> <li>Exceptional and widespread crop/pasture losses</li> <li>Shortages of water in reservoirs, streams, and wells creating water emergencies</li> </ul>

Chambers County (TX) Percent Area in U.S. Drought Monitor Categories

## Assets



People



Structures



Systems



Resources



Activities

# RISK INFORMED

- ▶ Do you have data/information to help further analyze a hazard?
- ▶ Are there hazards that you believe impact the area not listed?
- ▶ Are there areas that are impacted that you want the MPC to be made aware?
- ▶ Are there populations that need to be reached to better understand their ability to prepare, respond, cope and recover from a natural hazard event?
- ▶ Are there assets that need to be identified for protection?
- ▶ Are there reports/studies/assessments that you can provide for more detailed analysis?

Collaborate

Involve

Inform

Consult



# HCWCID110 Mitigation Strategy

Goal - Support HCWCID's effort to protect community by mitigating risks due to natural hazards that:

Minimize loss of life, injury and damage to property, the economy, and the environment from natural hazards.

Build and enhance local mitigation capabilities to ensure the safety and resilience of all community members. Reduce damage to public buildings and ensure continuity of emergency services.

Maintain the jurisdiction's natural and man-made systems including public utility systems that protect against natural hazards.

Increase cooperation and coordination among private entities, local agencies, state agencies, and federal agencies.

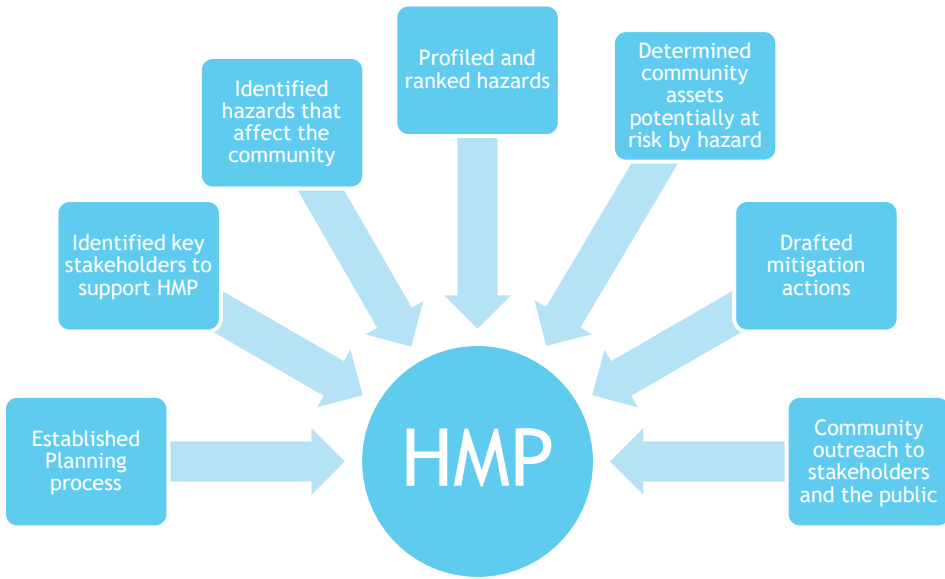


## Mitigation Action Plan

Details specific mitigation actions, prioritizes the actions and provides a blueprint for implementation.



# What has the Mitigation Planning Committee been up to?



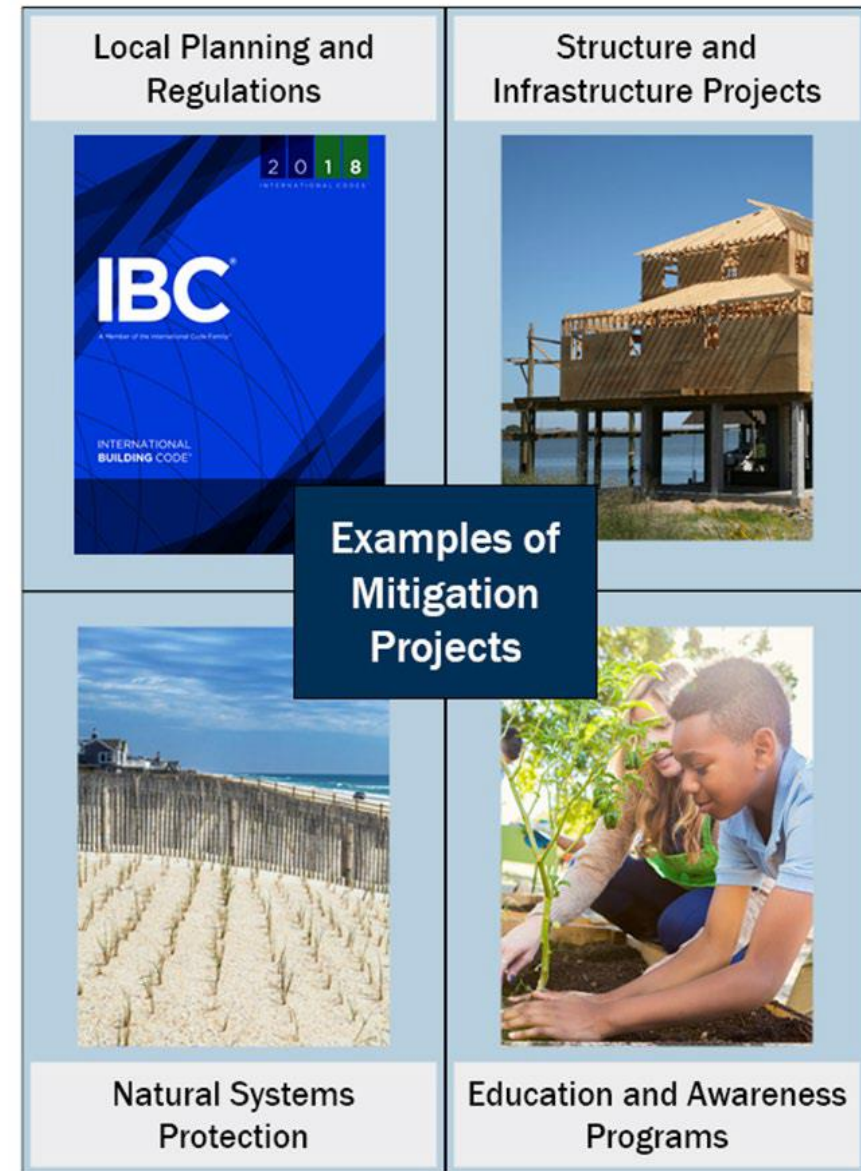
## Community Asset Responsibility

HCWCID110 is responsible for water and sewer services for its residents, provides parks and recreations services, and operates the Swim and Racquet Club and Forest Oaks Park.

2023 Hazard profiled and ranked by significance (LOW/MEDIUM/HIGH)	Community Assets potentially at Risk from identified hazard
Flood - HIGH	<ul style="list-style-type: none"> <li>Wastewater treatment plant, lift stations, water tower, admin offices, parks</li> </ul>
Hurricane/Tropical Storm - HIGH	<ul style="list-style-type: none"> <li>Wastewater treatment plant, lift stations, water tower, admin offices, parks, trash services, and debris pickup</li> </ul>
Thunderstorms/damaging winds - HIGH	<ul style="list-style-type: none"> <li>District buildings and water tower</li> </ul>
Drought - MEDIUM	<ul style="list-style-type: none"> <li>Infrastructure, Water Wells, Water Transmission lines, Water distribution</li> </ul>
Extreme Cold/Freezes- MEDIUM	<ul style="list-style-type: none"> <li>Infrastructure, Water Wells, Water transmission lines, Water distribution</li> </ul>
Lightning - MEDIUM	<ul style="list-style-type: none"> <li>District buildings and water tower</li> </ul>
Extreme Heat - LOW	<ul style="list-style-type: none"> <li>Lightning detection systems for Parks and Recreation areas</li> </ul>
Hail - LOW	<ul style="list-style-type: none"> <li>District buildings</li> </ul>
Subsidence - LOW	<ul style="list-style-type: none"> <li>District buildings, all wells, and pipes</li> </ul>
Tornados - LOW	<ul style="list-style-type: none"> <li>All assets</li> </ul>
Wildfire - LOW	<ul style="list-style-type: none"> <li>District buildings, wastewater treatment</li> </ul>
Winter Storm - LOW	<ul style="list-style-type: none"> <li>None</li> </ul>

# Actions to Mitigate Hazards

- ▶ For each hazard, two mitigation actions are needed
- ▶ Mitigation Actions primarily fall into four categories:
  - ▶ Local Planning and regulations: include government authorities, polices or codes that influence the way land and buildings are developed and built.
  - ▶ Structure and Infrastructure: involve modifying existing structures and infrastructures to protect them from a hazard or remove them from a hazard area. This could apply to public or private as well as critical infrastructure.
  - ▶ Natural Systems Protections: can include green infrastructure and low impact development, nature-based solutions. Engineering with nature and bioengineering to incorporate natural features or processes into the built environment.
  - ▶ Education and Awareness: actions keep residents informed about potential natural disasters.



# Actions Being Considered

Generators for critical facilities

HCWCID110 Stormwater Detention Project

Provide links to House and Harris County EM Departments on District website

Create a cooling station at HCWCID Buildings

Work with EM Departments (Harris County and COH) to support a public education program on protection from hazards and water conservation

Winterization of Water and Sewer Treatment Plants

Debris Removal Plan

Program Development for Permitting of Private Stormwater Detention Basins

Establish Process with Harris County Subsidence District (HCSD) on Subsidence Information

Lightning Rods and Surge Protectors at Building and Critical Facilities

Connect Waste Water Reclaimed Water Conservation System to all Four Area Lakes

Expanding wastewater reclaimed abilities

# Actions Being Considered

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Debris Removal Equipment

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Lightning Detection Systems for Parks, Recreation fields, and pool

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Ensure all Critical Facilities' pipes are insulated

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Replace landscape around District Buildings, and critical facilities with drought tolerant varieties and defensible space

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Procure drought resistant grasses for soil stabilization

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Work with Regional Flood planning organizations so that projects are studied that could impact the planning area

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Work with HCFCD to prioritize bank stabilization at Cypress Creek

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Vegetation clearing

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Add thermal barriers (window tinting) to HCWCID 110 Buildings

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Add Hurricane Shutters to HCWCID Buildings

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Replace Exterior and Interior doors with steel doors at HCWCID Buildings

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# Plan Maintenance



## **MONITORING THE PLAN**

*The District will monitor the mitigation actions to ensure that they are going to plan.*



## **EVALUATING THE PLAN**

*The District will meet regularly, and after major natural hazard events, to evaluate how well the plan is working.*



## **UPDATING THE PLAN**

*The District will continue to update the Plan every 5 years.*



## **INTEGRATING THE PLAN**

*The District will integrate data, information, and actions from the HMP into other City plans and initiatives.*



## **PUBLIC PARTICIPATION THROUGHOUT PLAN MAINTENANCE**

*The District is committed to public participation. Public engagement activities will align with the evaluation, monitoring, and plan update meetings as well as with large natural hazard events.*

# How can Stakeholders Help?

*Each of you has a unique expertise, experience, and community perspective*





# How to find the survey:

- HCWCID website: [FLOOD CONTROL INFO | wcid110](https://www.wcid110.com/FLOOD_CONTROL_INFO)
- Survey has 10 questions
- Responses will help will plan information (e.g. confirmation of hazards, understanding concerns and concern areas)
- Learn more about plans from the fact sheet provided on the website

# Website







**DRAINAGE**



**FACILITIES**



**STREETS**



**WASTEWATER**



**PARKS**



**WATER**

# Thank You!

## HMP Update Contacts

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