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RESILIENCE

PART 1

The February 2021 winter storm left almost **15 million Texans without access to clean water**. Two weeks after the storm, 38 public water systems in 31 counties still had boil water notices in place. 2017 Hurricane Harvey was the **most significant tropical rainfall** event in US history, and the **second most costly hurricane** in the nation. The 2011 drought impacted all 254 counties, leaving many water utilities in **danger of running out of water**. The impact and frequency of weather-related disasters in Texas has prompted a focus on the concept of resilience. **But what does resilience for Texas water mean?**

WHAT IS RESILIENCE?

Resilience, broadly defined, is the **ability to withstand a challenge and recover to normal conditions**. As it relates to water, resilience refers to a broad range of topics, including **water supply, water quality, flood management, habitat protection, disaster response, aging infrastructure, and financing**. Achieving resilience requires a commitment to integrative planning, investment in infrastructure, and a purposeful consideration of **equity and access**.

GOOD TO KNOW

- **81(R) SB 361**: required auxiliary power generation during power outages
- **87(R) HB 2275**: proposes critical infrastructure resiliency and financing
- **87(R) HJR 103**: proposes creation of the water infrastructure resiliency fund and the critical infrastructure resiliency fund to assist in financing of certain infrastructure projects
- **87(R) HB 3308**: proposes creation of the water infrastructure resiliency fund

INVESTMENT

- Resilience requires investment now to prepare for the future
- Funding US water infrastructure needs would create nearly 800K new jobs by 2039 and increase disposable income by \$2K per household¹
- Investing in infrastructure improvements reduces water loss and allows for more efficient use of water resources

COST¹

- Water and wastewater infrastructure failures cost US households \$2B in 2019
- Failing water infrastructure could result in \$7.7 billion in cumulative health-care costs to households over the next 20 years
- Disruptions will cost water-reliant businesses across US \$250B by 2039

¹US Water Alliance, [The Economic Benefits of Investing in Water Infrastructure](#), (2017)

¹US Water Alliance, 2017



HOW DOES TEXAS PLAN FOR RESILIENCE NOW?



WATER SUPPLY

- Texas develops a **State Water Plan** every 5 years that identifies water management strategies to meet projected demand and drought of record conditions
- **Drought is the main priority:** The 2017 State Water Plan does not reference resilience, but drought is mentioned 374 times, conservation 130x, efficiency 7x, flood 12x
- Texas requires retail water utilities and certain water rights holders to submit **water loss and drought contingency plans**

10/16 2021 Regional Water Plans Reference Resilience²:

- Climate Change:** adapt with better data
- Conjunctive use:** coordinate groundwater and surface water use during drought
- Diversifying Supplies:** identify auxiliary supplies and strategies
- Intra-regional Cooperation:** leverage regional relationships to support vulnerable water systems
- Reuse:** as drought resilient supply



FLOOD MANAGEMENT

- Following the impacts of Hurricane Harvey, the 86th Texas Legislature created a state flood management planning process and the **Flood Infrastructure Fund (FIF)**
- TWDB will administer **\$770 million** in FIF financial assistance for structural and nonstructural flood management projects (**30% grants and 70% zero interest loans**)

- First State Flood Plan:** expected by 2024
- 15 Regional flood plans:** expected by 2023
- Community Flood Resilience Task Force:** created in Harris County to ensure meaningful community engagement in flood management



INTEGRATIVE PLANNING

- Frameworks **integrative planning** for are becoming more common at city or regional levels
- **Resilience** is often either explicitly, or implicitly referenced in those plans
- **Community driven resilience planning** is often considered through frameworks like "One Water".

- Coastal Resiliency Master Plan:** General Land Office's framework for community, socio-economic, ecologic and infrastructure protection from coastal hazards
- Resilient Houston:** City of Houston's resilience strategy released in 2020
- Water Forward:** City of Austin's 100-year integrated water resource plan approved in 2018

POLICY CONSIDERATIONS

Planning

How are local, regional and state decisions coordinating around the need for resilience? How can data collection and integration be improved? How should resilience be considered in the State Water Plan?

Funding

What funding gaps exist in ensuring communities are able to invest in resilient water infrastructure? Which communities need asset management support to identify and assess water infrastructure investment needs?

Disaster Response

Water systems are essential infrastructure. How are they considered and protected in disaster planning? How well do local and regional planning entities communicate?

²Regions A, C, D, E, F, H, K, and M