



# Equity Informed Climate Resilience Plan in Port Arthur, Texas

## Executive Summary



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Deliverable: Equity Informed Climate Resilience Plan in Port Arthur, Texas

Prepared by the Houston Advanced Research Center (HARC) with partner  
Community In-Power and Development Association (CIDA)

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The **Equity Informed Climate Resilience Plan** (EQUIP PA) in Port Arthur, Texas, considers climate hazards, community health, and vulnerable populations through an equity-centered approach. The stakeholder-led plan addresses environmental and public health issues faced by Port Arthur residents like frequent flooding, environmental hazards, segregation, poverty, and high unemployment, particularly in neighborhoods close to industrial facilities.

Port Arthur is a unique mix of Louisiana and Texan culture combined. Many of Port Arthur's residents have roots in Louisiana and brought their Cajun and Creole culture with them when they migrated here, in search of a brighter future in the petroleum industry.<sup>1</sup> That optimism and love for life and fun is still very much alive in the Port Arthur way of living. It is embedded in how the people of Port Arthur cook, celebrate, create art, and support each other as a community.

The survival of historic African American communities (42.3% of the population), despite the inhospitable conditions and areas they were forced into during the Jim Crow era, is a testament to the determination and

perseverance of the culture and its people's ability to bond together and survive extreme challenges.<sup>2</sup>

Located on the Texas Gulf Coast, Port Arthur has a history of enduring extreme weather events such as hurricanes and floods, impacting its social vulnerability and economic disparities. Residents face elevated risks due to proximity to industrial sites, experiencing poor air quality and health risks exceeding national averages. These challenges compound other persistent issues like poverty, high energy burden, inadequate housing, and disparities in healthcare access, leading to a significant impact on residents' physical and mental well-being.

EQUIP PA incorporates data analysis, community input and feedback, and recommendations from resilience practitioners to visualize and prepare for Port Arthur's future risks, striving to develop a community matching the strength and resilience found within its diverse population. By prioritizing stakeholder inclusion, equity, long-term preparedness, robust communication, and sustainability integration, EQUIP PA endeavors to become an all-encompassing guide for disaster recovery and community resilience in Port Arthur, and a guide for other Gulf Coast communities.



<sup>1</sup> Theriot, J. P. (2017). The Migration of Cajuns to Southeast Texas. *Louisiana History: The Journal of the Louisiana Historical Association*, 58(4), 443-467.

<sup>2</sup> United States Census Bureau. 2018-2022 estimates. <https://www.census.gov/quickfacts/fact/table/portarthurchityexas/PSTo45223>



## Port Arthur Risks

Port Arthur, situated on the Texas Gulf Coast, faces substantial risks from climate-related hazards, including floods, extreme weather events, and sea-level rise. The city's current levee system, consisting of approximately 27.8 miles of levees and over six and a half miles of floodwalls, requires ongoing maintenance and improvements to handle escalating precipitation levels and storm surges. Efforts led by the U.S. Army Corps of Engineers aim to enhance coastal storm risk management through the Sabine Pass to Galveston Bay Coastal Storm Risk Management Program, set to be completed by 2026.

The drainage system in Port Arthur presents challenges, with downtown pipes undersized for modern rainfall and pump stations designed for rainfall events that are now increasingly surpassed. Drainage District 7, the drainage district in Port Arthur, has strategies to mitigate potential flooding which include activating pumps before extreme weather events to lower water levels, but further infrastructure upgrades are crucial to handle projected escalating rainfall. Moreover, Port Arthur faces future potential loss of vital coastal marshes due to sea-level rise, resulting in weakened resilience against climate change impacts.

Models projecting future scenarios reveal a trend of rising temperatures, longer and more frequent

heatwaves, and increased rainfall intensity. Such changes pose multifaceted risks, from heightened health concerns due to heat-related illnesses to strained energy resources and disruptions to daily life. Strategies to address these risks include heat wave preparedness plans, resilient infrastructure development, sustainable water management, and community-driven climate resilience initiatives to safeguard vulnerable populations and ensure the city's overall adaptability to climate challenges.

Port Arthur's community, engaged through equity-informed approaches led by EQUIP PA, involved stakeholders and residents in decision-making processes. Surveys conducted by the Houston Advanced Research Center (HARC) and The Community In-Power Development Association Inc. (CIDA) gathered insights from 139 respondents, using a mix of online Pollfish surveys and in-person door-to-door methods, primarily targeting Westside, Montrose, and El Vista/Vista village neighborhoods. The Pollfish survey utilized digital devices offering incentives within mobile apps, while in-person surveys focused on community meetings and door-to-door engagement in specific areas. Survey results provided diverse demographic data reflecting Port Arthur's population.

## Concerns and Recommendations Articulated by Port Arthur Residents

Community leaders, integral to this engagement, shared experiences and insights, emphasizing the need for grassroots efforts, capacity building, and accurate information dissemination. Recommendations highlighted the necessity of resources and programs linking community needs with available solutions. These findings underscored the importance of varied communication pathways for disseminating official information related to disaster preparedness. For example, recommendations stressed the significance of utilizing television, radio, and social media to reach a broader audience, ensuring information access for residents regardless of their preferred information sources. Surveyed residents

primarily rely on television news and social media for emergency information. However, lack of computing resources and internet subscription (23% and 39%, respectively) necessitates diverse information sources. Furthermore, community leaders suggested establishing accessible centers providing information and enrollment in programs for energy efficiency, weatherization, and flood resilience to aid residents in protecting their homes from extreme weather. These insights, gleaned from both surveys and community leaders, provide crucial guidance for future engagement and disaster preparedness strategies in Port Arthur.





## Disaster Preparedness and Recovery in Port Arthur

The Southeast Texas Regional Planning Commission (SETRPC) runs the community alerting system, the Southeast Texas Alerting Network (STAN). STAN facilitates community alerts and requires resident registration for area-specific notifications via text, email, or phone call. Community survey results showed residents exhibit awareness of emergency shelter locations (75%) and evacuation zones (71%). About 47% have not utilized emergency shelters, citing difficulties in locating suitable ones. Extreme weather and power outages commonly prompt shelter visits. However, nearly half of shelter users left within a day. For some, shelters are distant, leading to moderate to challenging travel experiences.

Residents prioritize food, water, and power for medical devices in emergency shelters. During disasters, assistance largely comes from the Federal Emergency Management Authority (FEMA) and the Red Cross. Home damage due to extreme weather affects 69% of respondents, with repair times varying. A significant portion (38%) lack flood insurance. Residents can call 2-1-1 for emergency information including regarding their local shelter.

Nature-Based Solutions (NBS) are strategies imitating natural processes to mitigate climate change effects, offering benefits such as flood control and biodiversity preservation. Unequal NBS distribution can disadvantage communities of color and low-income areas, leading to social inequities. Integrating NBS with equity considerations can enhance community resilience and improve quality of life regardless of socioeconomic status.

Port Arthur faces energy resilience challenges, with frequent power outages disproportionately affecting disadvantaged communities. High energy burden exacerbates challenges for vulnerable residents, leading to rationing power use to afford bills, but compromising health and safety at home.

Funding from the federal government provided through the Greater East Texas Community Action Program (GETCAP) supports light bill assistance, aiming to alleviate energy burden. Energy efficiency and weatherization programs offer solutions, helping low-income residents improve home energy use. These programs, available to homeowners or renters, focus on upgrading devices and improving insulation for weather safety and reduced energy consumption.

Overall, Port Arthur grapples with climate resilience, unequal NBS distribution, and energy challenges. Inclusive approaches, infrastructure improvements, and equitable access to resources are needed for a more resilient and sustainable community. Enhanced outreach strategies, funding for preparedness, and expanded programs are suggested for disaster readiness and recovery. Energy resilience remains a concern, with frequent power outages and high energy burden affecting residents, particularly those in poverty. Concerted efforts are necessary to bolster disaster preparedness, address power outages, and ensure equitable access to resources and information, strengthening community resilience in Port Arthur.





## Recommendations for Implementation

The recommendations outlined for implementing the EQUIP PA project in Port Arthur focus on multifaceted strategies aimed at bolstering community resilience and addressing climate-related vulnerabilities. These recommendations provide a blueprint for other communities seeking similar initiatives.

The results highlight several focal points for implementation in Port Arthur. Priority areas include emphasizing equity in climate resilience planning, supporting individuals with preparedness and recovery efforts, facilitating effective communication among different levels of government, seeking diverse funding sources, practicing continuous improvement, prioritizing resilient construction practices, addressing 500-year flood zones, integrating climate change projections into

planning, prioritizing NBS, upgrading drainage systems, enhancing job placement and training, and utilizing varied communication channels for community engagement.

Key recommendations underscore the necessity of equitable community involvement in planning, addressing housing vulnerabilities, integrating climate change projections into infrastructure development, prioritizing NBS, upgrading drainage systems, enhancing job opportunities, and ensuring diverse communication channels for disseminating crucial information to residents before, during, and after emergencies. These recommendations provide a comprehensive framework for resilience planning that emphasizes inclusivity, proactive strategies, infrastructure improvement, job creation, and effective communication strategies.



## EQUIP PA Recommendations for Implementation

### ***Prioritize Equity in Planning for Community Climate Resilience:***

More effective planning for and implementation of climate resilience is needed throughout the community, and residents should be included and equipped to make decisions in this planning early and often. Residents in under-resourced parts of the community or who have been historically marginalized may need prioritization to ensure they can participate in climate resilience planning and benefit from solutions.

### ***Prioritize Equity by Supporting Individuals with Preparedness and Recovery:***

Residents interviewed for this plan identified that funding for disaster preparedness and recovery may be allocated unfairly, that homes that have been damaged by Harvey are still damaged today, and that certain homes or neighborhoods may be overlooked. It is recommended that community leadership augment the opportunities offered to residents for disaster preparedness and recovery.

### ***Facilitate Effective Communication among Different Tiers of Government:***

This cohesive messaging fosters productive synergy and reduces confusion for residents. Foster collaboration among government agencies, community-based organizations, and other stakeholders to leverage resources, share expertise, and enhance communication.

### ***Seek Diverse Funding Sources that Can Provide More Opportunities for Individual and Community Preparedness:***

Planning for resource allocation is crucial, necessitating the identification of potential funding avenues. Inflation Reduction Act and Infrastructure Investment and Jobs Act funding for infrastructure improvement and community development generally carries priority for disadvantaged communities, which encompasses the majority of Port Arthur.

### ***Practice Continuous Improvement:***

Ongoing evaluation of the effectiveness of resilience strategies: allowing for adaptive implementation to be adjusted based on lessons learned and changing climate dynamics. Continuous collaboration, community involvement, and adaptive management remain pivotal to sustaining ongoing progress.

### ***Prioritizing Resilient and Sustainable Construction/Reconstruction/Housing Practices:***

Highlighting the importance of thoughtful rebuilding and ensuring safety sustainability in both neighborhoods and homes is critical. The goal should be to expedite rehousing while also prioritizing resilient and sustainable reconstruction practices. This step will help individuals avoid repeat displacement.

### ***Account for 500-Year Flood Zones:***

Events like Hurricane Harvey demonstrated the necessity of considering more severe flooding scenarios beyond the standard 100-year recurrence level. Addressing 500-year flood zones, when possible, ensures a more comprehensive and adaptable approach to flood management. However, Jefferson County does not have the 500-year flood plan data. When these data are released, local planning should incorporate 500-year flood zones.

### ***Risk Assessment and Adaptation:***

Implement a schedule to conduct comprehensive risk assessment to identify coastal hazards and current mitigation practices. Develop strategies and infrastructure improvements that prioritize vulnerable populations and prioritize Nature-Based Solutions.

### ***Integrate Climate Change Projections:***

Integrate proactive hazard mitigation and resilience planning by incorporating climate change projections in future coastal development and infrastructure expansion.

### ***Prioritize Nature-Based Solutions:***

Incorporate strategies centered around green infrastructure to mitigate floods in flood-prone areas and enhance community resilience. By utilizing natural solutions, such as wetlands and permeable surfaces, the community can effectively manage water and reduce flood risks.

### ***Upgrade the Drainage System:***

The drainage system under parts of Port Arthur is already undersized for current storms. This will only worsen in the future when, as discussed in the EQUIP PA plan, by 2050, downtown is expected to receive up to 6.4 inches of rain for its 3-day highest rainfall, and by 2100, this number increases to 7.2 inches.

### ***Job Placement and More Job Training for High Wage Jobs:***

Expand programs to get more people educated and working. Ensure they are targeted to unemployed and underemployed individuals to help reduce barriers for these residents to access the programs. With more income, a resident has more opportunity in everyday life and more adaptive capacity in a disaster situation.

### ***Use Varied Sources for Communication with Community Members:***

Widely dispersed communication with clear, consistent messaging before, during, and after an emergency is important to help with preparedness, safety, and recovery. The survey results indicate a need to focus on multiple pathways of information with an emphasis on getting official information (from TxDOT, the Southeast Texas Alerting Network, the City, or the County) onto television, radio, and social media outlets. The focus on all three pathways will reach more residents than a focus on one pathway, ensuring residents who lack access to one or more of these sources are not missing critical information.

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