

ARE PLANS INTEGRATED FOR COMMUNITY FLOOD RESILIENCE IN BEAUMONT AND PORT ARTHUR?



An Evaluation Utilizing the Plan Integration for Resilience Scorecard™

WHY NOW?

Flooding is a damaging hazard along the coastal US, especially in places like Beaumont and Port Arthur. While not within the emergency management purview, land-use plans mitigate hazards, because they shape the building and development. Across the U.S. and world, researchers have found local plans lack coherent coordination and integration toward achieving resilience (i.e., plan integration).

WHO WAS INVOLVED?

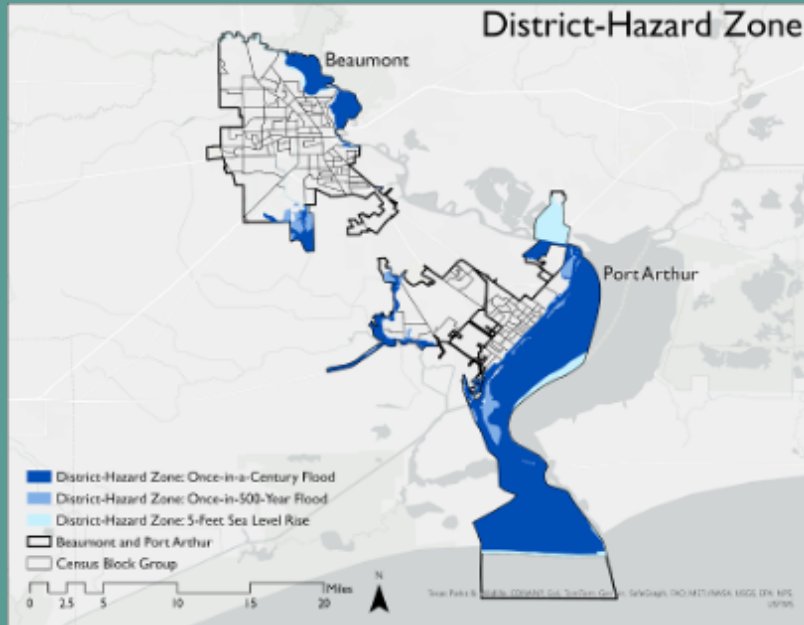
Local emergency managers provided feedback on the plan document collection.

FINDINGS

Overall, the plans are integrated for community flood resilience. In particular, the higher the administrative level the plans come from (e.g. county or regional plans), the more integrated they are. Negative resilience effect stems from those plans targeting Port Arthur. These Port Arthur plans contain considerable policies weakening resilience, such as by allowing for high-density development in flood-prone areas. Researchers also found that the plans pay greater attention to the more immediate events: they are concerned about the once-in-100-year floodplain (1% chance) the most. More Infrastructure-hardening and resilience policies could be included in future plans.

WHAT WE DID

To address this gap, the research team employed the Plan Integration of Resilience Scorecard™ (PIRS™) method in Beaumont and Port Arthur, Texas. Researchers began by delineating hazard zones, specifically, the: (1) 100-year floodplain (1% annual chance), (2) 500-year floodplain (0.2% annual chance), and (3) sea level rise projections (Yu et al. 2025) (See figure below). After identifying these zones, researchers gathered 14 planning documents (4 were county-level plans and 10 were municipal-level plans) governing land use and/or physical development within the cities. The research team reviewed these planning documents and assigned scores to policies on its potential resilience effect. Finally, the scores were aggregated across all policies, which serves as an indicator of plan integration in each zone.



The district-hazard zones of this study



PIRS™ Hub Website:

*<https://planintegration.com/> PIRS™ Guidebook,
etc.: [https://planintegration.com/pirs-
guidebook](https://planintegration.com/pirs-guidebook)*

MORE ABOUT SETX-UIFL

The Southeast Texas Urban Integrated Field Lab (SETx-UIFL) is one of four projects funded in 2022 by the U.S. Department of Energy to study how climate, environment, and urban changes affect cities. A team of over 80 researchers from UT, Lamar University, Texas A&M, Prairie View A&M, Oak Ridge National Lab, and Los Alamos National Lab has collected data and conducted modeling across hazards including flooding, hurricanes, heat stress, and air quality. Our Why: Southeast Texas faces numerous hazards, yet smaller communities like this one have often felt forgotten compared to larger cities. The SETx-UIFL was designed to explore the complex dynamics of disaster vulnerability for this economically and culturally vibrant region. We believe Southeast Texas is a bellwether for the entire Gulf Coast, and an exemplar for strategies that protect people and places. We hope this effort supports your path toward lasting resilience.



SIYU YU

Texas A&M

syu@arch.tamu.edu

