

## 7. Protecting the Houston Ship Channel

Hurricanes are horrifying natural disasters that do and should strike fear in the hearts of Texas coastal residents. Galveston was the economic kingpin of Texas until it was devastated by the 1900 storm, an event that led to the emergence of Houston and its massive petrochemical complex. However, that complex is extremely vulnerable to today's superstorms that have the potential to generate a 25-foot (or larger) surge up Galveston Bay and into the Ship Channel. Such a storm has been predicted by the SSPEED Center at Rice to generate a spill of historic proportions, flooding up to 2200 storage tanks and causing the release of an estimated 90 million gallons of oil and hazardous substances. If this occurred, the economy of our region and of the nation would be severely damaged and Galveston Bay's ecosystem would be devastated.

To address this issue, the Corps of Engineers has proposed a dike and gate system known as the Ike Dike, or coastal spine, that will extend from the southern end of Galveston Island up to the existing sea wall, span Bolivar Roads with an 11,000-foot navigation and environmental flow gate and then extend up the Bolivar Peninsula to about High Island. This system has been described in a Draft Environmental Impact Statement (DEIS) released by the Corps of Engineers. This project currently is estimated to cost from \$14 to \$20 billion and is proposed to be completed by 2035. Opposition to this proposal is emerging on Bolivar Peninsula and within the environmental community, and public hearings will be conducted during December. Those interested in commenting have until early January to file written statements.

There is another project known as the Galveston Bay Park Plan that is complementary to this larger project. The Galveston Bay Park Plan offers protection from a 25-foot surge to the developed western shoreline of Galveston Bay including the Bayport Industrial complex and the Houston Ship Channel complex and costs about \$3 billion. This project could be constructed with local and/or state funding and would need a permit from the Corps of Engineers. Such a project could be constructed in about 5 years. If the larger dike gets approved and funded, this internal dike is a necessary additional layer of protection. If the larger project is not completed and this Galveston Bay Park Plan were constructed, the Houston area could have protection in place, potentially as early as 2025, ten years before the coastal spine, and at a reasonable cost.

This Galveston Bay Park Plan was developed by the SSPEED Center at Rice University and is shown in Figure 7. This barrier is proposed to be constructed to an elevation of 25-feet and run parallel to the Houston Ship Channel. It will connect the Texas City levee system on the southern end with western Chambers County on the northern end, protecting Baytown, the Houston Ship Channel and eastern and southeastern Harris County and northern Galveston County. This Galveston Bay Park Plan proposes to extend the ongoing beneficial use dredge disposal project being pursued by the Port of Houston and expand that concept into a world-class recreation-oriented facility providing public access to the bay as well as newly created wetlands and marine habitat. This proposal will include a navigation gate at a location roughly across from Eagle Point in northern Galveston County.

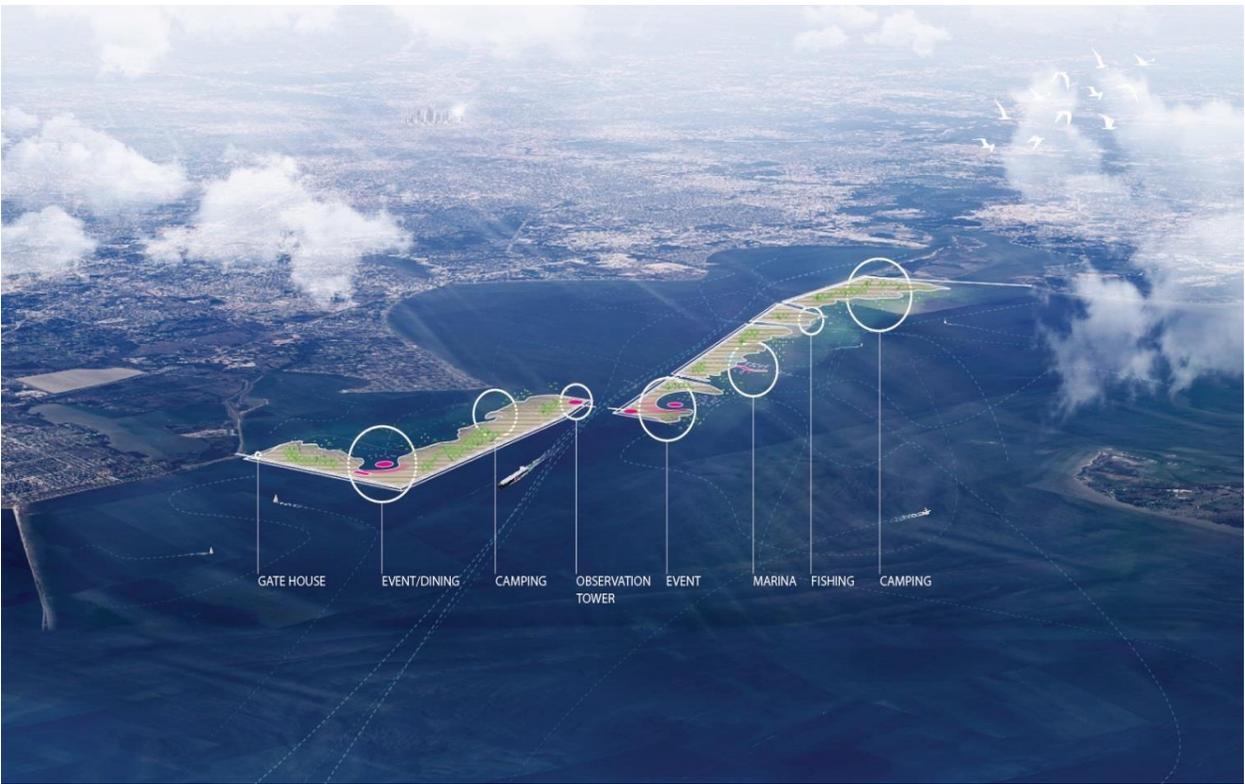


Figure 7. Proposed Galveston Bay Park Plan. Graphic prepared for SSPEED Center by Rogers Partners Architects and Urban Planners.

From an environmental standpoint, the Galveston Bay Park Plan will have impacts, but they appear to be manageable. This system will not obstruct Bolivar Roads and will leave Trinity, East and West Bays open to the pass and the Gulf of Mexico. It will impact oyster reefs along and adjacent to the Houston Ship Channel, but oysters have been and can be successfully restored at a cost of about \$100,000 per acre. About \$50 million of the \$3 billion budget for the Galveston Bay Park Plan has been designated for oyster mitigation. Initial modeling of bay circulation and salinity indicates only minor impacts because of the key role of the Ship Channel in funneling circulation into and out of the San Jacinto River estuary zone, and that channel will not be obstructed except very rarely during storm events.

It is worth noting that an early version of this concept was initially proposed by the late Tom Colbert, an excellent urban planner and Professor of Architecture at the University of Houston. In the early days of the research at SSPEED Center, Tom proposed the creation of a surge protection system that would create a world-class amenity for the Houston-Galveston region. I am sorry that Tom is not with us today to enjoy the emergence of this excellent design by Rogers Partners Architects and Urban Designers for SSPEED Center. He would be proud.

The future of the Galveston Bay Park Plan is unfolding as this is written. The possibility exists that one or more local government entities could propose to construct this protection system under permit from the Corps of Engineers. Such a permit application would take two or three years to process and would include environmental review. If industry could assist in the financing of this system, that would represent a major step forward to implementing this system.