Ring Barrier OPED

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Instead of the proposed Ring Barrier, we recommend consideration of a design approach that incorporates city functions into the protection using urban landscape architecture best practices. Because much of the surge protection probably won't be needed for a number of years, it might be best to take an adaptive management approach that incorporates actual rates of increase of threats, changes in the built and natural environment, and new technologies in an evolving protection scheme aimed at defending the City from increasing nuisance flooding caused by higher tides and increased rainfall as well as from major surge events

In their 2020 proposed Texas Coastal Plan, the United States Army Corps of Engineers and its partner the Texas General Land Office propose Bay defenses to augment the coastal spine. The Galveston Ring Barrier is designed to prevent hurricane-induced back surge from the Bay. It protects the eastern part of the City of Galveston extending out to the airport region by means of a 14 ft. above sea level ring surrounding the region and connecting to the present seawall, which would be raised to 21ft from 17ft.

This is a complex and very difficult project, with both major flood threats increasing – sea level rise and rainfall rates. Coupled rainfall and surge hazards during hurricanes must be effectively considered in the design, which in turn must prevent surge overtopping as well as rain-induced flooding in the ring. Present plans call for a wall 14ft above sea-level for protection; however, future sea level considerations suggest that the wall would need to be 18ft above sea level to provide adequate protection. At either height, the wall will be obtrusive and divisive and disrupt the functions of the port and city. Also, it will cause increased flooding outside its boundaries. Whatever, it's ultimate form, it is important to get the surge protection needed as low as possible in the Bay. Implementation of a strong robust 17-ft Ike Dike concept will lower 100-yr design water levels at the Ring Barrier by 3 to 4 ft, compared to the USACE Plan. Such reductions will greatly improve Barrier design and acceptability as well as lower its cost significantly. Should overtopping or rain flooding occur, the plan calls for the use of pumps to get water over the ring barrier into the Bay. However, New Orleans

has experienced flooding because of old storm sewer infrastructure that prevents the storm water from getting near the barrier to be pumped by the USACE plan. The City of Galveston now has active and planned drainage improvements, but we are not convinced that these improvements have been adequately interfaced to the USACE Plan for pumping and for delivery of water to the pump stations. It is important to integrate major surge protection with protection from the issue of ever-increasing nuisance flooding. Galveston will see nuisance flooding much more often as sea level and associated king tides increase. A ring barrier that requires the securing of many road, railroad and bayou gates is not feasible as a defense against constant small floods. The implementation of the barrier would most likely be more disruptive than the small flood itself.

The entire TAMUG response report is available on the Ike Dike web site (https://www.tamug.edu/ikedike/)