

FISCAL YEAR 2018 DRAFT
SEAWALL & FLOOD PROTECTION SYSTEM CAPITAL IMPROVEMENT BUDGET
PROJECT DESCRIPTIONS

1. Recurring Seawall Maintenance:

The Corpus Christi Seawall was originally constructed from 1939 to 1942. With the initiation of the Seawall Maintenance sales and use tax, a major project was completed in 2007 to address advanced levels of deterioration of the Seawall system. That project was completed for a cost of \$43.4 million. The funding levels programmed in the CIP are anticipated to address routine maintenance issues. A subsequent major reconstruction is shown to occur after the expiration of the current one-eighth cent sales and use tax.

2. Barge Dock Improvements:

The Barge Dock (commonly referred to as the Art Museum Barge Dock) is located on N. Shoreline Boulevard at the north end of the Corpus Christi Seawall adjacent to the Art Museum of South Texas. Its proximity to the entrance of the Port of Corpus Christi, the American Bank Center, Selena Auditorium, the Museum of Science and History, and the Art Museum make the Barge Dock an integral part of these facilities. The Barge Dock area consists of a concrete paved area over fill material, contained along the Corpus Christi Bay by a sheet-pile supported structure topped with a concrete pile cap. The barge dock is frequently swamped by high tides limiting its usefulness. A previous concept of this project contemplated raising the structure and enhancing its use. The current program included funds for maintenance activities only.

3. US Army Corps of Engineers Bulkhead Repairs:

This project would include the construction of a new bulkhead along the south shoreline of the Science and History Museum eastward across the United States Army Corps of Engineers (USACE) property terminating at the northwest corner of the recently constructed bulkhead in front of the South Texas Art Museum. The low lying areas on the USACE property and the Port of Corpus Christi Authority property would be filled to an elevation approximately same as that in front of the Art Museum. Area paving could be constructed between the new bulkhead and existing floodwall.

4. *Salt Flats Levee Improvements:

The Salt Flats Levee System (originally referred to as the Backwater Levee) is an integral component of the downtown flood protection system. The levee requires improvements and maintenance to ensure that the system will function as originally designed. The levee is susceptible to various modes of failure. Additional study is underway and improvements are planned that would be sufficient to be certified by FEMA as a freeboard deficient reach. This means that although the system would not afford the level of protection required to be prevent overtopping in a 100-year event, it would not be vulnerable to catastrophic failure.

5. Repair Marina Breakwater at McGee Beach:

The proposed improvements consist of demolishing the existing elevated walkway and constructing a new breakwater and walkway in its place. The existing rock breakwater and walkway will be repaired and raised. These improvements will help fortify the seawall against wave attack by preventing failure of the breakwater and excessive erosion of McGee Beach. Construct/place rock ballast (smaller stones) to fill gaps between larger stone and provide a base for the new concrete cap. Build new cap wider (assumed here to be 2 ft. wider) and higher (assumed here to be 1 ft. higher) than original. This would make the new cap approximately 6 ft. wide.

6. New McGee Beach Breakwater:

Constructing a new offshore breakwater at McGee Beach will increase storm damage reduction benefits for the seawall by reducing waves at the seawall during a hurricane. Additionally, the offshore breakwater would reduce requirements for beach nourishment at the seawall, providing additional storm-damage reduction benefits by improving the likelihood that a wider, more protective beach will be available during any given storm. The project would also remove or modify the five existing groins that pose a safety hazard and would not likely be needed if the breakwater is constructed.

7. Sunfish Island Breakwater:

The primary goal of the Sunfish Island and Breakwater project is to restore Sunfish Island and modify the breakwater to improve their combined ability to block waves, thus reducing wave impacts on the seawall. The proposed improvement consists of a 300 ft. "gap closure" breakwater between the two segmented breakwaters to reducing wave height at the seawall during storms. The breakwater closure would most likely be constructed of quarry stone similar to the existing breakwaters. To further block storm waves, Sunfish Island would be increased in size of by placing sandy material dredged from the adjacent bay bottom. To help maintain Sunfish Island, an additional 700 ft. of breakwater would be built to block chronic waves from the south.

8. Marina Breakwater Improvements:

The marina breakwater is approximately 5,800 ft. long consisting of quarry stone. The rock breakwater system provides wave sheltering for the marina and storm damage protection for the seawall. The system is vulnerable to settlement, sea level rise and storm damage.

9. McGee Beach Nourishment / Boar Basin Dredging:

The proposed improvement consists of nourishing McGee Beach in order to improve potential storm damage reduction at the seawall. A wider beach will help the seawall survive a storm of longer duration or greater intensity. Sand may be trucked in from upland sources, such as quarries near the Nueces River, or dredged from the marina or bay. This project would address beach renourishment as well as shoaling issues in the marina.

10. *Science and History Museum Floodwall:

This recommended improvement is to construct a new floodwall (or a coastal structure) that would follow a "hypotenuse" alignment between the existing Promenade and the USACE Bulkhead. The project would also backfill the triangle to make it function more like a coastal structure. This would also provide additional land area for future use.

11. *Kinney & Power Street Pump Station Improvements:

The Power Street Pump Station was originally constructed in 1947 as part of the Bay Front Protection. It has 3 pumps with diesel powered motors. The Kinney Street Pump Station was also constructed in 1947. The pump station was reconstructed in 2009. It has 5 pumps with electric motors that are dependent on the 3 generators inside. One redundant pump is located on site.

The downtown flood protection system relies on these two pump stations to remove all water from the area during a significant storm event. Preliminary studies have indicated that the pumping capacity would not be adequate to handle rainfall, inflow and wave overtopping during a 100-year storm event. Planned 2D modelling will help to better define the demands that would be placed on the system during significant storm events. This project would enhance the reliability and capacity of the downtown storm water pumping system.

***Part of Downtown Flood Mitigation Efforts**