

Project Description

Project Brays will help reduce flooding risks by widening 21 miles of Brays Bayou from the Houston Ship Channel to Fondren Road and from West Houston Center Boulevard to State Highway 6, replacing or modifying 30 bridges to accommodate channel modifications, and excavating four stormwater detention basins that will hold a collective approximate 10,740 acre feet (3.5 billion gallons) of stormwater.

Project Brays encompasses more than 75 individual projects and uses a collaborative approach with multiple techniques to address flood risks. The three major techniques being used are channel modifications, bridge modifications, and the construction of regional stormwater detention basins. Each component contributes to reducing flood levels and the risk of flooding; together they form the strategy for Project Brays.

To accommodate channel widening, Project Brays will require modifications to 30 bridges along Brays Bayou. These bridges will be replaced or modified to allow for channel widening and increased flow capacity. The City of Houston proposes using CWSRF Loan Program funds to design and construct hydrologic modifications to eight Project Brays bridges. Bridge modifications include: 1) relocating bridge abutments so the abutments do not obstruct water flow as the channel is widened; and 2) raising the bridges so the bridges' low beams are out of the design flow (Exhibit 1). Bridge modifications to be funded with CWSRF Loan Program proceeds will be strictly for hydrologic improvements. Any transportation-related enhancements to the bridges will be paid for by the city. Bridge modifications improving hydrology are integral to the project's benefits and goals aimed at protecting thousands of residents and businesses along Brays Bayou.

Water Quality

Flooding negatively affects water quality in the Brays Bayou watershed. Project Brays and its three components—channel widening, bridge modifications, and detention basins—will reduce the risk of flooding thereby improving water quality. Detention basins help to filter out sediments, oil and other pollutants from the surrounding neighborhoods' runoff after a rainfall event. Further, trees and shrubs are incorporated into the basins as key water quality features.

Channel and bridge modifications also play an important role in improving water quality. Increased flow capacity in the channel lessens the risk of the bayou overflowing its banks. Currently, when Brays Bayou overflows its banks, flooding may inundate the nearby wastewater treatment plant as it did during the May 2015 flood event. Further, when the bayou overflows, infiltration/inflow into the sanitary sewage collection system causes sanitary sewer overflows (Exhibit 2). There have been over 537 sanitary sewer overflows reported since 2009, the majority attributed to wet weather conditions. Heavy localized rainfall often taxes the existing stormwater collection system leading to localized ponding, infiltration/inflow, and subsequent sanitary sewer overflows. Improved channel flow in Brays Bayou lowers the tailwater at the existing stormwater outfalls thereby enabling the system to drain more efficiently and reducing the frequency of sanitary sewer overflows.

Constructing the bridge modifications and associated channel widening will increase channel capacity, provide flood protection, and lower tailwater reducing infiltration/inflow. These improvements will enable the collection system to operate more efficiently thereby reducing the potential for future sanitary sewer overflows. Exhibit 3 shows actual modifications made at the Old Spanish Trail bridge.