

What is a watershed?

A watershed is a geographical region that drains to a common bayou, creek or other waterway.

Watershed Overview

The White Oak Bayou watershed stretches from central to northwest Harris County and includes the City of Jersey Village and portions of the City of Houston. Rainfall within the 111 square miles of the White Oak Bayou watershed drains to the primary waterway, White Oak Bayou (HCFCD Unit E100-00-00). The bayou flows southeast from its headwaters northwest of FM 1960 to its confluence with Buffalo Bayou (HCFCD Unit W100-00-00) downtown Houston. There are 146 miles of open waterways in the watershed, including White Oak Bayou and its major tributaries, such as Little White Oak Bayou (HCFCD Unit E101-00-00), Brickhouse Gully (HCFCD Unit E115-00-00), Cole Creek (HCFCD Unit E117-00-00) and Vogel Creek (HCFCD Unit E121-00-00). Based on the 2010 U.S. Census, the estimated population of the White Oak Bayou watershed is 433,250. Development in the White Oak Bayou watershed has progressed rapidly and is expected to continue.

Active Capital Projects

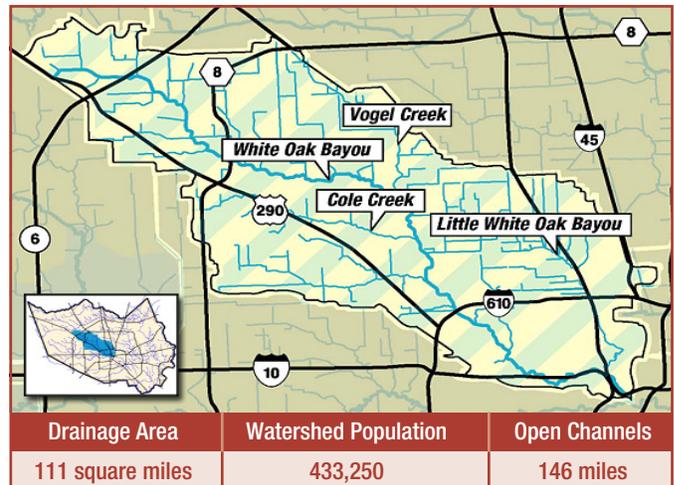
In the past 20 years, the Harris County Flood Control District has spent more than \$117 million on active and completed capital projects in the White Oak Bayou watershed.

Charting Buffalo: A Study of Buffalo and Lower White Oak Bayous –

Charting Buffalo is a regional strategic approach that will identify options for flood damage reduction improvements and demonstrate how these options could be integrated with other community and environmental interests. The study area includes 32 miles of Buffalo Bayou eastward from the Barker Reservoir through downtown Houston to the Houston Ship Channel. Also included in the study area is seven miles of lower White Oak Bayou from North Loop 610 West to the point at which it joins Buffalo Bayou near downtown Houston. The study proposes a partnership approach to implementing larger stormwater detention basins that could be used for both riverine flood reduction and drainage mitigation. While the Charting Buffalo study is funded by the Flood Control District, many organizations that are already investing resources in the area are participating in the study. Preliminary flood damage reduction options have been identified by the study, and the Flood Control District is currently determining how to move forward with additional study efforts. As of mid-2013, the Flood Control District has not allocated funding for the implementation of the preliminary flood damage reduction options. For more information, visit www.chartingbuffalo.org.

Jersey Meadows Stormwater Detention Basin – The final phase of excavation of the Jersey Meadows Stormwater Detention Basin (HCFCD Unit E535-01-00) began in June 2012. The stormwater detention basin is located on a 42-acre site, formerly a part of the Jersey Meadows Golf Course, adjacent to a White Oak Bayou tributary in northwest Harris County. The Flood Control District has previously excavated approximately 146,100 cubic yards of soil from the basin, and this phase will remove an additional 432,000 cubic yards. The City of Jersey Village funded construction of a 1.6-mile trail around the basin through an interlocal agreement with the Flood Control District. This phase is estimated to cost \$3.6 million and expected to be complete in 2014.

White Oak Bayou Federal Flood Damage Reduction Project – The White Oak Bayou Federal Flood Damage Reduction Project is a multi-year, \$166 million project that will substantially reduce flooding risks along White Oak Bayou. Started in 1998, the project is a cooperative effort



between the Flood Control District and the U.S. Army Corps of Engineers (Corps). This partnership, made possible by Section 211(f) of the Water Resources Development Act of 1996, allows the Flood Control District to work hand-in-hand with the federal government to leverage local tax dollars. The federal financial share of the project is about \$100 million. The project includes the excavation of six stormwater detention basins that will hold approximately 1.1 billion gallons of stormwater, construction of approximately 15.4 miles of channel conveyance improvements along White Oak Bayou from Cole Creek to F.M. 1960, and construction of the Jersey Village Channel (HCFCD Unit E200-00-00), which carries 30 percent of White Oak Bayou flows around the City of Jersey Village during heavy rains. Many of these projects have been completed. The remaining projects include the construction of channel conveyance improvements along White Oak Bayou from Cole Creek to the tributary formally identified as HCFCD Unit E122-00-00 and from the Jersey Village Channel to F.M. 1960, and the expansion of two stormwater detention basins. Upon project completion, the Flood Control District estimates that within the project area, most areas along White Oak Bayou will see water surface elevation reductions of 0.5 to 1.5 feet for the 1 percent (100-year) flooding event.

North Canal Bypass Channel Project – At the confluence of White Oak and Buffalo bayous near downtown Houston, a narrow channel and severe channel bends restrict the flow of stormwater during heavy rainfall events. A North Canal Bypass Channel is being considered that would help reduce the risk of flooding to downtown Houston and would also provide flood damage reduction benefits to areas farther upstream of downtown Houston along both White Oak and Buffalo bayous. The Flood Control District is in the process of investigating the concept, and property acquisition, design and construction phases are not yet fully funded. If implementation is feasible, there will be opportunities for the Flood Control District to work with the community on the design of the project.

Completed Capital Projects

Hollister Road Stormwater Detention Basin – The Hollister Road Stormwater Detention Basin (HCFCD Unit E500-03-00), completed in June 2010, helps to reduce flooding risks for residents and businesses along White Oak Bayou by safely storing excess stormwater during heavy rains to reduce peak flows that can cause flooding. Located northeast of the intersection of West Little York and Hollister roads, the basin can hold approximately 316 million gallons of stormwater during heavy rain events.

Jersey Village Channel Project – The Jersey Village Channel Project included enlargements of two channels - the Jersey Village Channel (HCFCD Unit E200-00-00) and the tributary formally identified as HCFCD Unit E141-00-00. During heavy rain events, these channel enlargements divert about 30 percent of the flows from White Oak Bayou to the Jersey Village Channel to minimize flooding along White Oak Bayou. This project modified nearly 11,400 feet of channel, cost approximately \$7 million and was completed in April 2010.

Vogel Creek Channel Conveyance Improvements Project – The Vogel Creek Channel Conveyance Improvements Project was designed to reduce flooding risks along Vogel Creek (HCFCD Unit E121-00-00). The project spanned Vogel Creek from its confluence with White Oak Bayou to Arncliffe Drive – nearly 8,300 feet of channel modifications that increased the creek's average width from 70 feet to 150-165 feet. Completed in June 2008, the project cost approximately \$23.7 million.

Routine and Completed Maintenance Projects

The Harris County Flood Control District oversees more than 2,500 miles (about the distance from Los Angeles to New York City) of bayous and creeks and routinely performs maintenance projects to repair channels and stormwater detention basins that have experienced erosion, slope failure and the accumulation of sediment. The Flood Control District also plants native grasses, wildflowers and trees to help reduce erosion and mowing costs.

Mowing and vegetation maintenance – The Flood Control District performs routine cyclical maintenance, including mowing rights-of-way along bayous, creeks and stormwater detention basins in the White Oak Bayou watershed. The Flood Control District also performs selective clearing of invasive trees and vegetation.

Tree and wildflower plantings – In the 2011-12 planting season, the Flood Control District planted more than 2,300 trees in the White Oak Bayou

watershed. Water oak, green ash and red maple are just a few of the tree species planted along the stormwater detention basin formally identified as HCFCD Unit E541-03-00. During the 2010-11 planting season, more than 1,100 trees, including the bald cypress, loblolly pine and Nuttall oak species, were planted along the Jersey Village Channel. More than 3,000 trees were planted at the Fallbrook Stormwater Detention Basin (HCFCD Unit E500-12-00) in the 2010-11 season, including the American and cedar elm species. In 2008, the Flood Control District seeded several species of wildflowers along the banks of White Oak Bayou, including Mexican hat, prairie verbena, and plains coreopsis.

Brickhouse Gully Concrete Channel Lining Replacement Project

The Brickhouse Gully Concrete Channel Lining Replacement Project is replacing the old, failing concrete channel lining along Brickhouse Gully (HCFCD Unit E115-00-00). The first phase spanned Brickhouse Gully from its confluence with White Oak Bayou to 250 feet upstream of Watonga Boulevard. This first phase was completed in 2006 and cost approximately \$891,000. Completed in May 2011, the second phase replaced the concrete channel lining from the Burlington Northern Santa Fe Railroad tracks to 300 feet upstream of Mangum Road and cost approximately \$673,000. The third phase began in October 2011 and spanned Brickhouse Gully from 300 feet upstream of Mangum to Costa Rica Road. This phase cost approximately \$1.5 million and was completed in late 2012. The Flood Control District is reviewing the existing conditions along the remaining sections of Brickhouse Gully to determine if additional maintenance projects are needed.

Active Maintenance Projects

Cole Creek Erosion Repair Project – The Cole Creek Erosion Repair Project will repair and rebuild eroded side slopes of Cole Creek from its confluence with White Oak Bayou upstream to the Burlington Northern Santa Fe Railroad bridge east of Antoine Drive. Erosion has resulted in damage to the slopes and various storm sewer and outfall pipes in the project area. The maintenance project will include the removal and replacement of damaged outfall pipes and installation of buried riprap on the creek's slopes and toe line, which is the lowest point of a channel's banks. Riprap in Harris County is typically recycled concrete that is processed to fit together like natural rock. Riprap is usually buried to allow grass to grow over it and helps armor a channel's banks to prevent future erosion. Construction on the project began in early October 2012 and is expected to be complete in summer 2013. The project is estimated to cost \$576,000.

E127-00-00 Maintenance Project – The channel formally identified as HCFCD Unit E127-00-00 has experienced severe erosion that has created unstable banks and damaged outfall pipes. The E127-00-00 Maintenance Project will repair erosion and replace damaged outfall pipes along E127-00-00 and install a drop structure at the confluence of White Oak Bayou and E127-00-00. When water passes through a drop structure, it falls to a lower elevation. This structure helps slow the water's energy and velocity, thereby helping to prevent erosion. The overall goal of the project is to restore the channel's stability and improve its ability to convey stormwater. The project will also replace damaged concrete slope paving along White Oak Bayou. Project construction is expected to begin in April 2013 and be complete in late 2013.

What We Do

The Harris County Flood Control District was initially created in 1937 to serve as a local partner to the U.S. Army Corps of Engineers to build projects that reduce flooding risks and damages from major bayous and creeks in Harris County. While the District still fulfills that role, its responsibilities and capabilities have expanded over the years. The mission of the Flood Control District is to provide flood damage reduction projects that work, with appropriate regard for community and natural values. The Flood Control District accomplishes its mission by devising flood damage reduction plans, implementing the plans and maintaining the infrastructure.

For more information about the White Oak Bayou watershed, its studies and projects, or the Flood Control District, please visit our website at www.hcfcd.org. For more information on a particular study or project, please call the Harris County Flood Control District's Project and Study Information Line at (713) 684-4040.