

Buffalo Bayou and Tributaries Resiliency Study

<u>Study</u> Authorization	Section 216 of the Flood Control Act of 1970 (Authorizes review of completed projects)
<u>Budget</u>	\$6 million
<u>Timeline</u>	3 Years
Study Start	October 2018
Study Complete	October 2021
<u>Non-Federal</u> <u>Sponsor</u>	Harris County Flood Control District
<u>Purpose</u>	Flood Risk Management
<u>Goal</u>	Improve the effectiveness of the Addicks and Barker project and reduce the risk of flooding upstream and downstream along the Buffalo Bayou and its Tributaries
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ABOUT THE STUDY

The US Army Corps of Engineers (USACE) Galveston District, in partnership with Harris County Flood Control District (HCFCD), began the Buffalo Bayou and Tributaries, Texas Resiliency Study (Study) in October 2018. The study will identify and evaluate the feasibility of reducing flood risks along Buffalo Bayou and its tributaries, both upstream and downstream of Addicks and Barker dams, in Harris and Fort Bend Counties, Texas. The study will also complete a Dam Safety Modification Evaluation on Addicks and Barker dams.

Problem

The Buffalo Bayou and Tributaries, Texas Project (Project) was authorized by Congress in the 1930s for the purpose of providing flood control for the City and Port of Houston. In the 1940s, Addicks and Barker dams were constructed and a portion of Buffalo Bayou was straightened as part of the completed Project. Since Project completion, a number of physical improvements and operational changes have been made. However, the watershed continues to experience major flood events, most recently and most significantly Hurricane Harvey in 2017. These recent flood events combined with documented increases in precipitation patterns and the potential for flooding events in the future indicate the Project may need to be modified to mitigate flood risks more effectively.

Study Area

The study will look at ways to reduce flooding in three watersheds — Addicks Reservoir, Barker Reservoir, and Buffalo Bayou — focusing on areas upstream and downstream of Addicks and Barker reservoirs and along Buffalo Bayou. A portion of Cypress Creek Watershed is being considered because overflow from this watershed contributes to flooding in the Addicks Reservoir Watershed. Brays Bayou and White Oak Bayou could be affected by any measures benefiting Buffalo Bayou, so impacts to these watersheds will be evaluated. The study scope does not include identifying ways to lower the flood risk in the Lower Cypress Creek, Brays Bayou or White Oak Bayou watersheds. *(continued on page 2)*



WHAT IS A FEASIBILITY STUDY?

A feasibility study is the initial step in the USACE process for addressing many of the nation's significant water resources needs. A feasibility study establishes the Federal interest, engineering feasibility, economic justification and environmental acceptability of a project. An interdisciplinary team of hydrologists, engineers, biologists, and economists work together to identify the problems, develop and evaluate solutions, resolve conflicting interests, and prepare recommendations. The recommendation is presented in a Chief's Report that goes to Congress for authorization and construction.

ESTIMATED PROJECT SCHEDULE



(continued from page 1)

Dam Safety

The study will also evaluate dam safety concerns at Addicks and Barker dams. USACE maintains a robust Dam Safety Program. This program regularly assesses USACE dams in comparison to modern design criteria and expected performance under a wide range of scenarios. Addicks and Barker dams were rated as high hazard dams because of the potential for life loss and significant property damage if the dam failed. A 2013 evaluation recommended replacement of the outlet control structures at both dams to meet current design criteria and recommended a second study be done to assess the uncontrolled spillways. Construction is underway at both dams with expected completion in the summer of 2020. This study will take a focused look at the uncontrolled spillways of both dams in an effort to understand how they would perform if water were to go over the top of them.



ALTERNATIVES BEING CONSIDERED

No Action (Alt 1):	Considers what we operate and mainta changes. The analy makers to compare and determine whe is preferred over no and planning policy	and happen if the agency continued to ain the authorized project with no sis provides a baseline for decision benefits and impacts of the alternatives ether or not involvement in some project b action. Alternative is required by NEPA c.
STORAGE — Store New Reservo	e water until safe to ir / Dam (Alt 2)	release storm water downstream Increase Reservoir Storage (Alt 3)
CONVEYANCE — I	Move more water th efficient manner	rough the system in a safe and more
Tunnels (Alt 4)	Diversion (Alt	5) Channel Improvements (Alt 6
Changes to Auxilia	ary Spillway (Alt 7):	Modifications to the Addicks and Barker uncontrolled spillways
Comprehensive (A	Alt 8): Combination storage and	of the most effective and efficient conveyance alternatives

Nonstructural (Alt 9): Adapt to the natural characteristics of flooding without influencing or modifying the flow of water

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GET INVOLVED!

The National Environmental Policy Act (NEPA) is a Federal Law that serves as the Nation's basic charter for environmental protection. While NEPA does not require an agency to achieve particular environmental results, it does require an agency to take a hard look at the potential environmental impacts of a proposed Federal action. NEPA promotes better decision making by ensuring that high quality environmental information is available to agency officials and the public before the agency decides whether and how to undertake a major Federal action.

The study team determined that some of the measures could significantly affect the natural or human environment, so to comply with NEPA an **Environmental Impact Statement (EIS)** will be prepared. The EIS will not determine which alternative to choose, prevent environmental impacts from happening or prohibit any actions. The **Record of Decision (ROD)** will document the final decision, explain the reasons it was selected, and summarize any minimization and mitigation measures that will be included in the project to reduce overall impacts.

The NEPA process provides an opportunity for the agency to hear and consider the opinions and concerns of potentially affected communities. Federal decisions have the potential to affect many aspects of your life, so we encourage your involvement in the process.

A Citizen's Guide to NEPA is a great resources to learn more about the NEPA process. It is available at: https://ceq.doe.gov/get-involved/citizens_guide_to_nepa.html

Notice of Intent Published in Federal Register

Publication of the Notice of Intent (NOI) formally starts the NEPA process. An additional 30-day scoping period will begin on December 27, 2019. Submit, comments by e-mail to BBTRS@usace.army.mil or by mail to USACE, Galveston District, Attn: BBTRS, P.O. Box 1229, Galveston, TX 77553.



SIGNIFICANT TASKS WE HAVE BEEN WORKING ON

Forecast Future Condition

The study team used the best available information to evaluate the potential impacts of future flood events if no actions are taken to reduce risks.

The National Oceanic and Atmospheric Administration provided revised rainfall data for the Houston area. The data shows that an event with 18 inches of rainfall has a 1% chance of occurring in any given year. The previous rate, 13 inches, now has a more frequent 4% chance of occurring in any given year within a 24hour period.

Developed conceptual designs of flood risk management measures.

The study team has been developing and running models to evaluate the physical and economic performance of measures. In this phase of the study, the designs are very high-level, describing the volume of water the design can move or store and the general footprint to understand real estate costs and environmental impacts. The level of detail is enough that the team can identify differences and recommend a plan based on engineering feasibility, economic benefits and costs, and environmental acceptability. The design is not detailed enough to be constructed.

Identified potential impacts to many natural resources.

As part of the NEPA process, the study team has been looking at how the potential measures and plans could affect the natural, economic, and social environments. We have been working closely with HCFCD; other Federal agencies; state, local and Tribal governments; and non-profit organizations to better understand the potential environmental impacts.

MAY 2019 PUBLIC MEETINGS AND COMMENT PERIOD PROVIDE VALUABLE INPUT



From April 30 to May 9, 2019, the US Army Corps of Engineers (USACE) and Harris County Flood Control District (HCFCD) hosted the first opportunity for the public to learn about the Buffalo Bayou and Tributaries Resiliency Study and provide early input to help shape the focus of the study. A total of 473 people attended the five public meetings held upstream of Addicks and Barker reservoirs and between the dams and downtown Houston. In general, attendees supported project goals and appreciated the information provided. Public concerns were focused on how long it would take before any on-the-ground action is taken.

During the early scoping period, 279 comment letters were submitted and 541 substantive comments were identified to be addressed in the Draft Feasibility Report and EIS or considered during the study alternative development. A report summarizing all the comments received is available on the study website at: <u>https://</u>

<u>www.swg.usace.army.mil/</u> <u>Missions/Projects/Buffalo-Bayou-</u> <u>and-Tributaries-Resiliency-</u> <u>Study/</u>.

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3 CONCERNS

The study process takes too long.

The 3-year study process is designed to allow enough time to confirm the identified solution to the problem is a good use of tax dollars and that the project won't unacceptably affect the human and natural environment. The process takes time to ensure that the right decisions are made.

Floodplain regulations need to change.



USACE does not have the authority to recommend or implement policy changes to how or where development can occur. This is a local government responsibility. Both Harris County and the City of Houston have passed stricter regulations on floodplain development.

Nothing is being done to protect us now.

