

KEY TERMS & FREQUENTLY ASKED QUESTIONS¹

KEY TERMS

Alternatives and measures: Alternatives are potential solutions to address flood risk management. An alternative may be a combination of one or more measures that, together, would address one or more of the study objectives. A measure is an action, usually in a specific location, that meets an objective, in whole or in part.

Annual Exceedance Probability: The Corps and other agencies often refer to the percent chance of the occurrence of certain magnitudes of flow as an Annual Exceedance Probability or AEP. An AEP is always less than one. So, a 0.2 AEP flood is estimated to have a 20% chance of occurring in any given year, and this corresponds to a 5-year recurrence-interval flood. Recurrence-interval terminology tends to be more understandable for flood intensity comparisons. However, AEP terminology reminds us that a rare flood does not reduce the chances of another rare flood within a short time period.

The term 50-year event, for example, has a 2% chance of happening in any given year; a 500-year event has a 0.2% chance of occurring in any given year. It does not mean that the event can only happen every 500 years. To learn more about the terminology of floods, including recurrence intervals, from the USGS, visit: https://www.usgs.gov/special-topic/water-science-school/science/100-year-flood?qt-science_center_objects=0#qt-science_center_objects.

Buffalo Bayou and Tributaries Resiliency Study (BBTRS): The BBTRS evaluates ways to reduce flooding in three watersheds – Addicks Reservoir, Barker Reservoir, and Buffalo Bayou – focusing on areas upstream and downstream of Addicks and Barker dams and along Buffalo Bayou. A portion of the 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 actions benefiting Buffalo Bayou, so impacts to these watersheds will be evaluated.

Flood Risk Management (FRM): While flood risks can never be entirely eliminated, the Corps focuses its policies, programs and expertise on reducing overall flood risk. This includes the appropriate use of structures such as dams, levees and floodwalls. It also promotes alternatives such as land acquisition, flood-proofing and landowners’ consideration of the purchase of flood insurance. Such alternatives reduce the risks to public safety, reduce long-term economic damages and improve the natural environment.

Additionally, the Corps’ [National Flood Risk Management Program](#) embraces a more comprehensive flood risk reduction strategy that emphasizes the importance of property owners, residents, communities and government understanding their roles and responsibilities in reducing overall flood risks before actual flooding occurs. For a list of USACE Flood Risk Management Program definitions, visit: <https://www.iwr.usace.army.mil/Missions/Flood-Risk-Management/Flood-Risk-Management-Program/Frequently-Asked-Questions/FAQ-Definitions/>

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Harris County Flood Control District (HCFCD): The Harris County Flood Control District is a special purpose district created by the Texas Legislature in 1937 and governed by Harris County Commissioners Court. The District’s Mission is to “provide flood damage reduction projects that work, with appropriate regard for community and natural values.” The District accomplishes its mission by devising flood damage reduction plans, implementing the plans, and maintaining an infrastructure of approximately 2,500 miles of open channel and 9,200 acres of stormwater detention basins. The District’s jurisdictional boundaries are set to coincide with Harris County, a community of more than 4.5 million people (2015) that includes the City of Houston. The other boundaries in which HCFCD operates - those provided by nature - are of the 22 primary watersheds within Harris County’s 1,777 square miles. Harris County Flood Control District is the non-federal sponsor for the BBTRS.

Interim Report: Since the early discussion of potential alternatives at the public scoping meetings in May 2019, study alternatives (potential ways to reduce risks to the upstream and downstream communities) have evolved. Based on screening criteria, some alternatives were removed from further consideration and others advanced to the next step in their evaluation. This screening considered the results of more detailed modeling and additional information from earlier analyses. The Interim Report explains this updated information and presents the focused array of alternatives. It does not include recommendations or decisions but public comments can help inform decision makers as they further evaluate alternatives and weigh their benefits and costs.

Non-Federal Study Sponsor: A non-federal study sponsor is a public entity who enters into an agreement with the Corps. The success of the planning process depends to a great extent on establishing a successful partnership with project sponsors and other stakeholders. Except for non-profit organizations, non-federal entities must meet the requirements of Section 221 of the Flood Control Act of 1970 as amended, in order to be a sponsor for a Corps study. Project sponsors help define water resource problems and opportunities, the scope of the study, specific study tasks, cost estimates and schedules. Partnerships facilitate making decisions about the type and mix of study objectives and the formulation, evaluation and selection of alternatives. They contribute to project design, including environmental and aesthetic features and ensure that, to the extent possible, other factors that affect sponsoring communities are addressed during the planning process.

Residual risk: “Residual Risk” is the flood risk that remains if a proposed flood damage reduction project is implemented.

Risk: Risk is the measure of the probability of occurrence times the consequences.

Watershed: A watershed is an area of land that drains all the streams and rainfall to a common outlet such as the outflow of a [reservoir](#), mouth of a bay, or any point along a [stream](#) channel. Watersheds can be as small as a footprint or large enough to encompass all the land that drains water into rivers that drain into Galveston Bay. The word "watershed" is sometimes used interchangeably with drainage basin or catchment.

Written comment: Written comments allow individuals, organizations, agencies and businesses to provide written input on the study. Commenting is not a form of “voting” on whether a particular action should take place; however, the information provided can influence decision-makers and their final decisions.

FREQUENTLY ASKED QUESTIONS

Submitting Comments

- **Why submit a written comment?**

Comments can help inform decision makers as they identify alternatives and weigh the benefits and costs of alternatives or the individual measures that comprise an alternative. Public comments on the Interim Report and, later, on the draft feasibility report and the draft environmental impact statement (EIS) will help identify any additional impacts not yet considered.

- **How long do I have to submit written comments?**

The comment period for the Interim Report is 30 days. Written comments should be e-mailed or post-marked by November 1, 2020.

- **Where do I send written comments?**

Written comments may be e-mailed to BBTRS@usace.army.mil or mailed to USACE, Galveston District, Attn: BBTRS, P.O. Box 1229, Galveston, TX 77553.

- **Will I be able to provide oral comments?**

For this phase of the study, we will not be accepting oral comments. During future public review and comment periods, oral comments may be accepted.

- **How will my comments be used to aid in identifying a recommended plan?**

Specifically, comments can help inform decision makers as they identify alternatives and weigh the benefits and costs of alternatives or the individual measures that comprise an alternative. Public comments on the Interim Report and, later, on the draft feasibility report and the draft environmental impact statement will help identify any additional impacts not yet considered.

- **What is the best way to write a comment for maximum impact?**

1. Define your objectives (i.e., what do you hope to achieve by submitting your comments) and write your comments in a way that best supports your objectives.
2. Use headings and sub-headings to separate your points. Highlight your headings with some combination of spacing, color, capital letters, or font.
3. For specific concerns with the document, reference the document section or page number and paragraph of concern. This makes it easier for the reviewer to locate places in the document you are referencing. Avoid dense blocks of text.
4. Phrase your comments as statements, not questions.
5. Use specific examples to illustrate concerns and provide supplemental information, if necessary.

6. Offer suggestions for how the document’s authors can address your concerns.

- **I’m reading the document and finding errors and inconsistencies. What do I do with comments about these?**

We welcome your comments on these points.

Alternatives

- **What are the alternatives outlined in the Interim Report?**

The Interim Report identifies a more focused array of alternatives that has evolved from a broader list in earlier study stages. Toward the study goals and in consideration of public input during the scoping stage, the study team developed and evaluated an initial range of structural and non-structural measures based on feasibility, performance, cost, and benefits. Based on criteria, screening removes some alternatives from further consideration and allows others to advance to the next step in their evaluation.

- **How are alternatives being evaluated?**

Evaluating and comparing alternatives requires criteria, the yardsticks or standards against which alternatives can be compared and decisions can be made. The Corps uses criteria based on life safety, the ratio of benefits to costs, and criteria included in the National Environmental Policy Act. NEPA criteria are based on both regulatory, or governing, requirements and community values derived from public input.

Each alternative must be evaluated to determine its:

- ability to meet the Purpose and Need of the proposed action
- technical feasibility (for example, can the alternative be built or engineered?)
- economic feasibility (for example, is the alternative a cost-effective way of meeting the purpose and need?), and
- consideration of potential effects to environmental and social resources identified during scoping

- **Does the Interim Report contain a recommended action or Tentative Selection Plan?**

No. Given the high cost and social impacts of implementing several of the measures in this more focused array of alternatives, the Corps and HCFCD are seeking further public input on the benefits, tradeoffs and constraints of implementing these measures to help build recommendations that are both sensitive to these communities and more effectively meet project goals.

- **Why is one of the alternatives “No Action”?**

The No Action Alternative represents the expected future condition in the study area if none of the action alternatives are selected and implemented. It serves as a baseline condition to compare costs, benefits and impacts and helps identify how each action alternative performs compared to doing nothing.

Timeline

- **How do I keep track of study progress?**

Please add your name to our project email list for updates and notices about opportunities to become involved and check our website anytime to track project progress.

- **Will this interim report process increase the time before anything is built to protect us?**

Publishing the Interim Report for public review and considering public comment at this stage is an additional step in this study and will extend the time needed to complete the study. It will add 6 additional months to the timeline needed to complete the study. However, considering input at this stage will help ensure our analysis of a complex problem—and ultimately our decisions—are effective, responsive, and understood by the region’s communities.

- **How soon can we expect anything to be built after your study is complete?**

This study is the first phase of developing potential long-term actions to reduce flood risks. This report does not provide specific design or construction details and there are more steps to advancing a completed study toward detailed design, funding and construction.

- **What can I do now to reduce my risk of flooding?**

Understanding the roles of all levels of a community leads to shared responsibility in reducing flood risks. Individual, neighborhood, community, state and federal actions all add up to better solutions to reduce those risks.

As a resident, property owner or business owner, we encourage you to understand your flood risk, take actions to reduce that risk, and know what to do if you are impacted by a flood. To learn about the many actions you can take to build individual and community resilience now and into the future, visit our website or start with the website of the [Houston Office of Emergency Management, www.ready.gov](#), and the [Harris County Flood Control District](#).

- **What is the next step in the process?**

Following the Interim Report comment period, the Corps will further evaluate the most feasible measures and combine them into an alternative that could best meet the Study’s goals. This recommended alternative is called the Tentatively Selected Plan. The draft feasibility report will document the Tentatively Selected Plan and, along with a draft environmental impact statement, will be made available for public review and comment.

Environmental Concerns

- **How does an interim report fit into the National Environmental Policy Act process (NEPA)?**

The Corps’ civil works studies are formulated and evaluated within the National Environmental Policy Act, or NEPA, process. This includes the analysis used to reach the Interim Report. The complete evaluation of the measures and alternatives will be documented in the draft environmental impact statement.

- **How will mitigation for environmental impacts be calculated and where would mitigation sites be located?**

NEPA requires federal agencies to consider social and natural environmental impacts in decision making. Mitigation plans for these impacts will be presented in the draft EIS. It's too early to discuss the mitigation of impacts; however, these evaluations and considerations are an important part of the NEPA process.

Specifically, under NEPA, mitigation calculations are based several factors, in coordination with federal and state resource agencies, and location of mitigation sites typically is dependent on the type of mitigation needed and the ability to achieve long-term benefits compared to cost.

- **What natural and nature-based solutions were considered? Are they included in the Interim Report?**

The restoration and/or preservation of wetlands, prairies and riparian areas can provide benefits toward reducing flood risks. However, to achieve the necessary volume, or acre-feet, of storage necessary to meet this Study's goals, and as provided by the other alternatives under consideration, sufficient restoration and preservation areas do not exist on the current landscape. Specifically, hydrologic interactions, soil types, and other features which limit where and how much storage can be accomplished are limited in wetland areas and Katy Prairie locations. For these reasons, nature and natural based solutions considered during earlier study steps were screened out. The draft EIS will provide documentation of this analysis.

- **How will the project impact wildlife in the Addicks and Barker Reservoirs?**

As we move this study toward a proposed action, we will conduct additional analysis to learn more about potential impact. These will be documented in the draft EIS.

Flood Risk, Mapping & Insurance

- **How do I find out if I live in a flood zone?**

[The Federal Emergency Management Agency's Flood Map Service Center \(https://msc.fema.gov/portal\)](https://msc.fema.gov/portal) is the official public source for flood hazard information. Use the Center's website to find your official flood map, access a range of other flood hazard products, and take advantage of tools for better understanding flood risk. Please note: FEMA flood maps are continually updated through a variety of processes. Effective information that you download or print from this site may change or become superseded by new maps over time. You can also learn more here: www.floodsmart.gov

Addicks and Barker dams and reservoirs

- **Why were the Addicks and Barker dams and reservoirs constructed?**

In response to devastating floods that occurred in Houston in 1929 and 1935, the Corps' Galveston District began construction of Addicks and Barker dams to prevent the loss of life and property and provide flood damage reduction along Buffalo Bayou downstream of the reservoirs and through the center of the City of Houston. Construction of the Addicks and Barker dams and reservoirs was completed in 1948 and 1945, respectively, in what was then undeveloped areas in far west Harris and east Fort Bend counties.

- **Where are the dams located?**

The Addicks and Barker Dams and Reservoirs are located in southeast Texas in the San Jacinto River basin approximately 17 miles west of downtown Houston. The reservoirs are strategically located above the confluence of Buffalo Bayou and South Mayde Creek. The majority of both Addicks and Barker structures fall within Harris County, however, a portion of the Barker Reservoir crosses into Fort Bend County. The structures are located near the intersection of Interstate Highway 10 and State Highway 6, with the Addicks Reservoir located north of I-10 and the Barker facility located south of I-10.

- **How does the Corps operate the dams?**

Addicks and Barker dams are normally operated with the gates open to allow free flow of water through the outlet works structures, which keeps the reservoirs dry and preserves their overall capacity to store storm water and reduce flooding in Buffalo Bayou. When a rain event occurs, the gates are closed on the dams to reduce flooding below the reservoirs. When the downstream runoff has receded to non-damaging stages, reservoir operations resume, the gates are opened and water is released.

- **How often are the dams inspected?**

The Corps continually monitors all of its dams nationwide under its Dam Safety Program, a program that is designed to ensure that all federal dams are designed, constructed, operated and maintained as safely and effectively as possible. The Corps' Dam Safety Program provides a framework to ensure that both short and long-term solutions are studied and applied as well as ensures the protection of life and property. The last periodic inspection of both dams was completed in 2017.

- **Is there a threat to Houstonians from the dams?**

All dams present risk potential; however, it is important to know that Addicks and Barker dams are not in imminent danger of failing. These two dams form reservoirs that are dry much of the time. They are continuously monitored to ensure structural integrity. However, the fact that the Houston metropolitan area is the nation's fourth largest population center is a primary concern. Any dam safety issues at Addicks and Barker could have a far greater impact due to the magnitude of people and property downstream, as opposed to other dams around the country located in rural or low-population density areas.

- **Where can I learn more about the Corps' Addicks and Barker Dam Safety Program?**

To learn more about the Galveston District's Dam Safety Program, visit:
<https://www.swg.usace.army.mil/Missions/Dam-Safety-Program/>

- **Why will there be residual risk?**

No entity or organization can eliminate flooding. Understanding the roles of all levels of a community, however, leads to shared responsibility in reducing flood risks. Individual, neighborhood, community, state and federal actions all add up to better solutions to reduce those risks.

Key to successfully reducing flood risk-in the short-term and into the future-is the involvement of government leaders and the public, the consideration of all available tools to improve public safety, and the integration of environmental, social, engineering and economic factors. As a resident, property owner or business owner, we encourage you to understand your flood risk, take actions to reduce that risk, and know what to do if you are impacted by a flood.