

**BBTRS Consensus Building**  
**Buffalo Bayou Downstream Flood Mitigation Projects**

Much Input by Susan Chadwick (Save Buffalo Bayou); Summary by Mike Dach (AFMN); Rev: 01/05/2021

**Objectives:**

- **Project “Desirable Characteristics”:** Community wide support, Cost effective, Smaller size, Decentralized or distributed, Redundant to prevent single mode failure, Nature based, Additive, Scalable, Short completion times, and/or Deliver Benefits Incrementally with increasing construction progress)
- **Consensus Building:** Congressional Aide advised that Stakeholder Plans differing from [*or contrary to*] BBTRS recommendations, are more likely to receive support from our local US Congressmen ... if such differing Plans reflect Stakeholder Community Consensus.
- **Addicks Watershed Projects:** Addicks Flood Mitigation Network (AFMN) Survey indicates Upstream & Downstream Stakeholder Groups have almost reached consensus on an array of Projects with “Desirable Characteristics” to prevent Reservoir Perimeter Community flooding.
- **Buffalo Bayou Watershed Projects:** AFMN Survey indicates Downstream Stakeholder Groups are near consensus on opposing Improvements (Channelization), and near consensus favoring re-study of the Tunnel. However, there is No Consensus on use of Projects with “Desirable Characteristics”.
- **Reservoirs Drainage Projects:** The Survey indicates Downstream Stakeholder Groups have NOT reached Favorable Consensus on Projects with “Desirable Characteristics”, that can drain the Reservoirs in a reasonable time, such that their nominal storage capacity can protect Downstream and Upstream Communities if another heavy rain event closely follows.
- **Conclusion:** It may be prudent for Downstream Flood Mitigation Groups to consider, and reach Consensus on (favor or oppose), “Buffalo Bayou Flood Mitigation Projects” that have been studied to decrease flooding and/or increase local drainage capacity between SH-6 and Downtown Houston. Issues and Project Summaries are contained in the following documents:
  - **BBTRS Consensus Building by Mike Dach (AFMN), 01/09/2021 (this Document)**
  - **Buffalo Bayou Flood Mitigation Methods by Mike Dach (AFMN), 12/23/2020 (not an endorsement)**

**The benefit for reaching Consensus includes the following points relating to the BBTRS Interim Report.**

**Defining the Problem before Suggesting a Flood Mitigation Solution:** Downstream of the Dams are 4-5 individual Buffalo Bayou hydraulic reaches/sections, with potentially unique flooding problems and solutions.

Mitigation Group “Save Buffalo Bayou” has observed that Reaches downstream of BW-8 can handle much higher flows than upstream, before experiencing flooding problems. This is an important part of Defining the Problem that the Corps, HCFCF, and Downstream Stakeholders are trying to solve.

- Hurricane Harvey flooding that occurred when the Corps opened the Dams’ Outlet Gates on Aug. 28, 2017, was mainly confined from just below the Dams to just below BW-8 (excluding the flooding that was occurring upstream of the Reservoirs).
- The peak of flooding from Harvey had already passed downstream when the Corps opened the Outlet Gates.
- Many people downstream think that their flooding was caused by the opening of the Outlet Gates. This is not true. The opening of the Outlet Gates only affected property to just below BW-8.
- Suggested solutions for one reach, should not create “risk transfer” for other reaches.

**Buffalo Bayou Reaches – Harvey type Heavy Rain Event Observations – Stakeholder Interest Groups**  
 (Observations of Maximum Flooding prior to the Start of Controlled Releases from the Dams on Aug 28, 2017)

<u>Start of Reach or Section</u>	<u>End of Reach or Section</u>	<u>Flooding Observations</u>	<u>Flood Mitigation Stakeholder Groups</u>
SH-6	BW-8 (a)	Legend & Briar Dr communities	Memorial Super Neighborhood #16. SN # 17, 18, 20. Sandalwood Civic Club.
BW-8 (a)	Shepherd Dr Bridge	Residences	Save Buffalo Bayou.
Shepherd Dr Bridge	Sabine St Bridge	Parks	Buffalo Bayou Partnership.
Sabine St Bridge	East of Downtown Houston	Theater & Municipal district	
East of Downtown Houston	Interstate I-69	Commercial business	North Canal Project (CoH, HCFCD, TxDOT, Memorial Heights Redevelopment Authority (TIRZ 5)
Interstate I-69	Ship Channel Turning Basin	No flooding	
Most to All Reaches			Bayou City Initiative. Bayou Preservation Association. Greater Houston Flood Mitigation Consortium. Houston Stronger. Residents Against Flooding. SSPEED Center at Rice Univ.

Note (a): This channelized reach actually extends to a few hundred feet east of BW-8 to Legend Ln (on North), and Briar Dr (on South).

**“New Projects Desirable Characteristics”:**

- Community Wide Support
- Cost Effective
  - Zero-to-Lower Additional Cost
  - HCFCD \$2,5 B Bond Projects assumed to be Zero Additional First Cost
- Smaller Size
- Geographically Decentralized, Redundant, Not prone to single-mode failure
- Nature Based
- Additive (rather than Substitutive)
- Scalable
- Deliver Relief Incrementally (rather than at end of long approval, engineering, construction, and start-up)

**BBTRS Interim Report - Community Response:** Disappointing, since BBTRS returned to old-school flood planning. Most Alternatives (Projects) failed to pass USACE’s own Benefit/Cost guidelines. USACE largely ignored “New Project” ideas proposed by Flood Mitigation Leaders:

- Responding to the BBTRS Scoping Period request for public input (Spring 2019).
- Responding to the BBTRS Interim Report request for public input (October 2020).

**“River” Tunnel from Reservoirs to Houston Ship Channel**

BBTRS screened-out Tunnel (expensive, long time to benefit) to be re-studied. Stakeholder suggests include:

- Dual Intakes (one inside each Reservoir, rather than one Common Intake below Dams’ Outlet Structures)
- Shorter Length (23 miles to Ship Channel Turning Basin, rather than 34 miles to Galveston Bay)
- Dual Usage (also provide fresh water storage and supply for the Houston East Water Purification Plant)

**Addicks Watershed Flood Mitigation Methods – Consensus:** Upstream and Downstream Stakeholder Organizations have almost reached full consensus. A Vertical Array of such projects may furnish sufficient storage capacity to prevent Addicks Reservoir Pool Flooding of Perimeter Communities, without the Cypress Creek Reservoir, Buffalo Bayou Channelization, or River Tunnel.

**Addicks & Barker Reservoirs - Storm Water Drainage:** Missing is a Conveyance Project with similar “New Project” characteristics, that can drain the Reservoirs in a reasonable time, such that their nominal storage capacity can protect Downstream and Upstream Communities if another heavy rain event closely follows. USACE proposed to drain the Reservoirs with Buffalo Bayou Improvements (channelization), or Non-structural Buyouts, rather than with the screened-out River Tunnel.

**Buffalo Bayou Flood Mitigation Methods – Consensus and Lack of Consensus:** Upstream and Downstream Stakeholder Organizations have reached “almost” full Consensus, opposing Improvements (Channelization), and favoring re-study of the Tunnel. However, there is No Consensus on use of:

- Debottlenecking (a) Methods to reduce the flood threat to adjacent Buffalo Bayou Communities (when the Reservoirs Outlet Gates are closed).
- Debottlenecking (a) Methods to create Bayou spare capacity for draining Reservoirs in a reasonable time.

Note (a): Debottlenecking minimizes flow restrictions in the Bayou, that prevent greater safe flow capacity.

Actually, there has been little Stakeholder Flood Mitigation public discussion for BBTRS. However, such projects have been completed, and/or are currently funded (by HCFCD, COH, TxDOT, others) in Buffalo Bayou reaches upstream of BW-8, and downstream of Shepherd Dr Bridge.

**Collaboration between USACE and Local Stakeholder Organizations:** Our US Congressmen are more likely to request USACE to have a much-needed frank discussion of differing mitigation viewpoints with Stakeholder Leadership, if Stakeholder Leaders can present Consensus Alternatives to the BBTRS Plans.