

MEMORANDUM

TO: Lower Brazos Regional Flood Planning Group **DATE:** 10/14/2021
FROM: Sam Hinojosa, PE, CFM **AVO:** 43794
EMAIL: shinojosa@halff.com
SUBJECT: Floodplain Management Practices and Flood Protection Goals

On September 23, 2021, the Lower Brazos RFPG held a public meeting in a hybrid setting during which the consultant team presented the results of the data collection effort related to the topics of potentially recommending and potentially adopting floodplain management standards and flood protection goals.

Flood Management Standards

The Lower Brazos RFPG is required to consider the possibility of recommending or adopting consistent minimum floodplain management standards and land use practices for the entire region. While recommended practices encourage entities with flood control responsibilities to establish minimum floodplain management standards, the adoption of minimum standards requires that entities adopt the minimum standards before their floodplain management evaluations (FMEs), floodplain management strategies (FMSs), and/or floodplain mitigation projects (FMPs) could be considered for potential inclusion in the regional flood plan. The following table lists the floodplain management standards for the RFPG to consider for approval on October 28, 2021. More information on how the recommendations were developed can be found in the attached document titled “Chapter 3 Floodplain Management Practices and Flood Protection Goals.”

| Recommended Standard | Region Wide | Zone 1 “Coastal” | Zone 2 “Upper Coastal” | Zone 3 “Brazos Valley” | Zone 4 “Middle Brazos” |
|---|-------------|---------------------|------------------------------|------------------------------|------------------------------|
| National Flood Insurance Program Participation | X | | | | |
| Compensatory Storage Requirement in 1% Floodplain | X | | | | |
| No Adverse Impacts for the 1% Storm Event | X | | | | |
| Improved Flood Response | X | | | | |
| Improved Flood Risk Awareness/Education | X | | | | |
| Use of Best Available Rainfall Data | | X | X | X | |
| No Adverse Impacts for the 1% and 10% Storm Event | | X | X | X | |
| Formation of a Voluntary Buyout Program | | X | | | |
| Long-term Operation and Maintenance Planning of Drainage Infrastructure | | X | | | |

| Recommended Standard | Region Wide | Zone 1 "Coastal" | Zone 2 "Upper Coastal" | Zone 3 "Brazos Valley" | Zone 4 "Middle Brazos" |
|--|-------------|---------------------|------------------------------|------------------------------|------------------------------|
| Drainage Corridor Preservation | | | X | X | |
| Compensatory Storage Requirement in 0.2% Floodplain | | | | X | X |
| Requirements for Culvert and Bridge Crossings | | | | X | X |
| Roadway Requirements within the Floodplain | | | | X | X |
| Culvert and Bridge Hydrologic and Hydraulic Analysis Requirement | | | | X | X |

Flood Management Goals

The Lower Brazos RFPG is required to consider recommending or adopting specific and achievable flood mitigation and floodplain management goals along with target years by which to meet those goals. Below are recommended goals for the RFPG to consider for approval on October 28, 2021. The goals are presented in five categories: Floodplain Management; Flood Studies and Analysis; Mitigation Projects; Flood Warning and Readiness; and Education and Outreach. More information on how the recommendations were developed can be found in the attached document titled "Chapter 3 Floodplain Management Practices and Flood Protection Goals."

| ID | Goal | Category | Baseline | Short Term Goal 2023 | Long Term Goal 2053 |
|----|--|-----------------------|---|--|--|
| 1 | Increase the number of counties and communities that are enrolled in the National Flood Insurance Program. | Floodplain Management | Participating Communities - 152 (85%) Participating Counties - 41 (95%) ¹ | Communities enrolled – 90% Counties enrolled – 100% | Communities enrolled – 95% Counties enrolled – 100% |
| 2 | Increase the number of counties and communities that have adopted higher than NFIP-standards including directing development away from the floodplain. | Floodplain Management | 39 out of a total of 221 counties and communities have higher standards ² | Increase the number of counties and communities with higher standards by 10% | Increase the number of counties and communities with higher standards by 40% |
| 3 | Increase the number of entities that have adopted the latest rainfall data. | Floodplain Management | Number of entities that are affected by the updates of the latest rainfall data | Establish a baseline measurement | 80% |

¹ The total number of communities in the Lower Brazos region is 178. The total number of counties is 43.

² Obtained from TWDB higher standard survey results.

| ID | Goal | Category | Baseline | Short Term Goal 2023 | Long Term Goal 2053 |
|----|---|-----------------------------|---|---|--|
| 4 | Improve safety at low water crossings by adding warning systems/signage or improving low water crossings in high-risk areas. | Floodplain Management | Participating Communities - 152 (85%) Participating Counties - 41 (95%) ³ | Communities enrolled – 90% Counties enrolled – 100% | Communities enrolled – 95% Counties enrolled – 100% |
| 5 | Reduce the number of structures that are at risk of repetitive flooding during the 1% annual chance flood event by both structural (flood infrastructure) and non-structural (elevation, acquisition, relocation, etc.) means. | Mitigation Projects | 17,732 repetitive-loss structures in the flood quilt | Reduce risk to 5% of structures | Reduce risk to 15% of structures |
| 6 | Reduce the number of critical facilities ⁴ that are at risk of repetitive flooding during a 1% annual chance of flooding to above the 0.2% annual chance flood event by both structural (flood infrastructure) and non-structural (elevation, buy-outs, relocation, etc.) means. | Mitigation Projects | 538 ⁵ critical facilities are within the flood quilt | Establish the quantity of at-risk critical facilities in the region | Reduce risk to 10% of facilities |
| 7 | Increase the accuracy of flood hazard data in the FPR by performing detailed studies using the best available terrain, land use, and precipitation data to reduce gaps in floodplain mapping. | Flood Studies and Analysis | n/a | Establish a baseline measurement | 50% data gap reduction |
| 8 | Increase the number of communities with warning and emergency response programs that can detect flooding threats and provide timely warning of impending flood danger. | Flood Warning and Readiness | n/a | Establish a baseline measurement | Increase the number of communities with programs by 40% |
| 9 | Increase number of flood gauges (rainfall, stream, reservoir, etc.) in the Region. | Flood Warning and Readiness | 119 USGS rainfall gages in the region | Perform an evaluation on the number of basins in the region and establish a baseline of where additional gages are needed | Add gages based on the results of the evaluation (Increase by 30%) |
| 10 | Increase the number of public outreach and education activities to improve awareness of flood hazards and benefits of flood planning in the Region. | Education and Outreach | n/a | Develop outreach and education program | Majority participation in annual events throughout the basin |

If you have any comments on these recommendations and the attached supporting draft document, please contact Pam Hannemann with the Brazos River Authority at (254) 761-3135 or pamela.hannemann@brazos.org.

³ The total number of communities in the Lower Brazos region is 178. The total number of counties is 43.

⁴ Critical facilities include: colleges, EPA power plants, fire stations, hospitals, law offices, nursing homes, petrol storage facilities, power plants, schools (private and public), shelters, superfund sites, and wastewater treatment plant outfalls.

⁵ Preliminary information obtained from GIS – additional scrutiny of this data (including if the facilities have existing levels of flood protection) is required