ACTION REQUESTED
Consider approving selected applications and authorizing the Executive Administrator to negotiate and execute contracts for grant funding from the Flood Infrastructure Fund in an amount not to exceed $3,752,500 for watershed flood protection planning studies and authorizing the transfer of $3,752,500 from the Flood Infrastructure Fund to the Research and Planning Fund as authorized by Texas Water Code § 15.534(a)(8).

STAFF RECOMMENDATION
☑ Approve  ☐ No Action

BACKGROUND
Passed by the 86th Texas Legislature and approved by voters through a constitutional amendment, the Flood Infrastructure Fund (FIF) was created to provide funding for flood mitigation projects. The purpose of the FIF, as outlined in Senate Bill 7 is to assist in financing drainage, flood mitigation, and flood control projects. FIF projects presented for consideration have been scored and ranked using prioritization criteria outlined in 31 Texas Administrative Code Title § 363.404 and further specified in the Flood Intended Use Plan. The prioritized list of projects was approved by the Board on September 17, 2020.

KEY ISSUES
The selected studies represent those eligible under Category 1, Flood Protection Planning for Watersheds, of the 2020 Flood Intended Use Plan. This category of funding was designed to support studies that conduct planning of entire watersheds no smaller than Hydrologic Unit Code 10-digit (HUC-10) to better inform the development of strategies using structural and nonstructural measures before a flood event, such as determining and describing problems from or related to flooding, identifying and planning solutions to flooding problems, and estimating the benefits and costs of these solutions. Category 1 studies are eligible to receive a maximum of 100 percent grant funds based on criteria outlined in the Flood Intended Use Plan. Recipients of financial assistance may either use their own funds or borrow FIF funds at 0 percent interest for any portion of the remaining project cost.

The seven applicants listed in Table 1 have submitted complete financial assistance applications and are eligible to receive grant funding through the FIF for a portion of their total project cost. Applicants have pledged to contribute local funds to provide the remaining project costs and federal funds have been identified as a source by one of the applicants. Table 1 provides a summary of funding sources for these seven studies, and application summaries are attached.
<table>
<thead>
<tr>
<th>Applicant name</th>
<th>Project Name</th>
<th>Eligible grant (%)</th>
<th>Local Share ($)</th>
<th>In-Kind Services ($)</th>
<th>FIF grant ($)</th>
<th>Total project cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bastrop County</td>
<td>Flood Protection Planning Studies – Phase 6</td>
<td>75%</td>
<td>$375,000</td>
<td>$1,125,000</td>
<td>$1,500,000</td>
<td></td>
</tr>
<tr>
<td>Sabine River Authority</td>
<td>Flood Protection Planning for Watersheds – Upper Sabine River Basin</td>
<td>75%</td>
<td>$250,000</td>
<td>$750,000</td>
<td>$1,000,000</td>
<td></td>
</tr>
<tr>
<td>San Jacinto River Authority</td>
<td>Spring Creek Watershed Flood Control Dams Conceptual Engineering Feasibility Study</td>
<td>50%</td>
<td>$396,593</td>
<td>$103,407</td>
<td>$500,000</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>San Jacinto River Authority</td>
<td>Lake Conroe – Lake Houston Joint Reservoir Operations Study</td>
<td>50%</td>
<td>$427,913</td>
<td>$72,087</td>
<td>$500,000</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>San Jacinto River Authority</td>
<td>Upper San Jacinto River Basin Regional Sedimentation Study</td>
<td>50%</td>
<td>$290,626</td>
<td>$84,374</td>
<td>$375,000</td>
<td>$750,000</td>
</tr>
<tr>
<td>Waller County</td>
<td>Brazos River Flood Update Study</td>
<td>75%</td>
<td>$87,500</td>
<td>$262,500</td>
<td>$350,000</td>
<td></td>
</tr>
<tr>
<td>Waller County</td>
<td>Spring Creek Watershed Flood Protection Study</td>
<td>75%</td>
<td>$80,000</td>
<td>$240,000</td>
<td>$320,000</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>$1,907,632</strong></td>
<td><strong>$259,868</strong></td>
<td><strong>$3,752,500</strong></td>
<td><strong>$5,920,000</strong></td>
</tr>
</tbody>
</table>

The projects recommended for approval meet all minimum requirements found in the 2020 Flood Intended Use Plan:

1. all activities are considered “flood control planning” as defined in Texas Water Code Section 15.405;
2. the application does not include the actual preparation of a Federal Emergency Management Agency Flood Insurance Rate Maps;
3. the funding request does not include redundant funding;
4. that the application demonstrates a sufficient level of cooperation among eligible political subdivisions and includes all of the eligible political subdivisions substantially affected by the Project;
5. the area to be served by the Project meets the requirements of the Flood Intended Use Plan related to the National Flood Insurance Program;
6. the project was developed using the best/most recent available data;
The project recommended for approval meets the requirements found in Texas Water Code Chapter 15, Subchapter F and 31 Texas Administrative Code Chapter 355, including:
   (1) that the financial assistance is necessary for the applicants to carry out adequate flood control planning; and
   (2) that the applicant has notified all required entities of the application.

The selected projects recommended for approval meet the statutory and rule requirements found in Texas Water Code Chapter 15 Subchapter F and 31 Texas Administrative Code Chapter 355, including:
   (1) that the financial assistance is necessary for the applicants to carry out adequate flood control planning; and
   (2) that the applicant has notified all required entities of the application.

The selected projects recommended for approval meet the statutory requirements found in Texas Water Code § 15.536:
   (1) the application and the assistance applied for meet the requirements of Texas Water Code, Chapter 15, Subchapter I and 31 Texas Administrative Code Chapter 363; and
   (2) the application demonstrates a sufficient level of cooperation among eligible political subdivisions and includes all of the eligible political subdivisions substantially affected by the flood project.

Attachment: Application Summaries with Maps
The following projects share boundaries:

- SJRA Sedimentation and SJRA Lake Conroe
- Waller County Spring Creek and SJRA Spring Creek
BASTROP COUNTY

PROJECT NAME Flood Protection Planning Studies – Phase 6, Project 40043

PROJECT NEED AND DESCRIPTION
Bastrop County (County) has historically experienced flooding with many areas experiencing severe flooding within the county as recently as August 2017 during Hurricane Harvey. Most recently, the County received five disaster declarations for flooding between May 2015 and September 2017.

The County is requesting financial assistance to (1) accurately identify flood-prone areas, (2) develop and evaluate flood protection alternative solutions, and (3) provide a recommendation for project implementation.

The watersheds proposed for study in this application include the following HUC-10 watersheds: 1209030102 (Piney Creek-Colorado River), 1209030104 (Alum Creek-Colorado River), 1209030105 (Rabbs Creek-Colorado River), 1207010201 (Middle Yegua Creek), and 1210020203 (Peach Creek). The study area encompasses approximately 345 square miles and 412 stream miles. The study will include evaluation of the 2-, 10-, 25-, 50-, 100-, and 500-year frequency events using the latest version of HEC-HMS modeling software.

The study will utilize best available science including the latest LiDAR, land cover data, NOAA Atlas 14 rainfall data. The study will use Atlas 14 modeling and mapping for the entire county, updated and accurate flood inundation information. The proposed study includes a variety of processes to identify, quantify and communicate flood risks. The proposed study will utilize the best available information to complete the analysis.

Key elements of the project are:
- Project management, meetings with project sponsors and subconsultants, public meetings, QA/QC, coordination with permitting agencies, and document control;
- Establish baseline flooding conditions, hydrologic and hydraulic analyses to be used for flood damage assessment;
- Floodplain delineation;
- Establish base flood elevations (BFEs) for updating FIRMs and/or for Letters of Map Change (LOMCs) for existing FIRMs;
- Estimate the existing average annual flood damages being incurred within the identified watersheds; and
- Identify flood reduction alternatives.

Key deliverable:
- Comprehensive study report.
**PROPOSED PROJECT FUNDING**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL STUDY COST</td>
<td>$1,500,000</td>
</tr>
<tr>
<td>Amount requested from FIF</td>
<td>$1,125,000</td>
</tr>
<tr>
<td>Local Contribution</td>
<td>$375,000</td>
</tr>
<tr>
<td>Local in-kind</td>
<td>$0</td>
</tr>
<tr>
<td>Federal funding</td>
<td>$0</td>
</tr>
</tbody>
</table>

**PROJECT SCHEDULE**

<table>
<thead>
<tr>
<th>Task</th>
<th>Schedule Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing</td>
<td>April 30, 2021</td>
</tr>
<tr>
<td>Flood Planning Study Completion</td>
<td>April 30, 2023</td>
</tr>
</tbody>
</table>

**FINANCIAL**

The funding being provided by the TWDB is in the form of 100 percent grant and therefore is not subject to our internal risk score analysis that is applied to loan. For this request, staff reviewed the County’s annual audit and funding application information to assess the entity’s ability to manage existing obligations and business practices. Based on this analysis, staff believes the County has adequate capabilities to manage its obligations.

**SPECIAL CONDITIONS**

- Prior to closing, the County shall execute a Grant Agreement in a form and substance acceptable to the Executive Administrator;
- Prior to closing, the County must demonstrate its required local share of $375,000 which may be provided through in-kind services with prior approval by the Executive Administrator;
- Prior to closing, when any portion of financial assistance is to be held in escrow or in trust, the County shall execute an escrow agreement or trust agreement, approved as to form and substance by the Executive Administrator, and shall submit that executed agreement to the TWDB; and
- Prior to closing, the County must submit documentation evidencing that the area to be served by the Project has floodplain ordinances or orders, as applicable, in place, in accordance with the Flood Intended Use Plan (FIUP) or must include in the scope of work that the applicant will work with any community within the project area, that does not meet minimum standard, towards adoption and enforcement of floodplain management ordinances or orders, as applicable, in accordance with the FIUP.

*MAPS TO SHOW BOTH THE POLITICAL SUBDIVISION/APPLICANT AND THE HUC 10 PLANNING AREA(S)*
SABINE RIVER AUTHORITY

PROJECT NAME Flood Protection Planning for Watersheds – Upper Sabine River Basin, Project 40058

PROJECT NEED AND DESCRIPTION
The Upper Sabine River Basin (USRB) has experienced extensive, widespread flooding numerous times within recent years resulting in loss of life and billions of dollars in damages to real and personal property throughout Gregg, Rusk, Smith, Harrison, and Upshur Counties. The extreme effects of both historical and relatively insignificant precipitation events have emphasized the need to implement detailed planning for flood protection in this area, and specifically the Cities of Longview and Kilgore.

Sabine River Authority (Authority) is requesting financial assistance to analyze impacts and the response to flooding in the USRB. The study area includes 55 stream miles and 269 square miles within HUC-10 watersheds: 1201000205 Rabbit Creek – Sabine River and 1201000206 Cherokee Bayou Sabine River. The study will develop a comprehensive model for the USRB with particular focus on Longview and Kilgore and major tributaries using a consistent and up-to-date methodology that considers NOAA Atlas 14 rainfall. The proposed study will utilize the best available information to complete the analysis.

Key elements of the project:
• Project management, meetings with project sponsors and subconsultants, public meetings, QA/QC, coordination with permitting agencies, and document control;
• Analysis of impacts and the response to flooding of the upper reaches of the Sabine River and four major streams;
• Data collection, review and evaluation including field visits;
• Assessment of existing flood hazards including hydrologic and hydraulic model development, calibration and analysis of historical events;
• Identification and evaluation of flood mitigation alternatives;
• Analysis, analysis of flood mitigation benefits and costs; and
• Develop a comprehensive set of models for the portions of the Sabine River near Longview and Kilgore.

Key deliverable:
• Comprehensive study report.
**PROPOSED PROJECT FUNDING**

<table>
<thead>
<tr>
<th>TOTAL STUDY COST</th>
<th>$1,000,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount requested from FIF</td>
<td>$750,000</td>
</tr>
<tr>
<td>Local Contribution</td>
<td>$250,000</td>
</tr>
<tr>
<td>Local in-kind</td>
<td>$0</td>
</tr>
<tr>
<td>Federal funding</td>
<td>$0</td>
</tr>
</tbody>
</table>

**PROJECT SCHEDULE**

<table>
<thead>
<tr>
<th>Task</th>
<th>Schedule Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing</td>
<td>April 30, 2021</td>
</tr>
<tr>
<td>Flood Planning Study Completion</td>
<td>October 31, 2022</td>
</tr>
<tr>
<td>(End of Planning Phase)</td>
<td></td>
</tr>
</tbody>
</table>

**FINANCIAL**

The funding being provided by the TWDB is in the form of 100 percent grant and therefore is not subject to our internal risk score analysis that is applied to loan. For this request, staff reviewed the Authority's annual audit and funding application information to assess the entity's ability to manage existing obligations and business practices. Based on this analysis, staff believes the Authority has adequate capabilities to manage its obligations.

**SPECIAL CONDITIONS**

- Prior to closing, the Authority shall execute a Grant Agreement in a form and substance acceptable to the Executive Administrator;
- Prior to closing, the Authority must demonstrate its required local share of $250,000 which may be provided through in-kind services with prior approval by the Executive Administrator;
- Prior to closing, when any portion of financial assistance is to be held in escrow or in trust, the Authority shall execute an escrow agreement or trust agreement, approved as to form and substance by the Executive Administrator, and shall submit that executed agreement to the TWDB;
- Prior to closing, the Authority must submit documentation evidencing that the area to be served by the Project has floodplain ordinances or orders, as applicable, in place, in accordance with the Flood Intended Use Plan (FIUP) or must include in the scope of work that the applicant will work with any community within the project area, that does not meet minimum standard, towards adoption and enforcement of floodplain management ordinances or orders, as applicable, in accordance with the FIUP; and
- The Authority must notify the Executive Administrator in writing thirty (30) days prior to taking any actions to alter its legal status in any manner.

*MAPS TO SHOW BOTH THE POLITICAL SUBDIVISION/APPLICANT AND THE HUC 10 PLANNING AREA(S)*
PROJECT NAME Lake Conroe – Lake Houston Joint Reservoir Operations Study, Project 40047

PROJECT NEED AND DESCRIPTION
The San Jacinto River Authority (Authority) maintains and operates the Lake Conroe dam, including its five-gate spillway constructed on the West Fork of the San Jacinto River. The City of Houston is currently in the design phase of a project to add new spillway gates or uncontrolled additional spillway capacity at the Lake Houston dam which is downstream and could greatly increase the controlled release capacity of the dam. Once these gates are in place at Lake Houston, it will be beneficial to both water supply and flood mitigation in the region for a joint operations plan to be in place. Because the Authority does not have taxing authority or a dedicated funding source for flood mitigation projects and activities, the Authority is required to seek out financial assistance in the form of grants, regional partnerships, etc. in order to fund major projects and studies.

The Authority is requesting financial assistance to determine the most efficient and safe operation of the two reservoirs in series by evaluating multiple individual components of operational strategy.

The scope of work for this grant application ultimately includes evaluation of the hydrology and hydraulics of the entire San Jacinto River basin, including the following HUC-10 watersheds totaling approximately 2,833 square miles: West Fork San Jacinto River (1204010101), West Fork San Jacinto River-Conroe Lake (1204010102), Caney Creek-Lake Creek (1204010103), Crystal Creek-West Fork San Jacinto River (1204010104), Frontal Lake Houston (1204010105), Little Cypress Creek-Cypress Creek (1204010201), Walnut Creek-Spring Creek (1204010202), Peach Creek-Caney Creek (1204010301), Tarkington Bayou-Luce Bayou (1204010302), Winters Bayou-East Fork San Jacinto River (1204010303), and East Fork San Jacinto River-Frontal Lake Houston (1204010304). The project will evaluate 2-, 5-, 10-, 25-, 50-, 100-, and 500-year frequency storms and will utilize the best available information to complete the analysis.

The Authority, Harris County Flood Control District, Montgomery County, and the City of Houston are all local partners in the development of the San Jacinto Regional Watershed Master Drainage Plan. The proposed scope of work for this grant application is distinct and will be complimentary to ongoing flood planning by providing additional and critical data and tools to allow a more regional approach to operations of existing and proposed reservoir facilities.

Key elements of the project are:

- Evaluation of the feasibility and effectiveness of pre-releases at either or both reservoirs once the gates at Lake Houston are constructed by evaluating the impacts, benefits, and risks of this strategy;
- Evaluation of the impacts, benefits, and risks during different weather scenarios;
- Determine the impacts on water supply resulting from any pre-release operations;
- Evaluation of legal aspects of pre-releases from either reservoir, as related to water rights permits; and
• Development of joint notification protocols and public communication strategies, consistent with the requirements of House Bill 26 passed during the 86th Texas Legislative Session.

Key deliverable:
• Comprehensive study report.

**PROPOSED PROJECT FUNDING**

<table>
<thead>
<tr>
<th>TOTAL STUDY COST</th>
<th>$1,000,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount requested from FIF</td>
<td>$500,000</td>
</tr>
<tr>
<td>Local Contribution</td>
<td>$427,913</td>
</tr>
<tr>
<td>Local in-kind</td>
<td>$72,087</td>
</tr>
<tr>
<td>Federal funding</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

**PROJECT SCHEDULE**

<table>
<thead>
<tr>
<th>Task</th>
<th>Schedule Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing</td>
<td>April 30, 2021</td>
</tr>
<tr>
<td>Flood Planning Study Completion</td>
<td>April 30, 2024</td>
</tr>
</tbody>
</table>

**FINANCIAL**

The funding being provided by the TWDB is in the form of 100 percent grant and therefore is not subject to our internal risk score analysis that is applied to loan. For this request, staff reviewed the Authority's annual audit and funding application information to assess the entity’s ability to manage existing obligations and business practices. Based on this analysis, staff believes the Authority has adequate capabilities to manage its obligations.

**SPECIAL CONDITIONS**

• Prior to closing, the Authority shall execute a Grant Agreement in a form and substance acceptable to the Executive Administrator;

• Prior to closing, the Authority must demonstrate its required local share of $500,000 which may be provided through in-kind services with prior approval by the Executive Administrator;

• Prior to closing, when any portion of financial assistance is to be held in escrow or in trust, the Authority shall execute an escrow agreement or trust agreement, approved as to form and substance by the Executive Administrator, and shall submit that executed agreement to the TWDB;

• Prior to closing, the Authority must submit documentation evidencing that the area to be served by the Project has floodplain ordinances or orders, as applicable, in place, in accordance with the Flood Intended Use Plan (FIUP) or must include in the scope of work that the applicant will work with any community within the project area, that does not meet minimum standard, towards adoption and enforcement of floodplain management ordinances or orders, as applicable, in accordance with the FIUP; and

• The Authority must notify the Executive Administrator in writing thirty (30) days prior to taking any actions to alter its legal status in any manner.
MAPS TO SHOW BOTH THE POLITICAL SUBDIVISION/APPLICANT AND THE HUC 10 PLANNING AREA(S)
PROJECT NAME Spring Creek Watershed Flood Control Dams Conceptual Engineering Feasibility Study, Project 40037

PROJECT NEED AND DESCRIPTION
Many residential and commercial structures along Spring Creek are at significant risk of flooding with over 6,700 documented flood insurance claims in the study area. A previous study documented approximately 2,909 structures in the Spring Creek watershed at risk of flooding during the one percent annual chance event (ACE). Analyses have found that approximately 5,899 instances of structural flooding can be expected to occur along Spring Creek over any given 50-year period. Previous studies have explored multiple alternative projects to alleviate flood risk. The next step for these projects is to perform a conceptual engineering feasibility study.

The San Jacinto River Authority (Authority) is requesting financial assistance to produce a conceptual-level design and define benefits and costs for each of two dams (the Walnut Creek Dam and Birch Creek Dam) in the Spring Creek Watershed.

The Spring Creek watershed aligns with USGS HUC-10 watershed 1204010202, which includes approximately 438 square miles. The models will be used to simulate a range of NOAA Atlas 14 rainfall events, ranging from the 50 percent ACE up to the 0.2 percent ACE. The one percent ACE event for each scenario will also be mapped in order to depict the changes in one percent ACE extents resulting from Walnut Creek Dam and Birch Creek Dam, both separately and together. The initial hydrologic and hydraulic modeling and high-level benefit-cost analyses for the two proposed dams were developed as part of the San Jacinto Regional Watershed Master Drainage Plan (SJMDP) in 2019 and 2020. The information about the proposed dams provided in this FIF application is based on analysis conducted for the SJMDP, including the expected level and location of flood reduction benefits. The proposed planning efforts described in this FIF application would develop these projects further to a conceptual level of design.

Key elements of the project are:

- Project management, meetings with project sponsors and subconsultants, public meetings, QA/QC, and document control;
- Environmental due diligence, including preliminary site investigations, desktop assessments, meetings with the Galveston District of the U.S. Army Corps of Engineers, and development and documentation of environmental mitigation;
- Conceptual design including spillway siting, development of up to three alternative configurations for each dam, hydrologic and hydraulic model updates, selection of a recommended alternative, and a conceptual design technical memorandum with conceptual drawings for each dam;
- Extending the hydraulic models to include Walnut Creek and Birch Creek and updating benefit-cost ratios for the two dams, both individually and in combination; and
- Cost estimates (AACE Class 4 designation), including an estimate of land requirements and costs, utility screening, relocation estimates, environmental mitigation costs, and a project cost technical memorandum.
Key deliverable:

- Conceptual design report.

### PROPOSED PROJECT FUNDING

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL STUDY COST</strong></td>
<td><strong>$1,000,000</strong></td>
</tr>
<tr>
<td>Amount requested from FIF</td>
<td><strong>$500,000</strong></td>
</tr>
<tr>
<td>Local Contribution</td>
<td><strong>$396,593</strong></td>
</tr>
<tr>
<td>Local in-kind</td>
<td><strong>$103,407</strong></td>
</tr>
<tr>
<td>Federal funding</td>
<td><strong>$0.00</strong></td>
</tr>
</tbody>
</table>

### PROJECT SCHEDULE

<table>
<thead>
<tr>
<th>Task</th>
<th>Schedule Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing</td>
<td>April 30, 2021</td>
</tr>
<tr>
<td>Flood Planning Study Completion</td>
<td>October 30, 2022</td>
</tr>
</tbody>
</table>

### FINANCIAL

The funding being provided by the TWDB is in the form of 100 percent grant and therefore is not subject to our internal risk score analysis that is applied to loan. For this request, staff reviewed the Authority’s annual audit and funding application information to assess the entity’s ability to manage existing obligations and business practices. Based on this analysis, staff believes the Authority has adequate capabilities to manage its obligations.

### SPECIAL CONDITIONS

- Prior to closing, the Authority shall execute a Grant Agreement in a form and substance acceptable to the Executive Administrator;
- Prior to closing, the Authority must demonstrate its required local share of $500,000 which may be provided through in-kind services with prior approval by the Executive Administrator;
- Prior to closing, when any portion of financial assistance is to be held in escrow or in trust, the Authority shall execute an escrow agreement or trust agreement, approved as to form and substance by the Executive Administrator, and shall submit that executed agreement to the TWDB;
- Prior to closing, the Authority must submit documentation evidencing that the area to be served by the Project has floodplain ordinances or orders, as applicable, in place, in accordance with the Flood Intended Use Plan (FIUP) or must include in the scope of work that the applicant will work with any community within the project area, that does not meet minimum standard, towards adoption and enforcement of floodplain management ordinances or orders, as applicable, in accordance with the FIUP; and
- The Authority must notify the Executive Administrator in writing thirty (30) days prior to taking any actions to alter its legal status in any manner.

*MAPS TO SHOW BOTH THE POLITICAL SUBDIVISION/APPLICANT AND THE HUC 10 PLANNING AREA(S)*
SAN JACINTO RIVER AUTHORITY

PROJECT NAME Upper San Jacinto River Basin Regional Sedimentation Study, Project 40061

PROJECT NEED AND DESCRIPTION
The San Jacinto River Authority (Authority), Harris County Flood Control District, Montgomery County, and the City of Houston are local partners in the development of the San Jacinto Regional Watershed Master Drainage Plan (SJMDP), initiated in April 2019 and currently in the final stages of development. One of the recommendations from the SJMDP was the development of a regional sediment management plan. A regional sedimentation study and sediment management plan is needed to gain a better understanding of sources of sediment, transport mechanisms, and regional sediment budgets.

The Authority is requesting financial assistance to perform a regional sedimentation study of the Upper San Jacinto River Basin - Lake Houston watershed.

The scope of work for this grant application ultimately includes evaluation of sediment budgets and transport for the entire Upper San Jacinto River basin, including the following HUC-10 watersheds totaling approximately 2,833 square miles: West Fork San Jacinto River (1204010101), West Fork San Jacinto River-Conroe Lake (1204010102), Caney Creek-Lake Creek (1204010103), Crystal Creek-West Fork San Jacinto River (1204010104), Frontal Lake Houston (1204010105), Little Cypress Creek-Cypress Creek (1204010201), Walnut Creek-Spring Creek (1204010202), Peach Creek-Caney Creek (1204010301), Tarkington Bayou-Luce Bayou (1204010302), Winters Bayou-East Fork San Jacinto River (1204010303), and East Fork San Jacinto River-Frontal Lake Houston (1204010304). The project will be performed utilizing the most recent/best available data, technology, and techniques available to the Authority.

The project will also utilize data from and build upon efforts by the U.S. Army Corps of Engineers and Harris County to dredge accumulated sediment from the mouth of Lake Houston. The proposed scope of work for this grant application does not duplicate the work completed or underway for the SJMDP. The proposed scope of work for this grant application is distinct and will be complimentary to ongoing flood planning by providing additional and critical data and tools to address regional sediment management.

Key elements of the project are:
- Project management, meetings with project sponsors and subconsultants, public meetings, QA/QC, coordination with permitting agencies, and document control;
- Upper San Jacinto River Basin watershed characterization;
- Inventory of available existing data;
- Annual sediment output and storage determinations;
- Sediment transport modeling;
- Individual sediment source or storage locations determination;
- Individual site investigations;
- Development of conceptual solutions and overall implementation strategy; and
- Development of Upper San Jacinto River Basin sediment management plan.

Key deliverable:
- Comprehensive study report.
PROPOSED PROJECT FUNDING

<table>
<thead>
<tr>
<th></th>
<th>$750,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL STUDY COST</td>
<td></td>
</tr>
<tr>
<td>Amount requested from FIF</td>
<td>$375,000</td>
</tr>
<tr>
<td>Local Contribution</td>
<td>$290,626</td>
</tr>
<tr>
<td>Local in-kind</td>
<td>$84,374</td>
</tr>
<tr>
<td>Federal funding</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

PROJECT SCHEDULE

<table>
<thead>
<tr>
<th>Task</th>
<th>Schedule Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing</td>
<td>April 30, 2021</td>
</tr>
<tr>
<td>Flood Planning Study Completion</td>
<td>April 30, 2023</td>
</tr>
</tbody>
</table>

FINANCIAL

The funding being provided by the TWDB is in the form of 100 percent grant and therefore is not subject to our internal risk score analysis that is applied to loan. For this request, staff reviewed the Authority’s annual audit and funding application information to assess the entity’s ability to manage existing obligations and business practices. Based on this analysis, staff believes the Authority has adequate capabilities to manage its obligations.

SPECIAL CONDITIONS

- Prior to closing, the Authority shall execute a Grant Agreement in a form and substance acceptable to the Executive Administrator;
- Prior to closing, the Authority must demonstrate its required local share of $375,000 which may be provided through in-kind services with prior approval by the Executive Administrator;
- Prior to closing, when any portion of financial assistance is to be held in escrow or in trust, the Authority shall execute an escrow agreement or trust agreement, approved as to form and substance by the Executive Administrator, and shall submit that executed agreement to the TWDB;
- Prior to closing, the Authority must submit documentation evidencing that the area to be served by the Project has floodplain ordinances or orders, as applicable, in place, in accordance with the Flood Intended Use Plan (FIUP) or must include in the scope of work that the applicant will work with any community within the project area, that does not meet minimum standard, towards adoption and enforcement of floodplain management ordinances or orders, as applicable, in accordance with the FIUP; and
- The Authority must notify the Executive Administrator in writing thirty (30) days prior to taking any actions to alter its legal status in any manner.

MAPS TO SHOW BOTH THE POLITICAL SUBDIVISION/APPLICANT AND THE HUC 10 PLANNING AREA(S)
WALLER COUNTY

PROJECT NAME Brazos River Flood Update Study, Project 40033

PROJECT NEED AND DESCRIPTION
Communities along the Lower Brazos River are threatened by frequent flooding. The basin has experienced major floods with 24 major flooding events. Record major floods have occurred as recently as 2016 and 2017, in which federal disasters were declared. Approximately 140,000 people are estimated to reside within the lower Brazos River basin current effective one percent annual chance exceedance floodplain with approximately 51,000 insurable structures worth $19.4 billion.

Previously, the Brazos River Authority was awarded two TWDB Flood Protection Grants for the development of the Lower Brazos Floodplain Protection Planning Study (LBFPPS). At the completion of the LBFPPS two phased study, recommendations for fourteen (14) next steps were made to stakeholders to provide additional hydrologic and hydraulic analysis to improve the model detail downstream to Rosharon and provide flood protection information upstream of Hempstead.

Waller County (County) is requesting financial assistance to complete two of the fourteen next steps recommended in the LBFPPS. The steps to be completed in this study are as follows: (1) Extend the detailed study area to College Station and (2) Develop a hydraulic model of the Navasota River. These two steps should be completed together to refine the flood information downstream for the lower basin. The proposed project covers approximately 226 stream miles and over 42,000 square miles. The County’s proposed Brazos River Flood Update Study project includes 13 HUC-10 watersheds: 1207010107 (Old River-Brazos River), 1207010108 (Beason Creek-Brazos River), 1207010109 (New Year Creek-Brazos River), 1207010203 (Nails Creek-Yegua Creek), 1207010204 (Davidson Creek), 1207010205 (Yegua Creek), 1207010302 (Steele Creek), 1207010303 (Sanders Creek-Navasota River), 1207010304 (Duck Creek-Navasota River), 1207010305 (Cedar Creek-Navasota River), 1207010306 (Wickson Creek-Navasota River), 1207010307 (Gibbons Creek-Navasota River), and 1207010308 (Rocky Creek-Navasota River). Both the 100-year and 500-year frequency events are being planned for. The proposed study will utilize the best information available to complete the analysis.

Key elements of the project are:
- Project management, meetings with project sponsors and subconsultants, public meetings, QA/QC, coordination with permitting agencies, and document control;
- Coordination with the communities and agencies in study area who are impacted and will benefit from the project;
- Collection of flood risk information;
- Desktop environmental analysis and collect survey information;
- Hydrologic and hydraulic model development;
- Alternative identification and analyses; and
- Benefit-cost analyses.

Key deliverable:
- Comprehensive study report.
PROPOSED PROJECT FUNDING

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL STUDY COST</td>
<td>$350,000</td>
</tr>
<tr>
<td>Amount requested from FIF</td>
<td>$262,500</td>
</tr>
<tr>
<td>Local Contribution</td>
<td>$87,500</td>
</tr>
<tr>
<td>Local in-kind</td>
<td>$0</td>
</tr>
<tr>
<td>Federal funding</td>
<td>$0</td>
</tr>
</tbody>
</table>

PROJECT SCHEDULE

<table>
<thead>
<tr>
<th>Task</th>
<th>Schedule Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing</td>
<td>April 30, 2021</td>
</tr>
<tr>
<td>Flood Planning Study Completion</td>
<td>October 30, 2022</td>
</tr>
<tr>
<td>(End of Planning Phase)</td>
<td></td>
</tr>
</tbody>
</table>

FINANCIAL

The funding being provided by the TWDB is in the form of 100 percent grant and therefore is not subject to our internal risk score analysis that is applied to loan. For this request, staff reviewed the County’s annual audit and funding application information to assess the entity’s ability to manage existing obligations and business practices. Based on this analysis, staff believes the County has adequate capabilities to manage its obligations.

SPECIAL CONDITIONS

- Prior to closing, the County shall execute a Grant Agreement in a form and substance acceptable to the Executive Administrator;
- Prior to closing, the County must demonstrate its required local share of $87,500 which may be provided through in-kind services with prior approval by the Executive Administrator;
- Prior to closing, when any portion of financial assistance is to be held in escrow or in trust, the County shall execute an escrow agreement or trust agreement, approved as to form and substance by the Executive Administrator, and shall submit that executed agreement to the TWDB; and
- Prior to closing, the County must submit documentation evidencing that the area to be served by the Project has floodplain ordinances or orders, as applicable, in place, in accordance with the Flood Intended Use Plan (FIUP) or must include in the scope of work that the applicant will work with any community within the project area, that does not meet minimum standard, towards adoption and enforcement of floodplain management ordinances or orders, as applicable, in accordance with the FIUP.

MAPS TO SHOW BOTH THE POLITICAL SUBDIVISION/APPLICANT AND THE HUC 10 PLANNING AREA(S)
PROJECT NAME: Spring Creek Watershed Flood Protection Study, Project 40035

PROJECT NEED AND DESCRIPTION
Flood protection is needed in this HUC-10 watershed that extends from the headwater in Grimes County down through Waller, Montgomery and Harris Counties. The four major streams to be studied include Birch Creek, Walnut Creek, Brushy Creek and Threemile Creek. Waller County has experienced significant growth in recent years and needs updated maps and models that reflect these changes in land use. In addition, Atlas 14 rainfall has increased the 100-year 24-hour rainfall data for this area and will be incorporated in the plan. The 2016 and 2017 storm events resulted in significant flooding in the basin and reemphasized the need to complete this final phase of the watershed plan. Presidential Disaster Declarations were issued for Waller County in both years. Many houses and roadways were flooded in these disasters.

Waller County (County) is requesting financial assistance to identify flood risk, identify flood protection measures, identify locations for stream and stage gauges and develop a flood protection plan. Waller County will also partner with San Jacinto River Authority and Montgomery County to consider the proposed dams/reservoirs that have been identified in the recently completed San Jacinto Regional Watershed Master Drainage Plan. Waller County plans to extend the hydraulic analysis downstream of these proposed facilities that were not previously studied.

The proposed study includes one HUC-10 area called Walnut Creek – Spring Creek #1204010202. The area planned for include approximately 67 stream miles and 440 square miles. Both the 100-year and 500-year frequency events are being planned for. The study will use the recently completed hydrology developed by Harris County Flood Control District that was part of the remapping effort called MAAPnext and will provide additional detail to model the tributaries to Spring Creek in Waller and Montgomery Counties. The proposed study will utilize the best available information to complete the analysis.

Key elements of the project are:
- Project management, meetings with project sponsors and subconsultants, public meetings, QA/QC, coordination with permitting agencies, and document control;
- Coordination with the communities and agencies in the HUC-10 who are impacted and will benefit from the project;
- Collection of flood risk information within the HUC-10, previous and ongoing drainage studies, GIS data and other relevant information;
- Desktop environmental analysis and collect survey information;
- Hydrologic and hydraulic model development to establish the baseline conditions of the creeks to be in line with the HUC-10 analysis;
- Evaluation of flood protection criteria and develop flood protection alternatives to reduce flooding downstream; and
- Benefit cost analyses.

Key deliverable:
- Comprehensive study report.
PROPOSED PROJECT FUNDING

<table>
<thead>
<tr>
<th>TOTAL STUDY COST</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$320,000</td>
<td></td>
</tr>
<tr>
<td>Amount requested from FIF</td>
<td>$240,000</td>
</tr>
<tr>
<td>Local Contribution</td>
<td>$80,000</td>
</tr>
<tr>
<td>Local in-kind</td>
<td>$0</td>
</tr>
<tr>
<td>Federal funding</td>
<td>$0</td>
</tr>
</tbody>
</table>

PROJECT SCHEDULE

<table>
<thead>
<tr>
<th>Task</th>
<th>Schedule Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing</td>
<td>April 30, 2021</td>
</tr>
<tr>
<td>Flood Planning Study Completion</td>
<td>October 30, 2022</td>
</tr>
<tr>
<td>(End of Planning Phase)</td>
<td></td>
</tr>
</tbody>
</table>

FINANCIAL

The funding being provided by the TWDB is in the form of 100 percent grant and therefore is not subject to our internal risk score analysis that is applied to loan. For this request, staff reviewed Waller County’s annual audit and funding application information to assess the entity’s ability to manage existing obligations and business practices. Based on this analysis, staff believes the County has adequate capabilities to manage its obligations.

SPECIAL CONDITIONS

- Prior to closing, the County shall execute a Grant Agreement in a form and substance acceptable to the Executive Administrator;
- Prior to closing, the County must demonstrate its required local share of $80,000 which may be provided through in-kind services with prior approval by the Executive Administrator;
- Prior to closing, when any portion of financial assistance is to be held in escrow or in trust, the County shall execute an escrow agreement or trust agreement, approved as to form and substance by the Executive Administrator, and shall submit that executed agreement to the TWDB; and
- Prior to closing, the County must submit documentation evidencing that the area to be served by the Project has floodplain ordinances or orders, as applicable, in place, in accordance with the Flood Intended Use Plan (FIUP) or must include in the scope of work that the applicant will work with any community within the project area, that does not meet minimum standard, towards adoption and enforcement of floodplain management ordinances or orders, as applicable, in accordance with the FIUP.

MAPS TO SHOW BOTH THE POLITICAL SUBDIVISION/APPLICANT AND THE HUC 10 PLANNING AREA(S)