



# San Jacinto River Authority

ADMINISTRATIVE OFFICE  
P.O. Box 329 • Conroe, Texas 77305  
(T) 936.588.3111 • (F) 936.588.3043

June 12, 2020

Texas Water Development Board  
ATTN: FIF Abridged Application  
P.O. Box 13231  
Austin, Texas 78711

Re: FIF Abridged Application: Flood Early Warning System for San Jacinto County

Dear Mr. Entsminger:

The San Jacinto River Authority thanks the Texas Water Development Board (TWDB) for the opportunity to submit an abridged application for funding via the recently created Flood Infrastructure Fund. Attached please find the abridged application for a Flood Early Warning System for San Jacinto County with the following attachments:

1. Attachment A: Grant Percentage Calculator Spreadsheet
4. Attachment B: Planned Gage Locations and Project Benefit Area (San Jacinto County)
5. Attachment C: SVI for San Jacinto County
6. Attachment D: Disaster Declarations for Tropical Storm Imelda and Hurricane Harvey
7. Attachment E: NFIP Certification from San Jacinto County
6. Attachment F: San Jacinto Regional Watershed Master Drainage Plan Project Fact Sheet

We appreciate your review and consideration of this application, and look forward to working with TWDB as a regional partner on efforts to reduce flood risks within the San Jacinto River Basin.

If you have any questions or require further documentation or data, please contact me at (936)-588-7177 or at [mbarrett@sjra.net](mailto:mbarrett@sjra.net).

Sincerely,

Matt Barrett, P.E.  
Division Engineer

LAKE CONROE DIVISION  
P.O. Box 329  
Conroe, Texas 77305  
(T) 936.588.1111  
(F) 936.588.1114

GRP DIVISION  
P.O. Box 329  
Conroe, Texas 77305  
(T) 936.588.1662  
(F) 936.588.7182

WOODLANDS DIVISION  
P.O. Box 7537  
The Woodlands, Texas 77387  
(T) 281.367.9511  
(F) 281.362.4385

HIGHLANDS DIVISION  
P.O. Box 861  
Highlands, Texas 77562  
(T) 281.843.3300  
(F) 281.426.2877

FLOOD MANAGEMENT DIVISION  
P.O. Box 329  
Conroe, Texas 77305  
(T) 936.588.3111  
(F) 936.588.1114

# SFY 2020 Flood Project Abridged Application

**Due June 15, 2020 at 5:00 p.m.**  
**Email to [FIF@twdb.texas.gov](mailto:FIF@twdb.texas.gov)**

By submitting this Abridged Application, you understand and confirm that the information provided is true and correct to the best of your knowledge and further understand that the failure to submit a complete Abridged Application by the stated deadlines, or to respond in a timely manner to additional requests for information, may result in the withdrawal of the Abridged Application without review.

## GENERAL INFORMATION

<b>Entity Name</b>		
San Jacinto River Authority		
<b>Entity Type</b>		
River Authority		
<b>Contact</b> Who should TWDB contact with questions during the review of this submission?	<b>Name</b>	Matt Barrett, PE
	<b>Title</b>	Division Engineer
	<b>Phone</b>	936-588-7177
	<b>Email</b>	mbarrett@sjra.net

## PROJECT INFORMATION

<b>Project Name</b>	Flood Early Warning System for San Jacinto County		
<b>Amount Requested from TWDB</b>	\$48,100 (74% grant based on attached calculations (Attachment A))		
<b>Financing from Federal Sources</b>	\$0		
(if receiving federal funds, include the federal agency and program)	N/A		
<b>Financing from Other Sources</b>	\$16,900 (local match for remaining 26% not covered by grant)		
<b>Total Project Cost</b> (Check here if requesting loan funds only <input type="checkbox"/> )	\$65,000		
<b>Category Applied For</b>			
<input type="checkbox"/> <b>Category 1</b> Flood Protection Planning for Watersheds	<input type="checkbox"/> <b>Category 2</b> Planning, Acquisition, and Design, Construction / Rehabilitation (All combinations)	<input type="checkbox"/> <b>Category 3</b> Federal Award Matching Funds	<input checked="" type="checkbox"/> <b>Category 4</b> Measures immediately effective in protecting life and property

## MINIMUM STANDARDS

Only projects that satisfy all minimum standards will be included in the prioritization.	<input checked="" type="checkbox"/>	1. For applicable projects, the benefit-cost ratio of the proposed project is >1.0 or an explanation is provided. <b>N/A for flood early warning systems per Intended Use Plan.</b>
	<input checked="" type="checkbox"/>	2. For applicable projects, a proposed MOU and a project description was provided to all eligible political subdivisions and the list of political subdivisions that received this information is attached to the abridged application. <b>TWDB confirmed via email on 5/26/20 that flood early warning systems do not meet the definition of a flood control project, and therefore that no MOU is required.</b>
	<input checked="" type="checkbox"/>	3. The applicant has acted cooperatively with other political subdivisions to address flood control needs in the area in which the eligible political subdivisions are located; and all eligible political subdivisions substantially affected by the proposed flood project have participated in the process of developing the proposed flood project. <b>San Jacinto County participated in the process of developing the project. See item (F) in <a href="#">Description of Proposed Project</a> for further information.</b>
	<input checked="" type="checkbox"/>	4. The funding request does not include redundant funding for activities already performed and/or funded through another source.
	<input checked="" type="checkbox"/>	5. a. The area to be served by the proposed project has floodplain ordinances in place and is currently enforcing floodplain management standards at least equivalent to National Flood Insurance Program (NFIP) minimum standards. <b>See Attachment E.</b> OR
	<input type="checkbox"/>	5. b. Requesting funds to fulfill additional requirements for participation in the National Flood Insurance Program. <b>N/A</b>
	<input checked="" type="checkbox"/>	6. The proposed project was developed using the best and most recent available data. <b>See item (A) in <a href="#">Description of Proposed Project</a> for explanation.</b>
	<input checked="" type="checkbox"/>	7. a. (Construction applicants only) Operations and maintenance costs associated with proposed facilities have been considered. <b>See item (B) in <a href="#">Description of Proposed Project</a> for explanation.</b>
	<input checked="" type="checkbox"/>	7. b. (Construction applicants only) Floodwater capture techniques have been considered. <b>N/A, flood early warning system.</b>

## DESCRIPTION OF PROPOSED PROJECT

The purpose of this project is to install rain and river/stream stage gaging equipment (flow will not be measured; i.e. no rating curves will be developed or maintained) at three locations identified as critical by San Jacinto County to provide early warning information to the county during storm events. The identified gage locations, as shown in Attachment B, are Winters Bayou at State Highway 150, East Fork San Jacinto River at FM 945, and Peach Creek at FM 3081. At each location, equipment to be installed would include mounting pole (including Pelco Break-Away safety system), NEMA box enclosure with antenna mast and rain gage, river/stream stage sensor, alert transmitter/sensors, and all other related and necessary equipment and appurtenances. Rain and river/stream stage data obtained at the sites would be transmitted to SJRA's ALERT2 network and displayed on SJRA's Conrail system which can be viewed online via SJRA's website, allowing San Jacinto County staff and residents to easily access and view the data at any time. Also shown on Attachment B are gages being considered for installation by the Harris County Flood Control District (HCFCD), which the gages proposed to be installed by SJRA could complement as part of a growing regional network of gages. Data collected by the proposed gages could also potentially be displayed on HCFCD's Flood Warning System (FWS) website. Display on the FWS site would allow regional residents to view the data from the proposed gages, along with all other data collected and displayed by HCFCD, all in one location

In order to verify that signals from the proposed gage sites can reach SJRA's repeater tower in Montgomery County, a path analysis study may be required as part of the project. See item (C) below for further information related to path analysis. Additionally, some site survey may be required at the proposed gage locations, which could potentially be provided through a partnership with HCFCD, or via a consultant. All other work related to the installation of the gages is anticipated to be performed by SJRA staff. See item (B) below for considerations for ongoing maintenance.

In order to achieve a flood hardening level of at least the 0.2% annual chance storm event, any components of the system susceptible to water damage would be installed above at least the 0.2% annual chance storm event inundation level, based on the most recent data available (see item A below).

As a flood early warning system project and not structural flood mitigation, actual flood risks to properties will not change as a result of this project. However, the intent of the project is to provide early warning to residents, businesses, property owners, etc. downstream of the gage locations, as well as county emergency personnel and responders, in order to protect life and allow protection of property which can be moved to a safe location with adequate warning (vehicles, valuables, etc.).

The population impacted by the project is considered to be the entire population of San Jacinto County (27,819 in 2018 per excerpt provided in Information for Grant Funding from US Census Bureau data). See item (D) below.

- (A) The project will be performed utilizing the most recent/best available data, technology, and techniques available to SJRA. SJRA recently upgraded its "ALERT" data transmission and collection system to "ALERT2," a more reliable system which reduces data loss. It also replaced its repeater tower in Montgomery County with a higher, more reliable tower at a better location which will also reduce data loss. SJRA staff have become proficient in recent years at installing and maintaining rain and stage gages, and have even further experience with the data collection process. Finally, to aid in locating the proposed gages and ensuring they are constructed with any components susceptible to water damage above at least the 0.2% annual chance storm event inundation level, SJRA will utilize modeling data developed as part of the in progress and nearing completion San Jacinto Regional Watershed Master Drainage Plan project (SJRWMDP) being performed by HCFCD, where available (Atlas 14 rainfall utilized). The SJRWMDP is a \$2.7 million comprehensive regional study funded 25% by local partners HCFCD, SJRA, Montgomery County, and the City of Houston, and 75% by FEMA, conveyed through the Texas Division of Emergency Management. By utilizing data from the SJRWMDP, the proposed project will increase the benefits gained from the large investments made for the SJRWMDP. See Attachment F for more information on the SJRWMDP.
- (B) After installation, the gage sites will require ongoing maintenance, including twice-per-year inspection, periodic cleaning, and any required repairs or corrective maintenance. This maintenance would either be performed by SJRA staff with a funding contribution by San Jacinto County to fund the effort, or by county staff who would be trained by SJRA staff. Preliminary discussions with the county have indicated that the former arrangement is the preferred and likely approach to be taken.
- (C) If path analyses were to determine that signals from the proposed gage sites could not reach SJRA's repeater tower, additional infrastructure could be required to be installed by the county, potentially including a signal tower of some kind. The county could also elect to set up its own overall alert system, separate from SJRA's system. This additional work is not included as part of this project or in this grant application. SJRA staff anticipate that getting signals from the proposed gage sites to its network will not be an issue.
- (D) The project benefit area is considered to be the entirety of San Jacinto County (see Attachment B). While the extent of properties directly benefited/protected by the proposed flood early warning system (FEWS) would only extend to those within storm inundation areas downstream of the proposed gage locations, other benefits of the project would extend to the entire county. For example, if the FEWS system allows residents within the inundation areas adequate time during a storm event to evacuate prior to floodwaters reaching their homes, this could reduce the burden on county-wide emergency services due to high water rescues. It could also allow the county more advanced notice to close roads going through inundation areas, protecting more than just residents living in those inundation areas and again allowing more available emergency services to tend to other needs during the event. Per San Jacinto County, the areas downstream of the proposed gages to be directly benefited by the project have been impacted by several previous storm events, including Hurricanes Harvey, Rita, and Ike, as well as storms in 1994, 1998, 2015, and 2016, causing road closures, high water rescues, etc. These have historically been low population areas, but are growing rapidly.
- There are also some potential benefits to areas downstream of San Jacinto County, such as providing advance streamflow data to HCFCD. As stated above, and as shown on Attachment B, HCFCD is considering installing multiple gages within San Jacinto County. However, the gage locations included in this project/application are not at locations deemed necessary by HCFCD for its purposes, and the goal of the project is to provide benefit to San Jacinto County. Additionally, the proposed gage at Peach Creek and FM 3081 could provide some benefits to a small area of Montgomery County, as Peach Creek runs along the county line between San Jacinto and Montgomery Counties. It is possible that some or all of the gaging equipment may be installed on the Montgomery County side of the county line, depending on site conditions. Again, as stated above, the goal of the project is to provide benefit to San Jacinto County.

- (E) It is anticipated that the project can be completed within 18 months, as indicated in the Prioritization Criteria section below. However, it is possible that delays could be experienced due to coordination with TxDOT or other entities for permission to install gages or other equipment within their rights-of-way.
- (F) The San Jacinto River Authority (SJRA) Flood Management Division is focused on creating and sustaining regional flood management partnerships and coordinating with stakeholders to provide regional flood mitigation solutions within the San Jacinto River Basin. Created in 2018 in response to Governor Abbott calling on SJRA to become more involved with regional flood management, the Division has acted cooperatively with various political subdivisions throughout the region to address flood control/mitigation needs within the jurisdictional area of SJRA, and is now leading efforts with other entities to submit multiple abridged FIF funding applications for projects which span the Upper San Jacinto River Basin (Lake Houston watershed). For this specific application, San Jacinto County participated in the process of developing the project.

## INFORMATION FOR GRANT FUNDING

Provide information for the applicable level of grant funding:

Category 1: ~~N/A~~

~~Study area AMHI (weighted average based on population)-\$ \_\_\_\_\_~~

~~(Optional – attached a copy of federal disaster declaration – flood related within the last 60 months)~~

Categories 2, 3, and **4**

- For consideration of being outside MSA: Project is entirely located outside of an MSA - Yes  or No
- Project area AMHI (weighted average based on population)-\$44,658.00
- Project area Unemployment Rate (weighted average based on population)-7.07%
- Project area Population Decline (if any) (based on sum of the population in the project areas)-0%
- For consideration of being an Rural Applicant: All entities within the project benefit area are outside MSAs and have populations <10,000; or the applicant is a district or municipality with a service area of 10,000 or less in population; or located in a county in which no urban area exceeds 50,000 in population - Yes  or No
- For consideration of being a Green or Nature-Based project: Percentage of total project costs that are considered green or nature-based- 0% (attach the calculation) No attachment included since 0%

Note: If requesting grant funds that rely on a calculation of the AMHI, Unemployment Rate, or Population Decline then attach the calculation of the weighted average amounts for the project area based on the applicable U.S. Census Bureau geographic areas such as County, Place (City), Census Tract, or Block Group using the ACS data sources described in the IUP. See excerpt below from US Census Bureau data provided by TWDB. Calculations based on entirety of San Jacinto County. See item (D) in Description of Proposed Project for explanation. Also see Attachment A for grant percentage calculations.

List of Geographies	2018 ACS 5 YR - Annual Median Household Income (B19013_001E)	2018 ACS 5 YR - Average Household Size (B25010_001E)	2014 ACS 5 YR - Total Population (B01003_001E) - Prior	2018 ACS 5 YR - Total Population (B01003_001E) - Current	2018 Unemployment Rate (derived from Civilian Labor Force-Unemployed/Total-B23025)	2018 ACS 5 YR - Civilian Labor Force: Total (B23025_003E)	2018 ACS 5 YR - Civilian Labor Force: Unemployed (B23025_005E)
United States	\$60,293	2.63	314,107,084	322,903,030	5.86%	162,248,196	9,508,312
Texas	\$59,570	2.86	26,092,033	27,885,195	5.41%	13,728,630	743,006
San Jacinto County, Texas	\$44,658	2.92	26,831	27,819	7.07%	10,825	765

## PRIORITIZATION CRITERIA

<p><b>Rural Applicant</b></p> <p>All entities within the project benefit area are (a) outside MSAs and have populations &lt;10,000; or (b) a district or municipality with a service area of 10,000 or less in population; or (c) a county in which no urban area exceeds 50,000 in population.</p>	<p style="text-align: center;"><input checked="" type="checkbox"/> Yes <span style="float: right;"><input type="checkbox"/> No</span></p> <p style="text-align: center;"><i>(Please attach a list of all entities in the project benefit area and U.S. Census Bureau 2014-2018 American Community Survey (ACS) 5-year estimates data indicating the population of each area.)</i></p> <p style="text-align: center;"><b>FEWS will benefit San Jacinto County, which had a total population of 27,819 per 2018 census data, therefore meeting criteria (c) as shown to the left. See excerpt provided in <a href="#">Information for Grant Funding</a> from US Census Bureau data.</b></p>
<p><b>Emergency Need Due to Recent or Imminent Failure or recent Flood-related Disaster Declarations.</b></p> <p>A need exists for flood hazard mitigation actions to address a clear and imminent threat to public health, safety, and welfare or property due to recent or imminent failure of existing flood infrastructure or flood-related federal or state disaster declarations within the most recent 36 months that would be significantly mitigated by the proposed project.</p>	<p style="text-align: center;"><input type="checkbox"/> Yes, due to a recent failure.      <input type="checkbox"/> Yes, due to imminent failure.      <input checked="" type="checkbox"/> Yes, recent flood-related disaster declaration for the proposed project area      <input type="checkbox"/> No</p> <p style="text-align: center;"><b>Hurricane Harvey (FEMA-4332-DR) and Tropical Storm Imelda (FEMA-4466-DR). See Attachment D and item (D) in <a href="#">Description of Proposed Project</a>.</b></p>
<p><b>Distributed Benefits</b></p> <p>Is the project expected to directly benefit or include the active participation of jurisdictions other than the applicant?</p>	<p style="text-align: center;"><input checked="" type="checkbox"/> Yes <span style="float: right;"><input type="checkbox"/> No</span></p> <p style="text-align: center;"><b>San Jacinto County will benefit from and participate in the project. See items (D) and (F) in <a href="#">Description of Proposed Project</a> and Attachment B.</b></p>



<p><b>Estimated Completion Date</b></p> <p>When would all project phases expected to be complete, assuming funds for the project are closed on in Fall of the current year?</p>	<p style="text-align: center;"> <input checked="" type="checkbox"/> Within 18 months of closing      <input type="checkbox"/> Within 36 months of closing      <input type="checkbox"/> Other </p> <p>See item (E) in <a href="#">Description of Proposed Project</a> for more information.</p>
<p><b>Construction Projects Only (Including PAD plus Construction combined)</b></p> <p>Project is anticipated to result in an integral, reliable, and quantifiable water supply benefit to a specific water user group with an identified need. May include groundwater recharge benefits.</p>	<p style="text-align: center;"> <input type="checkbox"/> Yes      <input checked="" type="checkbox"/> No </p> <p style="text-align: center; color: red;"> "Construction" limited to installation of flood early warning system rain/stage gages and associated appurtenances. Project is a Category 4 project. </p>
<p><b>Construction Projects Only (Including PAD plus Construction combined)</b></p> <p>How many structures are anticipated to be removed from floodplains as a result of the proposed project?</p>	<p style="color: red; text-align: center;">N/A, flood early warning system</p>
<p><b>Non-structural flood mitigation elements</b></p> <p>Non-structural flood mitigation elements constitute at least 20 percent of the total project costs.</p>	<p>Percentage of total project costs that are considered nature-based- <span style="color: red;">0%</span></p>

<b>Tiebreaker:</b>  <b>Social Vulnerability Index (SVI)</b>	Average SVI of benefitting area: 0.415  Geographic basis: <input type="checkbox"/> Census Tracts <input checked="" type="checkbox"/> Counties  <i>Please attach a list of the selected geographies and an explanation of why they were selected. Used entirety of San Jacinto County for calculations (See item (D) in <u>Description of Proposed Project</u> for explanation). See Attachment B for project benefit area (San Jacinto County) map. See Attachment C for SVI data. 2018 CDC statewide ranking SVI data was utilized, as opposed to 2016 nationwide ranking data found in the CDC SVI map referenced in the IUP. This was confirmed as appropriate by TWDB via email.</i>
<b>Certification on MOUs (if MOUs will be required)</b>  If no MOUs will be required, check here: <input checked="" type="checkbox"/> See item 2 under <u>Minimum Standards</u> above.	I, _____ (Name), serving as _____ (Title) hereby certify that _____ (Applicant) has provided all eligible political subdivisions that will be required to submit a Memorandum of Understanding a copy of their proposed Memorandum of Understanding and an adequately detailed description of the proposed project.  _____ Signature Date

# ADDITIONAL INFORMATION FOR THE FLOOD INFORMATION CLEARINGHOUSE COMMITTEE

Responses to questions 1 through 7, along with other information included in this abridged application, will be shared with the Flood Information Clearinghouse Committee (FLICC), a new cooperative effort between the TWDB, General Land Office, Texas Division of Emergency Management, and other state and federal agencies that administer flood mitigation financial assistance programs. After review by the FLICC, the applicant may be advised of other available source(s) of funding.

1. Type of Assistance Requested (Check all that apply):	<input type="checkbox"/> Low Interest Loan <input checked="" type="checkbox"/> Grant <input type="checkbox"/> Loan/Grant Combination <input type="checkbox"/> Local Match for Federal Funding
If requesting funds for the local cost share of a federally funded project, the name of the program:	N/A
2. County(ies) in which the project is located:	San Jacinto County (some efforts may be required on SJRA receiving system/data display system, but anticipated to be minor and not part of project costs included in application)
3. (If applicable) Associated FEMA disaster name and number:	Hurricane Harvey (FEMA-4332-DR) and Tropical Storm Imelda (FEMA-4466-DR), see Attachment D
4. Does the applicant have an approved Mitigation Action Plan?	No
5. Is the community to be served by the project in good standing with the National Flood Insurance Program?	Yes, see Attachment E
6. Will this project involve enlargement of a dam or levee beyond the original footprint of the structure that existed prior to a disaster event?	No
7. Will this project mitigate a repetitive or severe repetitive loss property?	Project is a flood early warning system, so will not have impact on reducing structural/fixed property (homes, businesses, land, etc.) flooding. Could mitigate losses of vehicles and other property which can be moved with early notification. See Attachment D and item (D) in <u>Description of Proposed Project</u> .

## CERTIFICATION ON ENFORCING FLOODPLAIN MANAGEMENT STANDARDS

<p><b>Certification on enforcing floodplain management standards</b></p> <p>Exception: The only exception is an entity that is requesting FIF funding to fulfill additional requirements for participation in the National Flood Insurance Program. If this is the situation, check here: <input type="checkbox"/></p>	<p>I, _____(Name), serving as _____(Title) hereby certify that _____(Appropriate entity for area to be served by the project) is currently enforcing floodplain management standards at least equivalent to National Flood Insurance Program (NFIP) minimum standards, but it may exceed the NFIP minimum standard.</p> <p>_____ Signature</p> <p>_____ Date</p>
--	--

**SEE ATTACHMENT E**

## ATTACHMENT CHECKLIST

- | ✓                                   | N/A                                 | <u>Attachment Description</u>  |
|-------------------------------------|-------------------------------------|--|
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | List of entities receiving the proposed MOU and project description <a href="#">See item 2 under <u>Minimum Standards</u> above.</a>   |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Benefit-Cost Ratio required information. <a href="#">Not required for flood early warning systems.</a>   |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Documentation indicating the best/most recent data was used in the development of the proposed project. <a href="#">See item (A) in <u>Description of Proposed Project</u> for explanation.</a>  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Documentation demonstrating the area to be served by the proposed project has floodplain ordinances in place and the appropriate entity has certified that it is currently enforcing floodplain management standards at least equivalent to National Flood Insurance Program (NFIP) minimum standards. (The only exception is an entity that is requesting FIF funding to fulfill the requirements for participation in the National Flood Insurance Program.) <a href="#">See Attachment E.</a>                                 |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | If requesting grant funds that rely on a calculation of the AMHI, Unemployment Rate, or Population Decline then attach the calculation of the weighted average amounts for the project area based on the applicable U.S. Census Bureau geographic areas such as County, Place (City), Census Tract, or Block Group and the ACS data sources described in the IUP. <a href="#">See excerpt from US Census Bureau data provided in <u>Information for Grant Funding</u>. Calculations based on entirety of San Jacinto County.</a> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | If requesting prioritization points for "Rural Applicant", a list of all entities in the project benefit area and U.S. Census Bureau 2014-2018 American Community Survey (ACS) 5-year estimates data indicating the population of each area. <a href="#">See excerpt from US Census Bureau data provided in <u>Information for Grant Funding</u>. Calculations based on entirety of San Jacinto County.</a>  |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | (If applying for matching funds) Documentation of an existing federal award pending availability of local match.   |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | (If the project involves property acquisitions) Documentation supporting the determination that acquisitions are the best solution and the properties are a high risk. <a href="#">Don't anticipate property acquisitions, and definitely not for purpose of removing properties from risk. Will require agreements from TxDOT, county, and/or other right-of-way owner(s).</a>  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | (Construction projects) Description of the anticipated funding source for operations and maintenance costs. <a href="#">See item (B) in <u>Description of Proposed Project</u> for explanation.</a>  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | (Construction projects) Map and description of area benefitting from the proposed project, including a list of all benefitting political subdivisions. <a href="#">Entirety of San Jacinto County. See Attachment B and item (D) in <u>Description of Proposed Project</u> for explanation.</a>  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | (If applicable) Documentation of recent or imminent infrastructure failure causing an emergency need or a flood-related federal or state disaster declaration within the most recent 36 months that would be significantly mitigated by the proposed project. <a href="#">Hurricane Harvey (FEMA-4332-DR) and Tropical Storm Imelda (FEMA-4466-DR), see Attachment D and item (D) in <u>Description of Proposed Project</u>.</a>   |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | List and explanation of geographies used to determine average SVI. <a href="#">See SVI section of <u>Prioritization Criteria</u> and Attachment C.</a>   |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Certification on enforcing floodplain management standards for all applicable areas <a href="#">See Attachment E.</a>  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Additional Information for the Flood Information Clearinghouse Committee   |

# Attachment A:

Grant Percentage Calculator Spreadsheet

**CATEGORY 4 - FLOOD EARLY WARNING SYSTEM FOR SAN JACINTO COUNTY**

Entirely Outside MSA?		
Yes	10% Grant	<input checked="" type="checkbox"/>
No	0% Grant	<input type="checkbox"/>
<b>MSA Grant % =</b>		<b>10%</b>

2014 Population =	26,831	
2018 Population =	27,819	
2018 Pop < 2014 Pop?	No	
Yes, (2014-2018)/2014 =	-4%	<input type="checkbox"/> (Max 5%)
No =	0% Grant	<input checked="" type="checkbox"/>
<b>Pop. Decline Grant % =</b>		<b>0%</b>

Project AMHI =	\$44,658.00	
State AMHI =	\$59,570.00	
Project/State =	74.97%	
Project/State ≤ 85% =	40% Grant	<input type="checkbox"/>
Project/State ≤ 75% =	55% Grant	<input checked="" type="checkbox"/>
Project/State ≤ 65% =	60% Grant	<input type="checkbox"/>
Project/State ≤ 50% =	70% Grant	<input type="checkbox"/>
<b>AMHI Grant % =</b>		<b>55%</b>

Rural Applicant?		
Yes =	5% Grant	<input checked="" type="checkbox"/>
No =	0% Grant	<input type="checkbox"/>
<b>Rural Applicant Grant % =</b>		<b>5%</b>

Project Unemployment =	7.07%	
State Unemployment =	5.41%	
Project > State?	Yes	
Yes, Project/State x 2.5% =	4%	<input checked="" type="checkbox"/> (Max 5%)
No =	0% Grant	<input type="checkbox"/>
<b>Unemployment Grant % =</b>		<b>4%</b>

% Project Nature Based =		
Met a previous category?	Yes	
No =	0% Grant	<input type="checkbox"/>
Yes, % Nature Based < 30% =	0% Grant	<input checked="" type="checkbox"/>
Yes, % Nature Based > 30% =	5% Grant	<input type="checkbox"/>
<b>Nature Based Grant % =</b>		<b>0%</b>

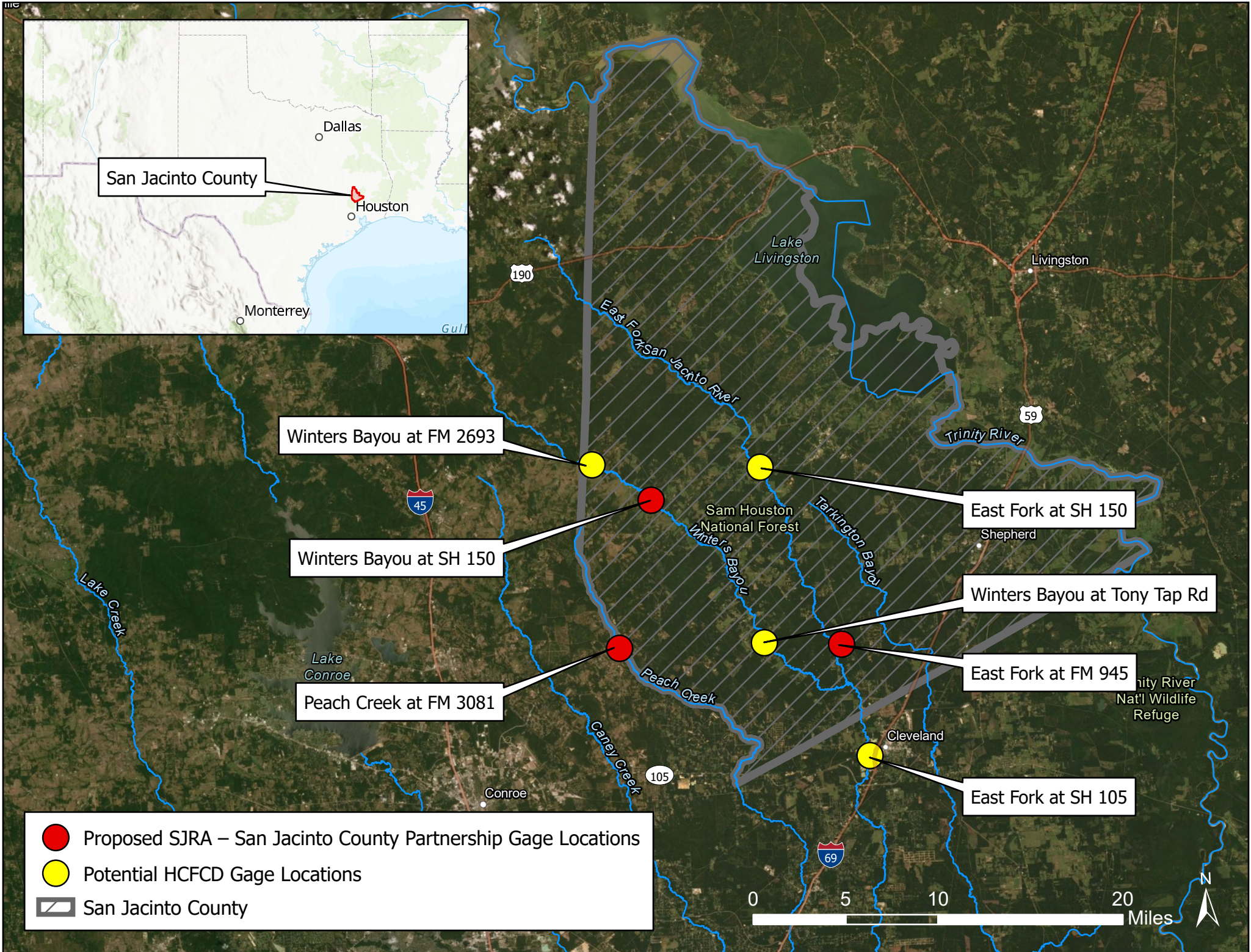
<b>TOTAL GRANT % =</b>	<b>74%</b>
------------------------	------------

Notes:

# Attachment B:

Planned Gage Locations and Project Benefit  
Area (San Jacinto County)





- Proposed SJRA – San Jacinto County Partnership Gage Locations
- Potential HCFCO Gage Locations
- ▨ San Jacinto County

# Attachment C:

SVI for San Jacinto County



1:381,557 | 94.5435795°W 30.7718738°N | Selected Features: 1

SVI2018\_TEXAS\_county | Fields: SVI2018\_TEXAS\_county (Map)

Field: Add Calculate Selection: Zoom To Switch Clear Delete Copy Highlighted: Unselect Reselect Zoom To Switch Clear Delete

ST	STATE	ST_ABBR	COUNTY	FIPS	LOCATION	AREA_SQMI	SPL_THEMES	RPL_THEMES
48	TEXAS	TX	San Jacinto	48407	San Jacinto County, Te...	569.242634	6.940	0.415

Click to add new row.

Source: CDC Social Vulnerability Index

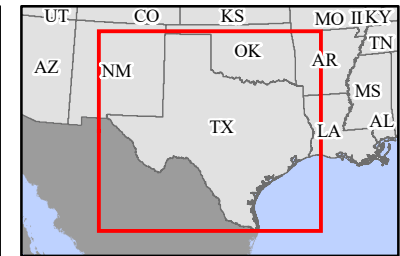
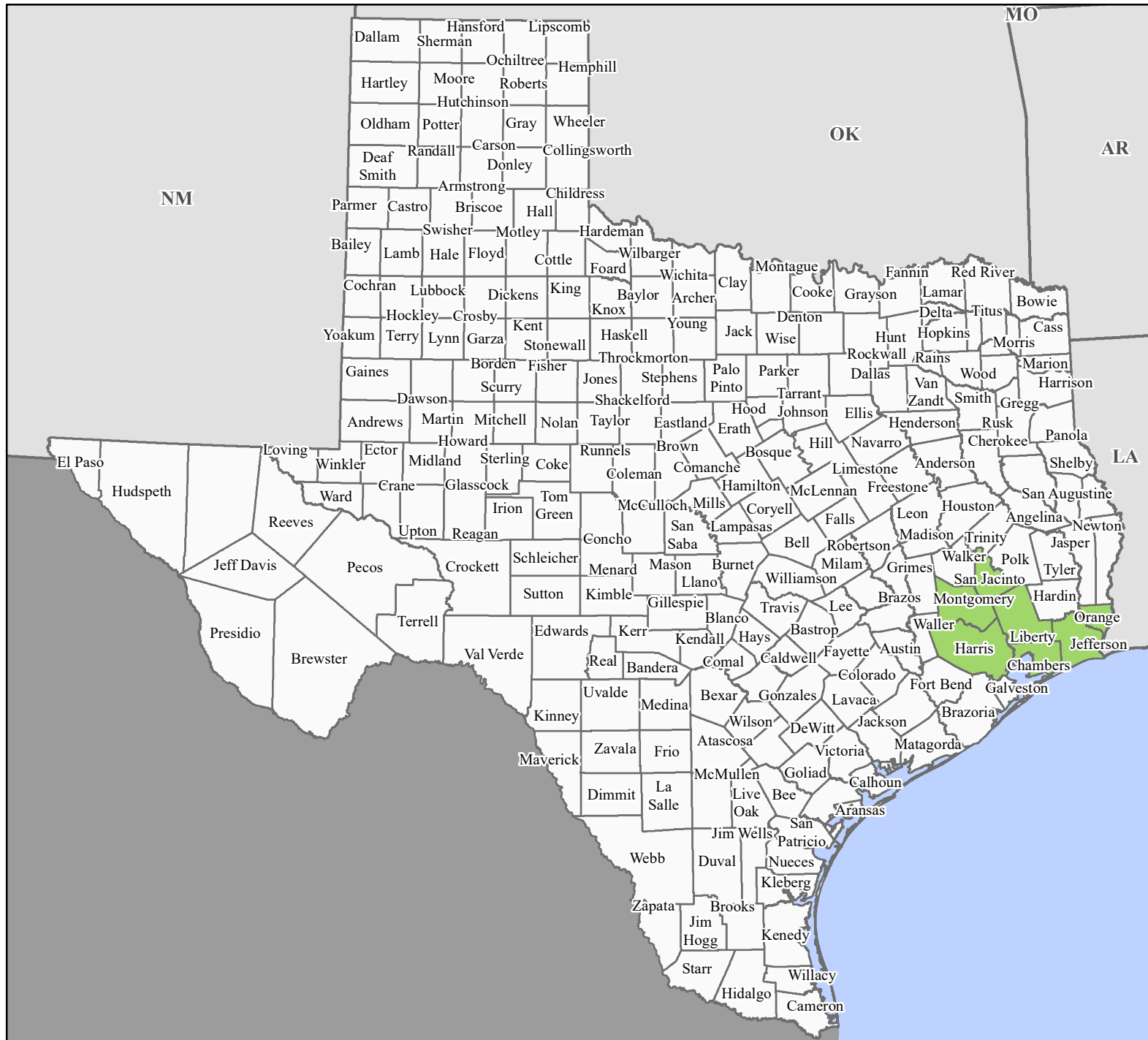
# Attachment D:

Disaster Declarations for Tropical Storm  
Imelda and Hurricane Harvey

# FEMA-4466-DR, Texas Disaster Declaration as of 10/24/2019



FEMA



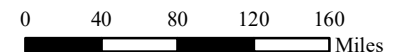
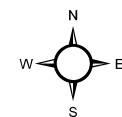
**Data Layer/Map Description:**

The types of assistance that have been designated for selected areas in the State of Texas.

All areas within the State of Texas are eligible for assistance under the Hazard Mitigation Grant Program.

**Designated Counties**

- No Designation
- Individual Assistance



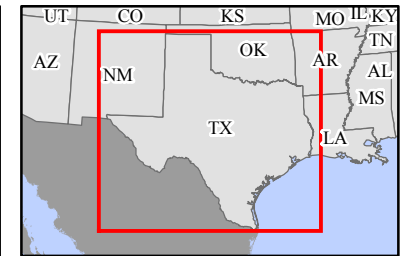
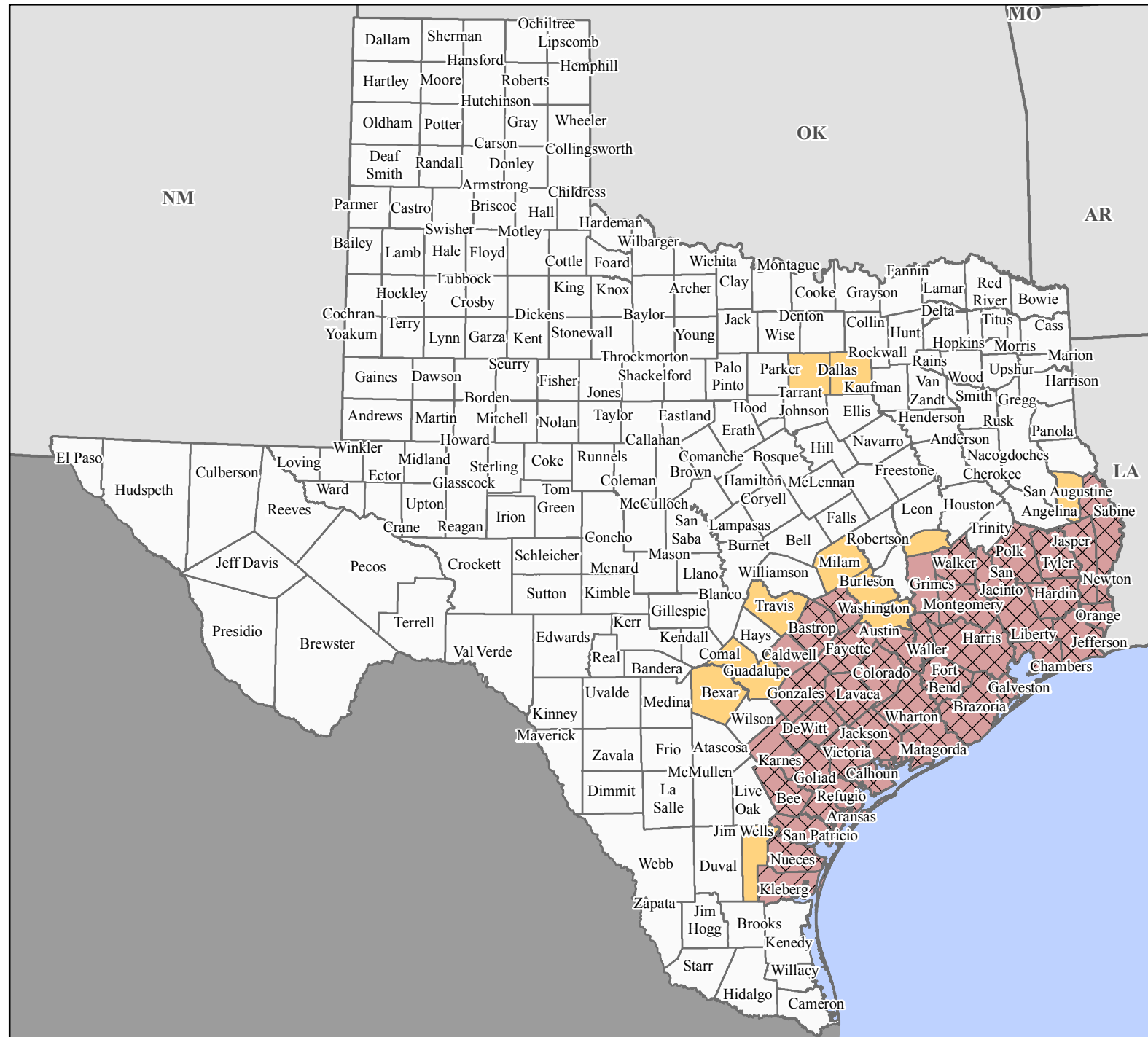
**Data Sources:**

FEMA, ESRI;  
 Initial Declaration: 10/04/2019  
 Disaster Federal Registry Notice:  
 Amendment #1: 10/24/2019  
 Datum: North American 1983  
 Projection: Lambert Conformal Conic

# FEMA-4332-DR, Texas Disaster Declaration as of 10/11/2017



FEMA

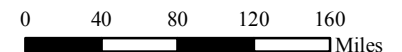
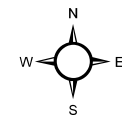


**Data Layer/Map Description:**  
The types of assistance that have been designated for selected areas in the State of Texas.

All designated areas in the State of Texas are eligible to apply for assistance under the Hazard Mitigation Grant Program.

**Designated Counties**

- No Designation
- Public Assistance
- Individual Assistance and Public Assistance
- Public Assistance (Category B)
- Individual Assistance and Public Assistance (Categories A and B)
- Individual Assistance and Public Assistance (Categories A - G)



**Data Sources:**  
FEMA, ESRI;  
Initial Declaration: 08/25/2017  
Disaster Federal Registry Notice:  
Amendment #10 - 10/11/2017  
Datum: North American 1983  
Projection: Lambert Conformal Conic

# Attachment E:

NFIP Certifications

### CERTIFICATION ON ENFORCING FLOODPLAIN MANAGEMENT STANDARDS

<p>Certification on enforcing floodplain management standards</p> <p>Exception: The only exception is an entity that is requesting FIF funding to fulfill additional requirements for participation in the National Flood Insurance Program. If this is the situation, check here: <input type="checkbox"/></p>	<p>I, <u>David Brandon</u> (Name), serving as <u>Floodplain Administrator</u> (Title)</p> <p>hereby certify that <u>San Jacinto County</u> (Appropriate entity for area to be served by the project)</p> <p>is currently enforcing floodplain management standards at least equivalent to National Flood Insurance Program (NFIP) minimum standards, but it may exceed the NFIP minimum standard.</p> <p> Signature</p> <p><u>5/8/2020</u> Date</p>
---	--



# Attachment F:

San Jacinto Regional Watershed Master  
Drainage Plan Project Fact Sheet

# SAN JACINTO REGIONAL WATERSHED MASTER DRAINAGE PLAN FACT SHEET



The San Jacinto Regional Watershed Master Drainage Plan is a comprehensive regional study led by local partners including the Harris County Flood Control District, the San Jacinto River Authority, Montgomery County, and the City of Houston.

This integrated effort, kick started in April 2019, will identify future flood mitigation projects that can be implemented in the near- and long-term to reduce flood risks to people and property throughout the San Jacinto River regional **watershed**.

The goals of the San Jacinto Regional Watershed Master Drainage Plan are to:

- Identify the region’s vulnerabilities to flood hazards using Atlas 14 rainfall
- Develop approaches to enhance public information and flood level assessment capabilities during a flood disaster event
- Evaluate flood mitigation strategies to improve community resilience
- Provide a comprehensive Flood Mitigation Plan that supports the needs and objectives of each regional partner

The goals of the project will be achieved by developing a set of hydrologic and hydraulic models for the major tributaries of the Upper San Jacinto River regional watershed (from the **headwaters** in Walker County to the Interstate 10 crossing at the San Jacinto River in Harris County). The models will use consistent, cohesive methodology and rainfall rates, regardless of the county in which those channels are located.

Information to be developed includes *non-regulatory inundation maps* (not intended to replace current effective maps) for the studied streams that show the extent and depth of **riverine flooding** of the larger rivers within the watershed for an array of simulated storm events. Additionally, information will be gathered about the number of structures, acres of land, properties, and miles of roadway that are located within the modeled floodplains. Study results will be used to inform and update **Hazard Mitigation Plans** for each of the participating partners and to provide guidance on regulations for future growth within the study area.

The project area covers nearly 3,000 square miles. The expected completion time frame is Fall 2020. The project is budgeted at \$2.7 million.

## Contact Us

The participating project partners are interested in hearing from you. Please contact your local representative with comments and questions:

- **Harris County Flood Control District** – Jing Chen, jing.chen@hcfcd.hctx.net
- **San Jacinto River Authority** – Matt Barrett; mbarrett@sjra.net
- **Montgomery County** – Darren Hess, darren.hess@mctx.org
- **City of Houston** – Adam Eaton, adam.eaton@houston.tx.gov

## GLOSSARY

**Watershed:** A geographical region of land or “drainage area” that drains to a common channel or outlet, mostly creeks and bayous. Drainage of the land can occur directly into a bayou or creek, or through a series of systems that may include storm sewers, roadside ditches, and/or tributary channels.

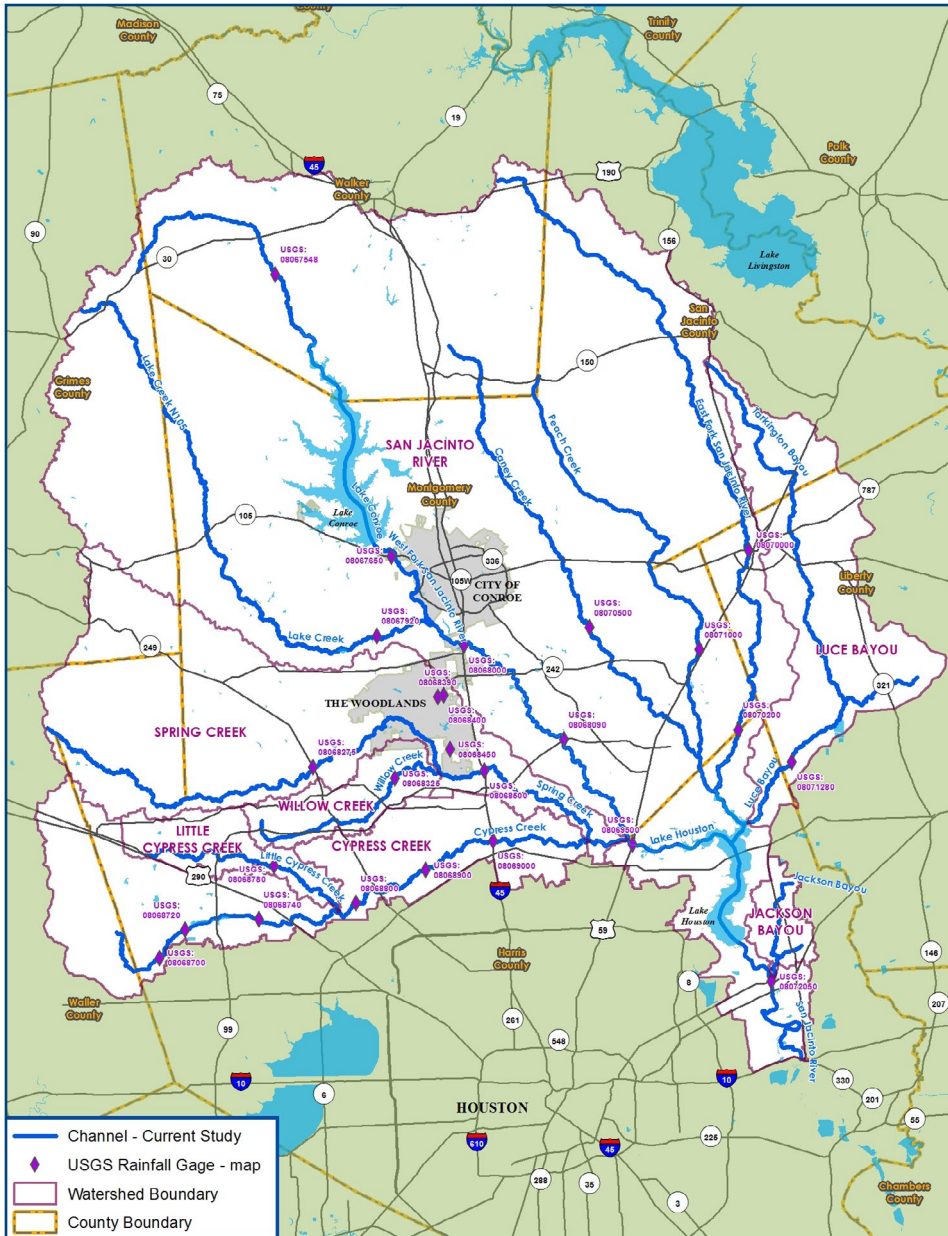
**Headwaters:** Headwaters are simply the initial source of the water in a river.

**Inundation maps:** Maps that show where flooding may occur over a range of water levels in a community’s local stream or river.

**Riverine flooding:** Flooding that is the result of creeks and bayous leaving their banks due to heavy rainfall.

**Hazard Mitigation Plans:** Hazard mitigation is the effort to reduce loss of life and property by lessening the impact of disasters, such as flooding. Governmental organizations engage in hazard mitigation planning to identify risks and vulnerabilities associated with natural disasters, and develop long-term strategies for protecting people and property. Mitigation plans are key to breaking the cycle of disaster damage, reconstruction, and repeated damage.

# SAN JACINTO REGIONAL WATERSHED MASTER DRAINAGE PLAN STUDY AREA



## 3,000 SQUARE MILES OF STUDY AREA

The watershed for the streams to be studied covers an expanse of nearly 3,000 square miles, located in seven different counties:

- Grimes County
- Harris County
- Liberty County
- Montgomery County
- San Jacinto County
- Walker County
- Waller County

The study includes approximately 535 miles of stream, including West Fork San Jacinto River, East Fork San Jacinto River, San Jacinto River, Lake Creek, Cypress Creek, Little Cypress Creek, Spring Creek, Willow Creek, Caney Creek, Peach Creek, Luce Bayou, Tarkington Bayou, and Jackson Bayou.

Stream Name	Stream Length (Miles)
West Fork San Jacinto River	61.4
East Fork San Jacinto River	73.2
San Jacinto River	16.3
Lake Creek	58.9
Cypress Creek	60.5
Little Cypress Creek	20.8
Spring Creek	69.6
Willow Creek	19.8
Caney Creek	49.3
Peach Creek	53.5
Luce Bayou	10.8
Tarkington Bayou	36.9
Jackson Bayou	4.6
<b>Total</b>	<b>535.6</b>



West Fork of San Jacinto River