Region 6 - San Jacinto Regional Flood Planning Group March 03, 2022 9:00 AM **Hybrid Meeting** 

# Item 1: Call to Order

# Item 2: Welcome and Roll Call

# Item 3: Registered Public Comments on Agenda Items (3 minutes limit per person)

# Item 4: Texas Water Development Board Update

# Item 5: Approval of minutes - January 13, 2022

### Meeting Minutes Region 6 San Jacinto Regional Flood Planning Group January 13, 2022 9:00 AM Hybrid Meeting

### Roll Call:

Voting Member	Interest Category	Present (x) /Absent () /	
	(Executive Committee role)	Alternate Present (*)	
Timothy E. Buscha	Industries (Chair)	X	
Alia Vinson	Water Districts (Vice Chair)	X	
Alisa Max	Counties (Secretary)	X	
Gene Fisseler	Public (At-Large member)	X	
Matthew Barrett	River Authorities (At-Large member)	X	
Elisa Macia Donovan	Agricultural Interests	X* MaryAnn Piacentini	
TBA	Small Business		
Paul E. Lock	Electric Generating Utilities	X	
Rachel Powers	Environmental Interests	X	
Stephen Costello	Municipalities	X	
Marcus Stuckett	Flood Districts	X Dena Green	
Todd Burrer	Water Utilities	X	
Brian Maxwell	Coastal Communities	X* Bob Kosar	
Christina Quintero	Public	X	
Neil Gaynor	Upper Watershed	Х	

Non-voting Member	Agency	Present(x)/Absent (_)/ Alternate Present (*)	
Hope Zubek	Texas Parks and Wildlife Department	X	
Natalie Johnson	Texas Division of Emergency Management		
Kristin Lambrecht	Texas Department of Agriculture	Х	
Joel Clark	Texas State Soil and Water Conservation Board		
Colleen Jones	Texas General Land Office	X* Brooke Bacuetes	
Megan Ingram	Texas Water Development Board	X	
Melinda Johnston	Texas Commission on Environmental Quality		
Jeff Taebel	Houston-Galveston Area Council	X* Justin Bower	
Ellie Alkhoury	Texas Department of Transportation		
Tom Heidt	Port Houston	X	
Michael Turco	Harris-Galveston Subsidence District		
Brandon Wade	Region H Regional Water Planning Group X		
Sally Bakko	Gulf Coast Protection District X		
TBA	U.S. Army Corps of Engineers		

Liaisons from RFPG	Regional Flood Planning Group	Present(x)/Absent( )/ Alternate Present (*)
Todd Burrer	Trinity Region RFPG	х
Stephen Costello	Neches Region RFPG	X
Michael Turco	Lower Brazos RFPG	



<u>Liaisons from Other</u> Entities	Entity	Present(x)/Absent( )/ Alternate Present (*)	
Mark Vogler	Lower Brazos RFPG		
Scott Harris	Trinity Region RFPG		
Liv Haselbach	Neches Region RFPG	Х	
Brandon Wade	Region H Regional Water Planning Group	Х	

Technical Consultant Team	Entity	Present(x)/Absent( )/	
Members		Alternate Present (*)	
Cory Stull	Freese and Nichols Inc.	Х	
Maggie Puckett	Freese and Nichols Inc.		
Hayes McKibben	Freese and Nichols Inc.	X	

### Quorum:

Quorum: Yes

Number of voting members or alternates that were present: 14 Number required for quorum per current voting membership of 15: 8

### Attendees:

Caroline Mccabe Matt Lopez (FCD)
Claudia Garcia (Harris County Engineering) Megan Ingram (TWDB)

Craig Kalkomey (UA) Michael Keck

Danielle Moore, Andrew (Halff)

James Bronikowski (TWDB)
Peggy Zahler
Jill Boullion
Rachel Herr
Justin Bower
Rebecca Andrews
Kena Ware (Harris County Engineering)
Reem Zoun (TWDB)
Lance LaCour
Sam Hinojosa
Lisa Mairs
Stephan Gage

Liv Haselbach Susan Chadwick
Mariah (she/her) William Dougherty Jr

Marlisa Briggs

### AGENDA ITEM NO. 1: Call to Order

Ms. Vinson, Vice Chair of the SJRFPG, called the meeting to order at 9:03 a.m. as the presiding officer due to Mr. Buscha's inability to attend in-person.

### AGENDA ITEM NO. 2: Welcome and Roll Call

Ms. Max took attendance, and a quorum was determined to present.

AGENDA ITEM NO. 3: Registered Public Comments on Agenda Items (Limit of 3 Minutes Per Person)

Ms. Berrios stated there were no requests for public comments.

### AGENDA ITEM NO. 4: Texas Water Development Board Update

Ms. Ingram stated she was very grateful to the group for submittal of its Technical Memorandum. She stated that the TWDB would be reviewing the Technical Memorandum for administrative completeness in the coming weeks.

### AGENDA ITEM NO. 5: Approval of Meeting Minutes - December 9, 2021

Ms. Vinson opened the floor for comments to the meeting minutes. Mr. Barrett, Mr. Gaynor, and Mr. Fisseler provided minor comments to the meeting minutes. Mr. Fisseler moved to approve the minutes as revised. Mr. Buscha seconded the motion, which carried with Mr. Costello abstaining given he had not been in attendance at the meeting.

### AGENDA ITEM NO. 6: Announcement of New Alternate Members and New Non-Voting Members

Ms. Berrios, on behalf of Ms. Max, stated that the U.S. Army Corps of Engineers had selected Eric Stevens as its new non-voting member representative.

### AGENDA ITEM NO. 7: Liaison Reports Pertaining to Other Region(S) Progress and Status:

- Trinity Region Mr. Burrer stated that the next meeting would be convened on February 17, 2022, and the Region was following the same deliverables schedule as the SJRFPG.
- Neches Region Mr. Costello stated the Neches Region was also following a similar timeline. Ms. Haselbach added that the Region had also submitted its Technical Memorandum and had held a public meeting on Tuesday, January 11, 2022. She stated the next meeting would be January 27, 2022.
- Lower Brazos Region Mr. Turco was not present to provide an update. Mr. Wade offered that its next meeting was scheduled for January 27, 2022.
- Region H Water Region H will be meeting on February 2, 2022

### AGENDA ITEM NO. 8: Update from Project Sponsor Regarding the Solicitation Process for the Small Business Voting Member Position

Ms. Berrios stated that five applications had been received and that the Executive Committee would be meeting to shortlist and interview applicants later in January and February.

### AGENDA ITEM NO. 9: Officer Elections – Discussion, Possible Action and Consideration of Nominations to the SJRFPG Executive Committee, Including At-Large Members.

Ms. Vinson explained that the Bylaws require an annual election of officers, along with the two At-large members that are part of the Executive Committee. She then asked if any of the members currently on the Executive Committee did not want to be considered for re-election. Mr. Buscha thanked the SJRFPG and stated he would like to continue to serve as the Chair should the SJRFPG wish. The remaining members

shared the same sentiments and affirmed their willingness to be considered for re-election. After brief discussion, Mr. Costello moved to re-elect the current Chair, Vice Chair, Secretary, and two At-large members of the Executive Committee for another year. Mr. Gaynor seconded the motion, which carried unanimously.

AGENDA ITEM NO. 10: Discussion, and Possible Action Regarding the Membership of all Advisory Committees

- a. Technical Committee
- b. Public Engagement Committee

Ms. Vinson opened the floor for volunteers to serve on both the Technical Committee and Public Engagement Committee. She asked the Chairs of both committees to make a brief statement encouraging members to join their respective committees. Ms. Vinson, seeing that Ms. Donovan was not present, asked for a member of the Technical Committee to speak. Mr. Costello, Vice Chair, stated that serving on the Technical Committee is very interesting and rewarding since the committee gets the opportunity to dive into the technical discussions with the technical consultant. He added the meetings are not a big-time commitment. Ms. Vinson added that she wanted to recommend Mr. Brian Maxwell to serve on the Technical Committee. Mr. Buscha reported that he had reached out to Mr. Maxwell, but Mr. Maxwell does not want to commit to serve on the committee. Mr. Bob Kosar, Mr. Maxwell's alternate, volunteered to serve on the Technical Committee. Mr. Costello moved to approve appointing Mr. Kosar to the Technical Committee. Ms. Powers seconded the motion, which carried unanimously.

Ms. Vinson then asked Mr. Burrer to discuss the Public Engagement Committee. Mr. Burrer echoed what Mr. Costello stated, highlighting that service on the committee is not time consuming. Ms. Max then suggested deferring this agenda item to the next meeting when the new Small Business Voting Member would be appointed. Mr. Fisseler and Ms. Vinson agreed.

### AGENDA ITEM NO. 11: Update and Discussion on Presentation Requests on Behalf of the SJRFPG

Ms. Vinson asked Ms. Berrios to provide an update on the presentation for use by members of the SJRFPG.

Ms. Berrios walked through the updated standard presentation, indicating that it reflects all current members of the SJRFPG, and includes the additional tasks required by the amended contract with TWDB. She stated the presentation could be tailored to respective speaking requests, adding this was a good basis to begin with. Ms. Vinson stated the purpose of having a presentation for all members to use was to ensure that consistent messages would be provided on behalf of the SJRFPG. She stated the presentation was open to comments from all the members revisions should be sent to the Project Sponsor.

### AGENDA ITEM NO. 12: Presentation and Updates from the SJRFPG Technical Consultant

Mr. Stull stated that the focus of his presentation would be to discuss future flood risk conditions and to propose a method for use by SJRFPG to predict flood risks for the Regional Flood Plan. He introduced a partner from Halff Associates, Andrew Moore, who assists with the presentation. Mr. Moore introduced his Halff colleagues Rachel Heart and Jason Becker. Mr. Moore stated that hazard, exposure, and vulnerabilities were the key components to identifying risk and noted that coastal and riverine flooding were both threats in Region 6. Mr. Moore stated future flood risks would be estimated, however, the best available data would be used to makes these estimates. Mr. Moore recommended that the current FEMA 500-year floodplain serve as the anticipated future 100-year flood inundation extent. For determination of the future 500-year inundation extent, he recommended that the region be broken into three different zones, with a buffer based on each zone's topographic characteristics.

Mr. Stull then introduced Jacob Torres who would provide an overview for the proposed future 500-year condition. Mr. Stull stated that the basis for this future risk inundation mapping is additional data documentation required to be included in the Technical Memorandum due to be submitted to the TWDB in March. He asked that the Technical Committee meet and further discuss the methodologies presented. Mr. Stull requested that the February SJRFPG meeting be moved to the last week in February to allow incorporation of comments by the Technical Committee.

Ms. Vinson then opened the floor for comments and questions about the presentation. Mr. Buscha asked why flooding would increase as a result of population growth, pointing out that county development regulations in effect require installation of stormwater detention capacity with new development. Mr. Moore stated that he did not intend to state flooding would increase, rather that population would increase. Mr. Buscha then asked if the flood maps would be revisited in future cycles as new data became available. Mr. Stull answered stating that, yes future flood risks would be revisited in future planning cycles. Mr. Stull also stated that conversations regarding whether minimum standards be recommended or adopted. Mr. Fisseler summarized his understanding that the future risk estimates would best guesses which would updated be made as new and better data becomes available. Mr. Fisseler added that risks may increase or decrease based on new data and trends change in future planning cycles. Mr. Stull agreed with his understanding, stating that the refinement of the 500-year floodplain over time. Mr. Stull stated more studies would be conducted and be included in the Regional Flood Plan.

Mr. Barrett asked if there were any outliers found when comparing the approach described by Mr. Moore for developing the future 100-year flood inundation extent and previous modeling efforts, and added if modeling existed in certain areas, why not use those models be used to establish the future inundation extents. Mr. Moore stated that in general things lined up with the previous modeling, and stated that not all tributaries have been studied, but rather models focused on the main streams. Mr. Barrett recommended supplementing the approach described by Mr. Moore with modeling where available and appropriate to ensure most conservative prediction of future inundation.

Ms. Powers then asked if non-riverine flooding was being considered in this analysis since significant flooding has occurred in no-riverine settings. Mr. Stull replied that they would be considered and emphasized that the FEMA prepared Flood Insurance Rate Map was based on riverine studies which are the most valuable resource at hand. Mr. Stull then mentioned a couple of studies such as MAAPNext that were underway and stated pluvial flooding would be taken into consideration. He then stated that the best way to include these areas would be to input that data into the interactive web map. Ms. Powers added that it was extremely important to communicate to the public that coastal and riverine settings were not the only flood risks.

Ms. Max stated that Atlas 14 also reinforced the use of the presented methodologies, stating that the proposed future 100-year floodplain was nearly identical to the current 500-year map. She stated that until additional studies are available, she felt it was very logical to use this method since there was precedent. Mr. Gaynor inquired about the schedule for the upcoming meetings and suggested that meetings be held last week of January and the second week in February to discuss the future flood risks. Mr. Stull stated if two meetings were being requested, they would need to be very close together to allow incorporation of comments by the Technical Committee. Mr. Stull stated a late January meeting would be certain, however, a second meeting should be convened only if needed. Ms. Vinson then stated that given the timeline and additional meeting requests, she recommended that the February SJRFPG meeting be

cancelled and that the next meeting of SJRFPG be held on March 3<sup>rd</sup>. She asked Mr. Buscha for his comments. Mr. Buscha stated he agreed so long as the Technical Consultant agrees.

Mr. Burrer reiterated what Mr. Buscha pointed out about population growth and agreed with Ms. Powers' concerns with pluvial flooding. Ms. Vinson asked the Technical Consultant and Project Sponsor to determine the Technical Committee meeting timeline and inform the SJRFPG once it was determined. She reiterated that March 3, 2022, would be the only SJRFPG meeting during the months of February and March.

Ms. Vinson then provided a five-minute recess at 10:41 a.m.

Ms. Vinson continued the meeting at 10:45 a.m. and reminded all voting members to turn their cameras. She summarized that the Project Sponsor would be sending out the presentation materials for review and stated that the March 10<sup>th</sup> meeting of SJRFPG is canceled and is rescheduled for March 3, 2022. She reminded the group that the February SJRFPG meeting is cancelled.

### AGENDA ITEM NO. 13: Approval and Certification of Administrative Expenses Incurred by the Project Sponsor for the Development of Regional Flood Plan

Ms. Vinson stated that the Project Sponsor requests reimbursement of administrative expenses. Mr. Buscha, as Chair of the SJRFPG, moved to approve the administrative expenses. Mr. Fisseler seconded the motion and it carried unanimously.

### AGENDA ITEM NO. 14: Presentation Of 2022Planning Group Key Dates and Deadlines:

- Upcoming Planning Schedule Milestones
- Next SJRFPG Planning Meeting to Be Held on March 03, 2022

### AGENDA ITEM NO. 15: Update and Discussion Pertaining to In-Person RFPG Meeting Location(S)

Ms. Vinson stated that meetings would continue to be hybrid and that the Harris County Flood Control District building on the Northwest Freeway would continue to be used until further notice.

### AGENDA ITEM NO. 16: Reminder Regarding Planning Group Member Training on Public Information Act and Open Meetings Act

Ms. Vinson stated the member group trainings were required and that, per the bylaws, all members need to complete them within 90 days of becoming members.

### AGENDA ITEM NO. 17: Consider Agenda Items for Next Meeting

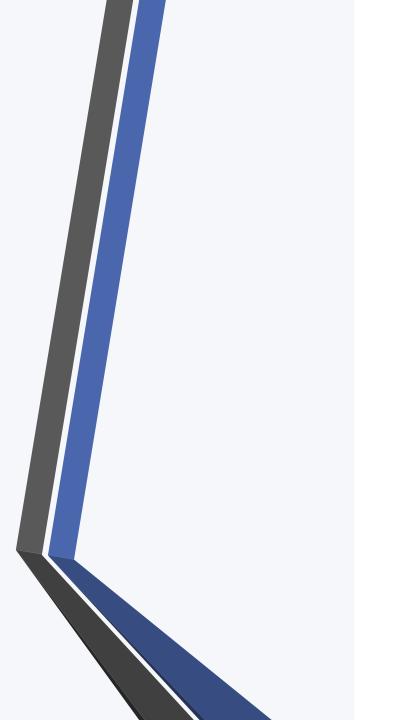
- Executive Committee shortlisting and interviews (Small Business Voting Member appointment)
- Additional Public Engagement Committee member
- Consideration of future conditions flood risk analysis approach
- Technical Memorandum submittal to TWDB due March 7, 2022

### AGENDA ITEM NO. 18: Public Comments - Limit 3 Minutes Per Person

Ms. Berrios stated there were no requests to make public comments.

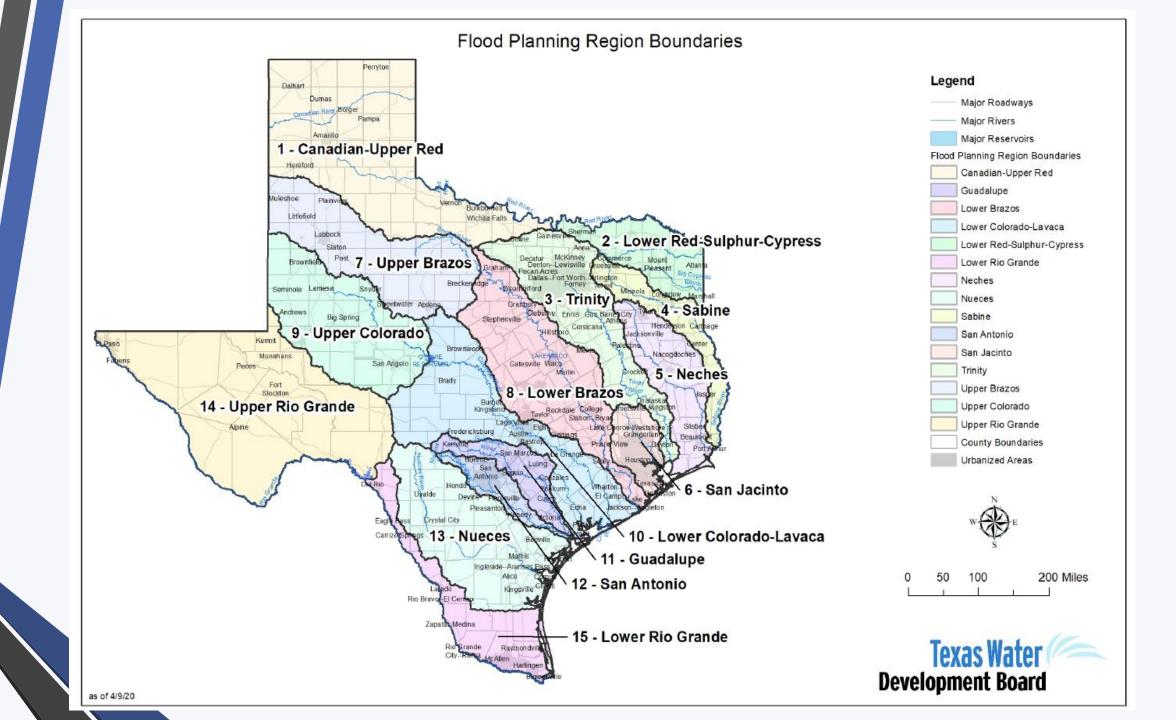
### AGENDA ITEM NO. 19: Adjourn

The meeting was adjourned at 10:56 a.m.



Alisa Max, Secretary
Timothy Buscha, Chair

# Item 6: Announcement of new Alternate Members and new Non-Voting Members



# Item 7: Liaison Reports pertaining to other region(s) progress and status:

- a. Trinity Region
- b. Neches Region
- c. Lower Brazos Region
- d. Region H Water

# Item 8:

Update from the Executive Committee, Discussion, and Possible Action Regarding the Appointment of the Small Business Voting Member Position

### Item 9:

Discussion, and Possible Action Regarding the Membership of Advisory Committees

- a. Public Engagement Committee
- b. Technical Committee

### Item 10:

Presentation and updates from the SJRFPG Technical Consultant on future flood risks identification and analysis, and development of the Technical Memorandum due to the TWDB March 07, 2022



# Approaches to Developing March 7<sup>th</sup> Deliverables



# Agenda



- Technical Approaches Approved by the Technical Committee on 2/3:
  - Approach to delineating future flood hazard (Task 2B)
  - Flood exposure analyses (Task 2B)
  - Defining critical infrastructure (Task 2A & 2B)
  - Approach to defining gaps in flood mapping (Task 2A & 2B)
- Technical Memorandum (March) & Supporting Documentation
  - Scoped Requirements
  - Review of Materials
  - Spatial Features & GIS Dashboard

# Task 2B – Future Flood Risk Analysis



### TWDB Goals

Perform future condition flood risk analyses for the region comprising:

- Flood hazard analyses (location, magnitude, and frequency of flooding)
- Flood exposure analyses (who and what might be harmed)
- Vulnerability analyses (communities and critical facilities)

- Obtain a general understanding of future flood risk for planning purposes
- Not a regulatory product



# Task 2B – Future Flood Risk Analysis



- Define Future Condition Flood Hazard
  - Use available information, no H&H modeling
  - Rely on existing Floodplain Quilt (Task 2A)
  - TWDB identified four methods for determining hazard:
    - 1. Change in WSEL based on change in population
    - 2. Existing 0.2% becomes the Future 1%
    - 3. Combination of 1 and 2, or an RFPG proposed method
    - 4. Request TWDB to perform a desktop analysis
- Projections based on changes over the next 30 years
- Summary and qualitative description of risk

# Task 2B – Future Flood Risk Analysis



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# What is Future Flood Risk?



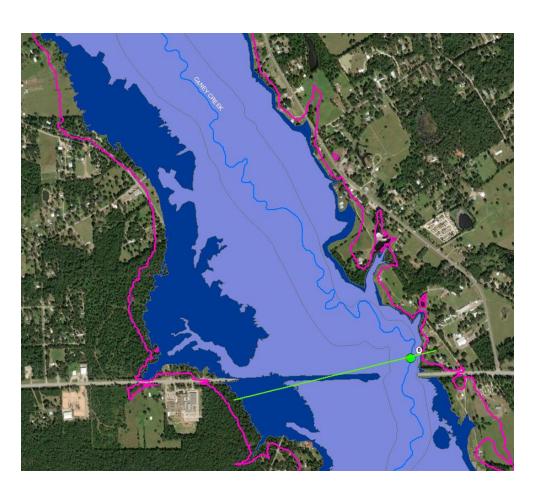
Change in flood risk due to a variety of factors

Riverine Floodplain Extents

- Development & Population growth
- Rainfall intensity
- Climate change
- Subsidence

### Coastal Zones

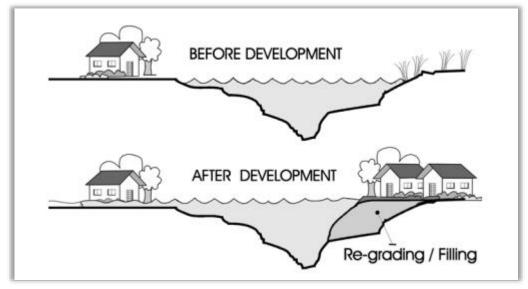
- Storm surge
- Sea level change
- Subsidence
- Coastal erosion



# Development



- Change of land use and existing drainage patterns may result in an increase in downstream flow rates
  - Increases in discharges and water surface elevations
  - Increases floodplain widths
  - Increases in runoff volumes
- Many municipalities and counties in the region have development retention/detention requirements to reduce and mitigate an increase in stormwater runoff



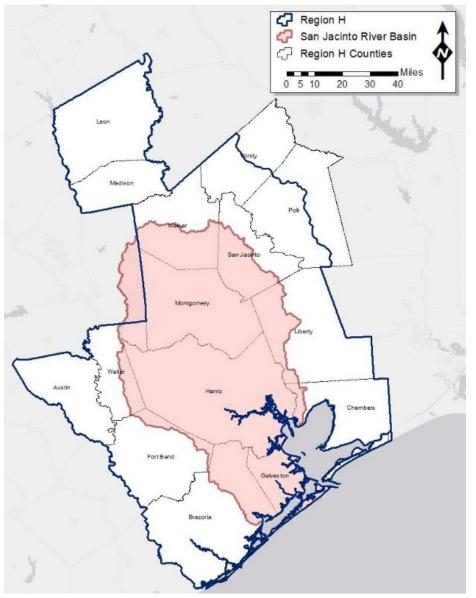
Source: FEMA;

https://www.fema.gov/pdf/floodplain/nfip\_sg\_unit\_1.pdf

# Projected Population Growth - Region H



Country	Projected Population in		
County	2020	2050	
Austin	33,014	50,483	
Brazoria	359,935	519,696	
Chambers	42,162	68,541	
Fort Bend	881,966	1,421,933	
Galveston	343,570	427,547	
Harris	4,707,870	5,678,242	
Leon	18,211	22,071	
Liberty	86,303	118,048	
Madison	14,753	17,872	
Montgomery	627,917	1,267,916	
Polk	42,911	55,259	
San Jacinto	29,610	37,614	
Trinity	12,754	13,504	
Walker	71,800	80,050	
Waller	52,538	88,736	
TOTAL	7,325,314	9,867,512	

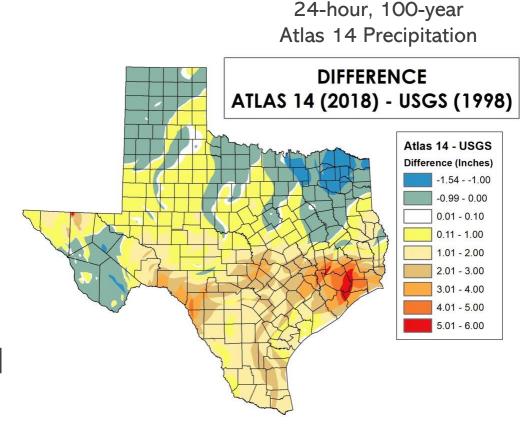


<sup>&</sup>lt;sup>1</sup> Source: TWDB 2022 Texas State Water Plan, Planning Region H https://2022.texasstatewaterplan.org/region/H

# Rainfall Intensity



- Rainfall intensity values are anticipated to be influenced by climate change
- Redefined rainfall amounts are published by NOAA
- Rainfall intensity changes were reflected in the Atlas 14 precipitation estimates
- Texas coast saw a 10-15% increase in annual precipitation between 1991 and 2012 compared to 1901 and 1960¹



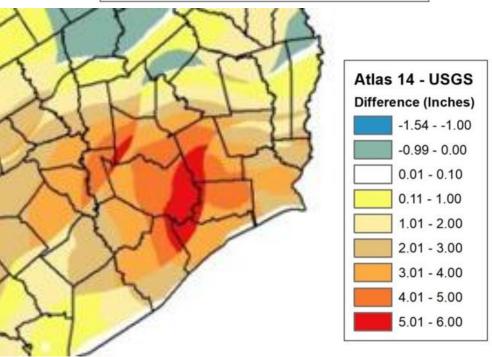
Source: NOAA Atlas 14

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Source: NOAA Atlas 14

# Climate Change



- Guidance from Office of the Texas State Climatologist to TWDB<sup>1</sup>
- Climate change can impact rainfall depth throughout Texas
- The guidance given to TWDB assumes observed trends continue and Atlas 14 is an accurate estimate
- Current trends for the Gulf Coast area are around 12%

Recommended Ranges for 25- to 500-year Changes in Rainfall Patterns					
	20	21	2050-	-2060	
Location	Minimum	Maximum	Minimum	Maximum	
Urban Areas	5%	12%	12%	20%	
Rural Areas/River	-2%	5%	-5%	10%	

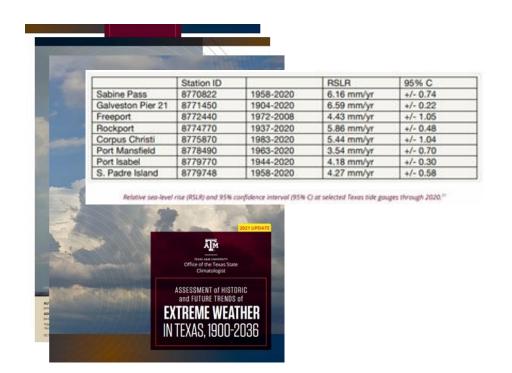
Inherent uncertainty in the data

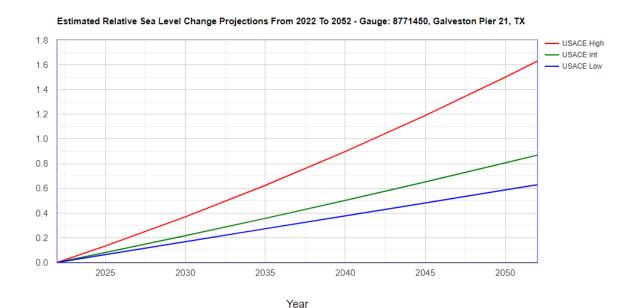
<sup>&</sup>lt;sup>1</sup> Source: "Climate Change Recommendations for Regional Flood Planning"; https://climatexas.tamu.edu/files/CliChFlood.pdf

# Sea Level Rise Considerations



- Estimated SLR in Galveston Bay next 30 years 0.85 feet (source: USACE 2021)
  - High (1.6 feet), Intermediate (0.85 feet), Low (0.6 feet)
- Historical Rates from Texas State Climatologist yield 0.65 feet of SLR in 30 years
- Recommend intermediate approach from USACE (0.85 feet) for SLR

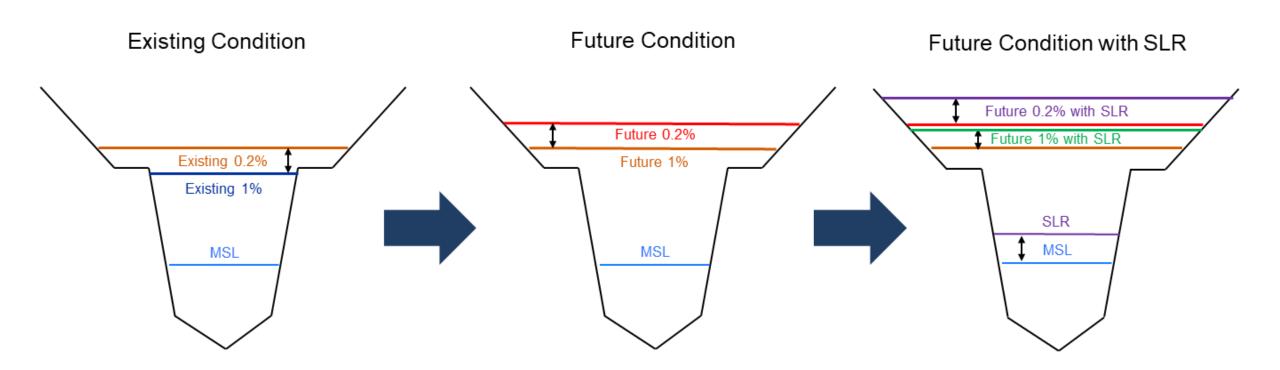




RSLC in feet

# Sea Level Rise Considerations

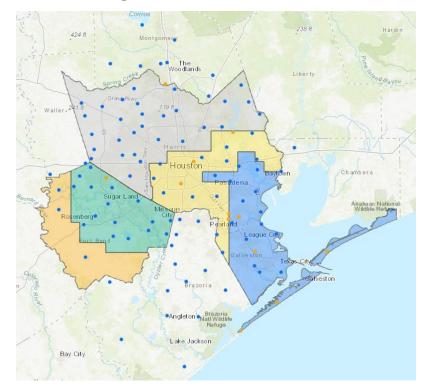


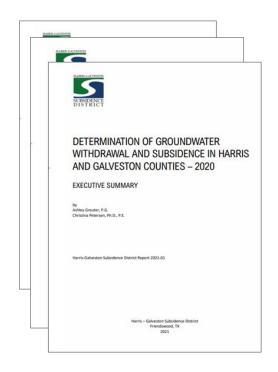


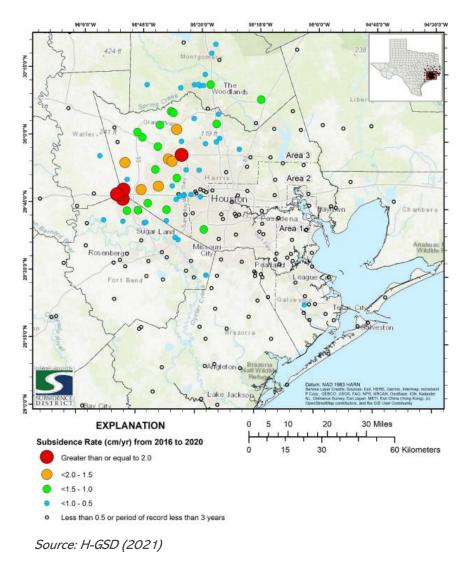
# **Subsidence Considerations**



- Project average rate for each subsidence area over 30 years
- Future floodplain WSE is increased by the average subsidence value

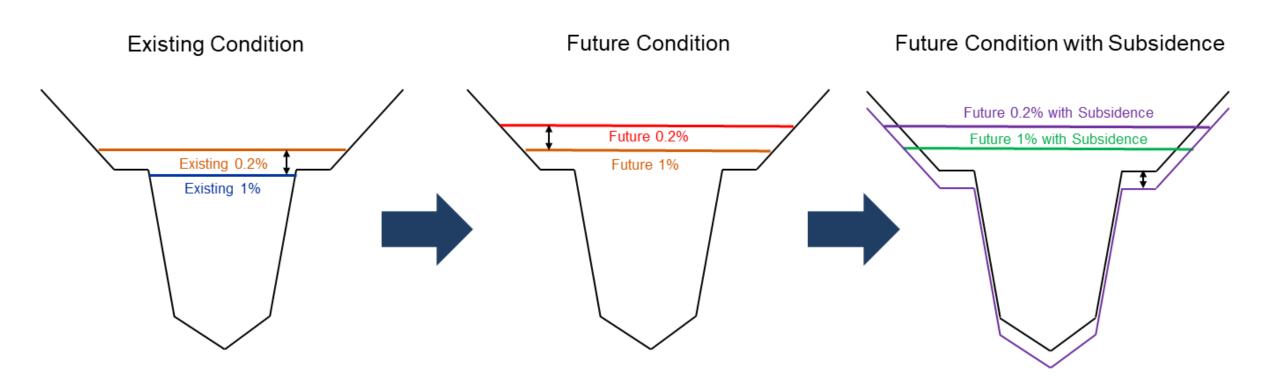






# **Subsidence Considerations**





# Future 100-Year Flood Hazard



Existing 500-year Flood Hazard + Buffer



Future 100-year Flood Hazard

Future 100-year Buffer

Zone	<b>e</b>	Development & Rainfall Patterns Buffer (ft)	Subsidence Buffer (ft)	Sea Level Rise Buffer (ft)	Total Top Width Buffer (ft)
Northern Zone	All	0	20	0	20
Southern Zone	Riverine	0	30	0	30
	Coastal	0	30	20	50
Coastal Zone	Riverine	0	5	0	5
	Coastal	0	5	20	25

# Future 500-Year Flood Hazard



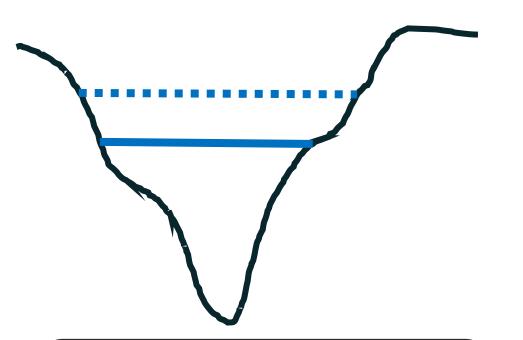
### **Considerations:**

- Increased rainfall may increase floodplain extents
- Varying floodplain widths dependent on stream size and topography
- Limited mapping outside the 500-year floodplain
- Limited available "future" modeling and results
- Recommendation
  - Existing 0.2% + buffer becomes Future 0.2%
- Obtain a general understanding of future flood risk
- Not a regulatory product

Also applies to Future 100-year determination

## Future 500-Year Flood Hazard





#### Steep Terrain

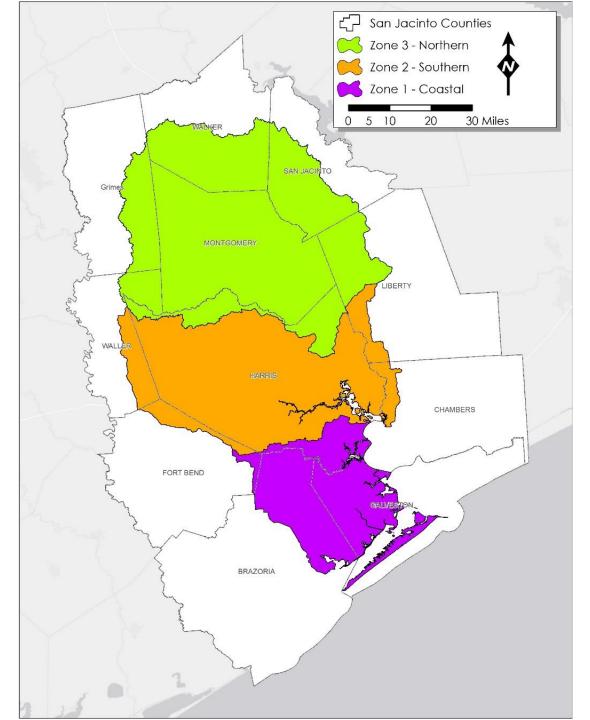
- Increased flow due to rainfall
- Larger change in WSEL
- Limited change in floodplain extents

#### Flat Terrain

- Increased flow due to rainfall
- Smaller change in WSEL
- Larger change in floodplain extents

## **Zone Designation**

- Varying terrain and levels of development throughout the region requires a differing approach
- Three "zones" for 500-year buffers based on topography





## Riverine Modeling – Northern Zone



Effective 500-year storm compared to Future Modeled 500-year storm

Channel	Average Difference of Floodplain Top Width (ft)				
Lake Creek	343				
Peach Creek	488				
Willow Creek	497				
Spring Creek	565				
Caney Creek	612				
Recommendation	500				

Utilized modeling developed as part of the San Jacinto Regional Master Drainage Plan which included:

- Updated modeling software
- Future Conditions analysis
- Atlas 14 rainfall + increase per State
   Climatologist report

Compared SJRMDP results to existing conditions flood hazard

## Riverine Modeling – Southern Zone



Effective 500-year storm compared to Future Modeled 500-year storm

Channel	Average Difference of Floodplain Top Width (ft)			
Greens Bayou	701			
Buffalo Bayou	817			
White Oak Bayou	843			
Sims Bayou	1,096			
Recommendation	850			

Utilized FEMA effective detailed modeling which included:

- Steady-state RAS models
- Atlas 14 rainfall

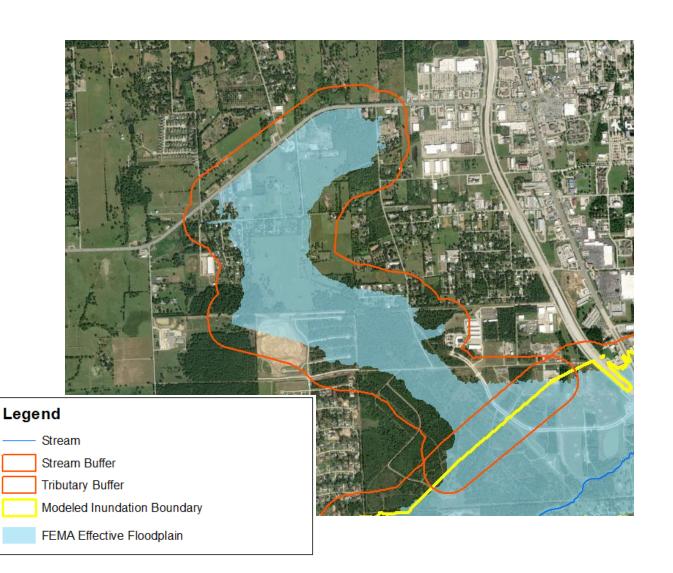
Compared results from updated FEMA effective detailed modeling to existing conditions flood hazard

## Applying the Buffer - Tributaries



- Tributaries vary in floodplain width and characteristics
  - Urbanization
  - Topography
  - Channelization
  - Level of service
- Limited available future conditions tributary modeling

Buffer will be applied universally to major streams and minor tributaries. Opportunity to refine approach in subsequent RFP cycles.



## Future 500-Year Flood Hazard



Existing 500-year Flood Hazard + Buffer



Future 500-year Flood Hazard

Future 500-year Buffer

Zone		Development & Rainfall Patterns Buffer (ft)	Subsidence Buffer (ft)	Sea Level Rise Buffer (ft)	Total Top Width Buffer (ft)	
Northern Zone	All	500	20	0	520	
Southern Zone	Riverine	850	30	0	880	
	Coastal	850	30	20	900	
Coastal Zone	Riverine	850	5	0	855	
	Coastal	850	5	20	875	

## What are other regions doing?



Region	Future 1% Floodplain	Future 0.2% Floodplain				
Lower Brazos*	Existing 0.2%	Existing 0.2% + (Delta or Buffer)				
Trinity	Existing 0.2%	Existing 0.2% + (Delta or Buffer)				
Neches	Existing 0.2%	Existing 0.2% + (Delta or Buffer)				
Sabine	Existing 0.2%	Existing 0.2% + (Delta or Buffer)				
Guadalupe	Existing 0.2%	Existing 0.2% + (Delta or Buffer)				
San Jacinto	Existing 0.2%	Existing 0.2% + (Delta or Buffer)				

<sup>\*</sup>The Lower Brazos region is recommending no change for the future floodplains along large rivers. The recommendations listed for this region are for tributaries.

## Flood Exposure Analysis



- Exposure analysis to identify who and what might be harmed within the region for the 0.2% and 1% storm events
  - Existing development
  - Future development
  - Flood mitigation projects in construction
  - Critical infrastructure
  - Low water crossings at risk of flooding
- Utilize a GIS intersect to determine structures in the future flood quilt

## Recommendation - Flood Exposure



- Utilize previously developed flood exposure dataset
- Include existing structures in the future conditions hazard areas
- Identify critical infrastructure



Legend
Structures
Harris Effective Floodplain
FLD\_ZONE, ZONE\_SUBTY
FEMA Effective Floodplain 500 year

## Defining Critical Infrastructure



#### Structure types previously captured:

- Medical Facilities
- Government Buildings
- Emergency Ops/Shelters
- Law Enforcement/Fire Stations
- Schools
- Nursing Homes
- Power Generating/Transmission
- W/WW Treatment

To facilitate alignment with concurrent GLO and USACE Coastal Studies, structure types recently added include:

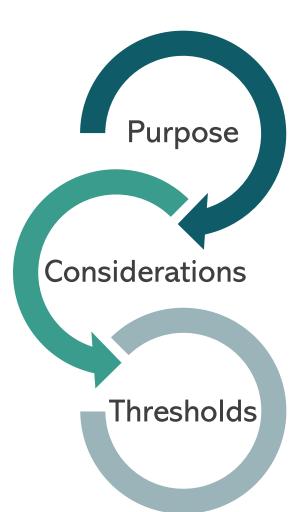
- Chemical Plants/Refineries
- Chemical Storage
- Oil & Gas Infrastructure
- Correctional Facilities

\*Additional discussion still needed on whether to include areas like superfund sites

## Defining Flood Map Gaps



- Existing modeling/mapping
- Ongoing modeling/mapping
- Areas that have seen rapid development and landcover change
- Change in rainfall (regionwide)
- Source of flooding (regionwide)



- Inform analyses internal to the Region (Task 4A Needs Analysis); no statewide comparison
- Defined at a HUC12 level

- Define thresholds for considerations:
  - % of watershed that is mapped
  - % of land cover change

## Recommendation - Flood Map Gaps



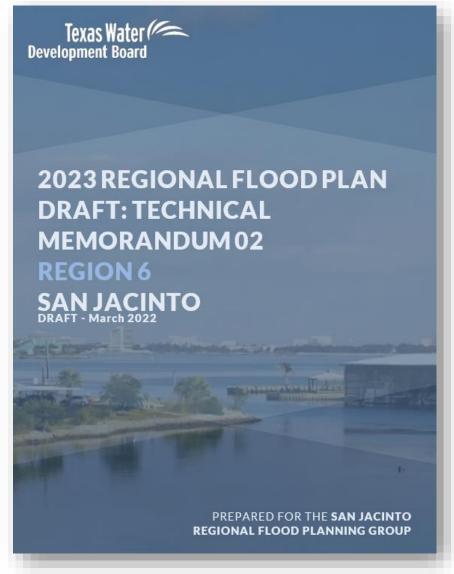
- Focus considerations on availability of:
  - FEMA Detailed Effective Mapping
  - Base Level Engineering (consider presence of development)
  - Land Cover Change
- Exclude considerations that are regionwide in GIS spatial feature
  - Does NOT indicate that hazard mapping cannot be improved
  - Will speak to considerations for Atlas14 and non-riverine sources of flooding within Chapter documentation

## Technical Memorandum

 The deadline for specific scope items of the Interim Deliverable was extended to March 7th, 2022

 Included as meeting materials and posted on the SJRFPG website for review





## Task 4C: Technical Memorandum



Deliverable Components:	Deadline:
a. List of political subdivisions and flood-related authorities	January 7 <sup>th</sup> , 2022
b. List of relevant previous flood studies	January 7 <sup>th</sup> , 2022
c. Maps and geospatial data representing the 100-year and 500-year flood events	March 7 <sup>th</sup> , 2022
d. Maps and geospatial data representing flood prone areas	March 7 <sup>th</sup> , 2022
e. Maps and geospatial data identifying where existing hydrologic and hydraulic models are available to evaluate FMSs and FMPs	March 7 <sup>th</sup> , 2022
f. List of available flood-related models	January 7 <sup>th</sup> , 2022
g. Flood mitigation and floodplain management goals adopted by the RFPG	January 7 <sup>th</sup> , 2022
h. Documented process used by the RFPG to identify potentially feasible FMSs and FMPs	January 7 <sup>th</sup> , 2022
i. List of FMEs and potentially feasible FMSs and FMPs identified	January 7 <sup>th</sup> , 2022
j. List of FMSs and FMPs that were identified but determined to be infeasible	January 7 <sup>th</sup> , 2022

## Spatial Data & Mapping



Spatial Deliverables:	Deadline:
Existing Flood Hazard (ExFldHazard)	March 7 <sup>th</sup> , 2022
Existing Flood Exposure (ExFldExpPt/ExFldExpLn/ExFldExpPol/ExFldExpAll)	March 7 <sup>th</sup> , 2022
Future Flood Hazard (FutFldHazard)	March 7 <sup>th</sup> , 2022
Future Flood Exposure (FutFldExpPt/FutFldExpLn/FutFldExpPol/FutFldExpAll)	March 7 <sup>th</sup> , 2022
Flood Mapping Gaps (Fld_Map_Gaps)	March 7 <sup>th</sup> , 2022
Location of Available H&H Models	March 7 <sup>th</sup> , 2022

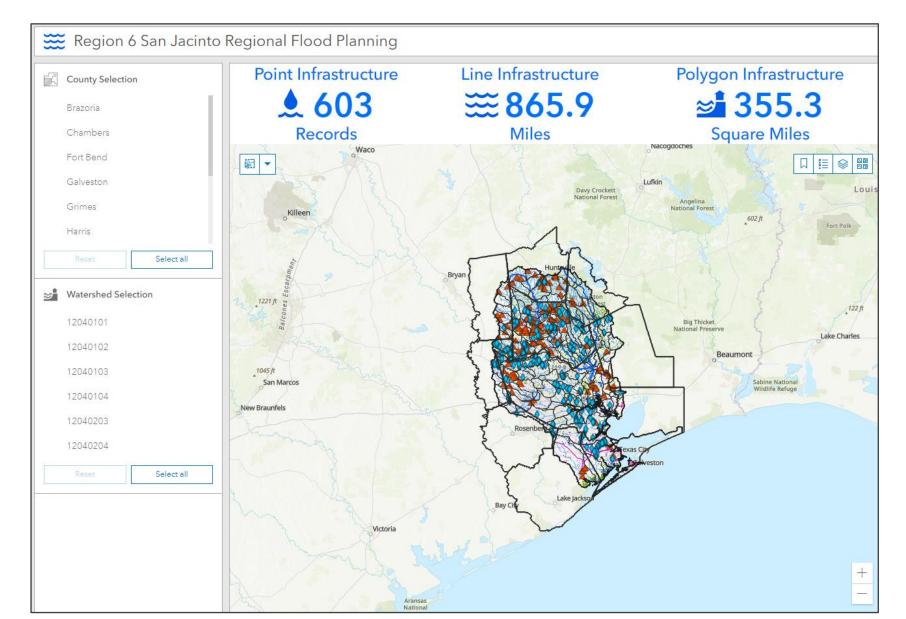
#### Mapping Deliverables:

Map 4: Existing Conditions Flood Hazard	Map 8: Future Conditions Flood Hazard				
Map 5: Flood Prone Areas & Flood Map Gaps	Map 9: Flood Prone Areas & Flood Map Gaps				
Map 6: Existing Conditions Flood Exposure	Map 11: Future Conditions Flood Exposure				
Map 7: Existing Condition Vulnerability & Critical Infra.	Map 12: Future Condition Vulnerability & Critical Infra.				
Map 10: Extent of Increase of Flood Hazard Compared to Existing Condition					

Map 13: Map of H&H Model Availability

## GIS Dashboard Demo





## **Upcoming Discussions in 2022**



- Consider data to supplement survey responses when defining Flood Prone Areas (Task 2A)
- Technical Approach to Defining Future Flood Hazard (Task 2B)
- Discuss minimum standards (Task 3A)
- Discuss whether to recommend or adopt minimum standards (Task 3A)
- Consider metrics/data to inform Needs Analysis (Task 4A)
- Outreach & Engagement Plan for 2022 (additional funding)
- March Technical Memorandum Deliverables

## Schedule



### March

RFPG to approve
 Technical Memorandum
 and authorize submittal
 of the completed
 document and required
 materials to the TWDB
 contingent upon
 incorporation of any
 necessary, non substantive comments
 or changes

## March cont.

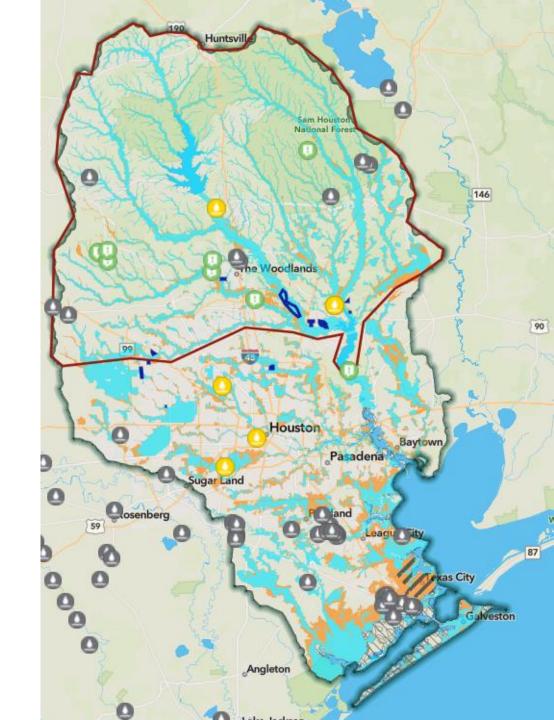
- Technical Consultant to submit Technical Memorandum by March 7, 2022
- Technical Committee to meet to discuss minimum standards
- Public Engagement
   Committee to discuss
   Communications Plan and
   future public meetings

## April

- RFPG to meet to approve recommendations on:
  - Communications and Outreach Plans
  - Minimum standards
  - Recommend vs adopt minimum standards

## Outreach & Engagement

- February e-blast
- Forthcoming discussion on Communications Plan with Public Engagement Committee
- 4,892 total visit to SJRFPG website
- 5,121 total visits to survey site
- 885 unique users to survey site
- 40 survey responses



## Item 11:

Update and recommendation from the Technical Committee and possible action from the RFPG as it pertains to:

- a. Technical approaches to develop deliverables required to be submitted as part of the Technical Memorandum due to TWDB March 7,2022
- b. Approval of the Technical Memorandum and authorization of submittal of the completed document and required materials to TWDB

## Item 12:

Update from the Public Engagement Committee, discussion, and possible action from the RFPG as it pertains to the development of the Communications and Outreach Plan

## Item 13:

Approval and Certification of Administrative Expenses Incurred by The Project Sponsor for The Development of Regional Flood Plan

## Administrative Expenses Incurred by Project Sponsor for 01/01/2022 – 02/11/2022

		Hours	Total	Social	Group	Workers	Unemployment			
From	То	Worked	Salary	Security	Insurance	Comp	Insurance	Retirement	Total	FY
1/1/2022	1/14/2022	14.00	482.16	36.88	100.24	4.82	0.96	75.70	700.76	FY2022
1/15/2022	1/28/2022	4.00	137.76	10.54	28.64	1.38	0.28	21.63	200.23	FY2022
1/29/2022	2/11/2022	7.00	241.08	18.44	50.12	2.41	0.48	37.85	350.38	FY2022
1/15/2022	1/28/2022	13.17	362.97	27.77	94.30	3.19	1.16	56.99	546.38	FY2022
1/29/2022	2/11/2022	18.25	502.97	38.48	130.67	4.43	1.61	78.97	757.13	FY2022
			1,726.94	132.11	403.97	16.23	4.49	271.14	2,554.88	

#### Item 14:

Presentation of 2022 Planning Group Key Dates and Deadlines:

- a. Upcoming Planning Schedule Milestones
- b. Next SJRFPG Planning Meeting to be held on April 14, 2022

Item 15: Update and Discussion Pertaining to In-Person RFPG Meeting Location(S) Item 16:
Reminder Regarding Planning
Group Member Training on Public
Information Act and Open Meetings
Act

## Item 17: Consider Agenda Items for Next Meeting

# Item 18: Public Comments – Limit 3 Minutes per Person

## Item 19: Adjournment