

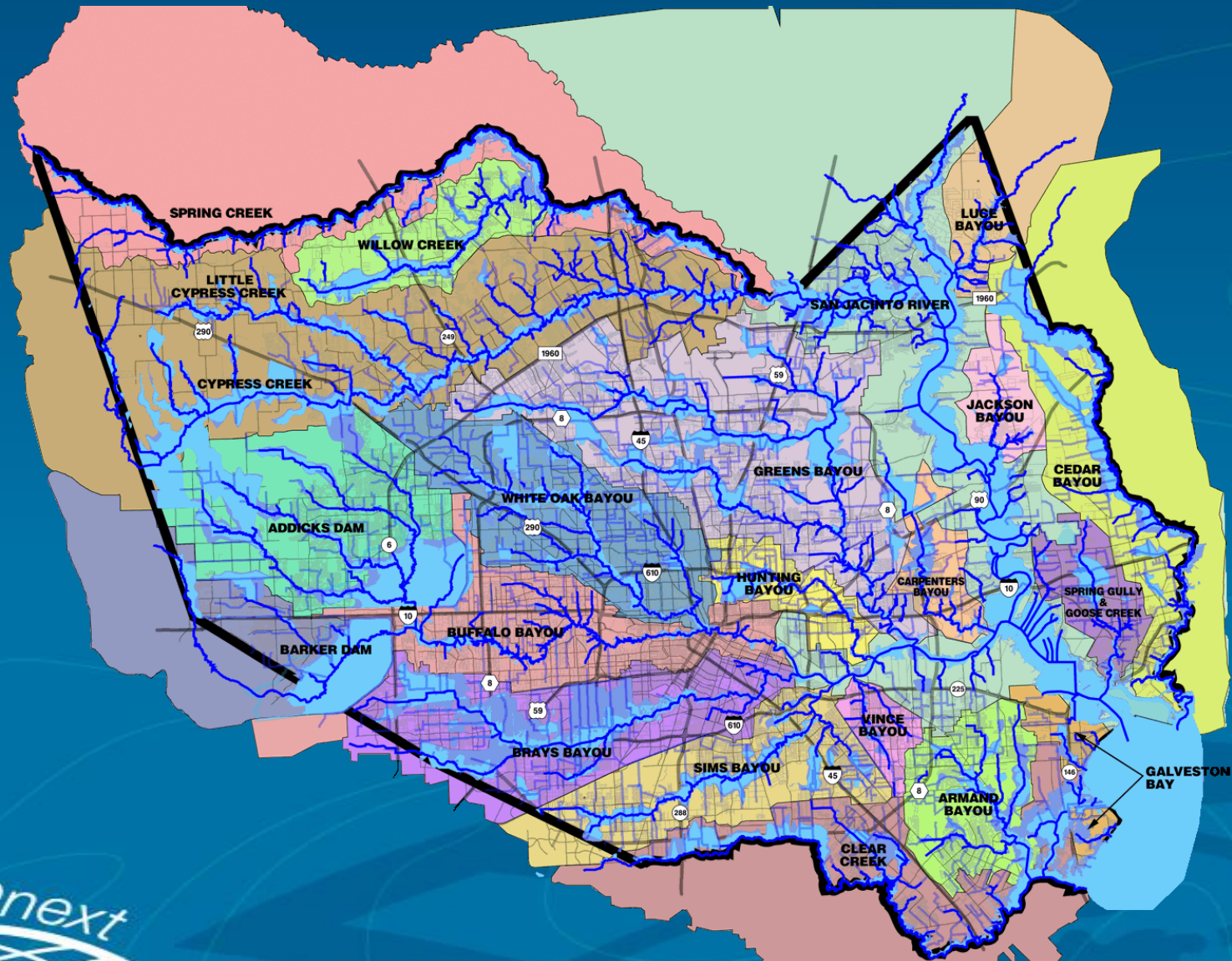
*Modeling, Assessment  
& Awareness Project*

# MAAPnext Timeline & Updates

Wednesday, June 24, 2021

*Ataul Hannan, P.E, CFM, Director Planning Division  
Brian Edmondson, P.E., CFM, Project Manager*

# Harris County



# MAAPnext Goals



- **Empower county residents** with flood risk information and education.



- **Lead the nation** in delivering innovative and reliable floodplain mapping and flood risk analysis.



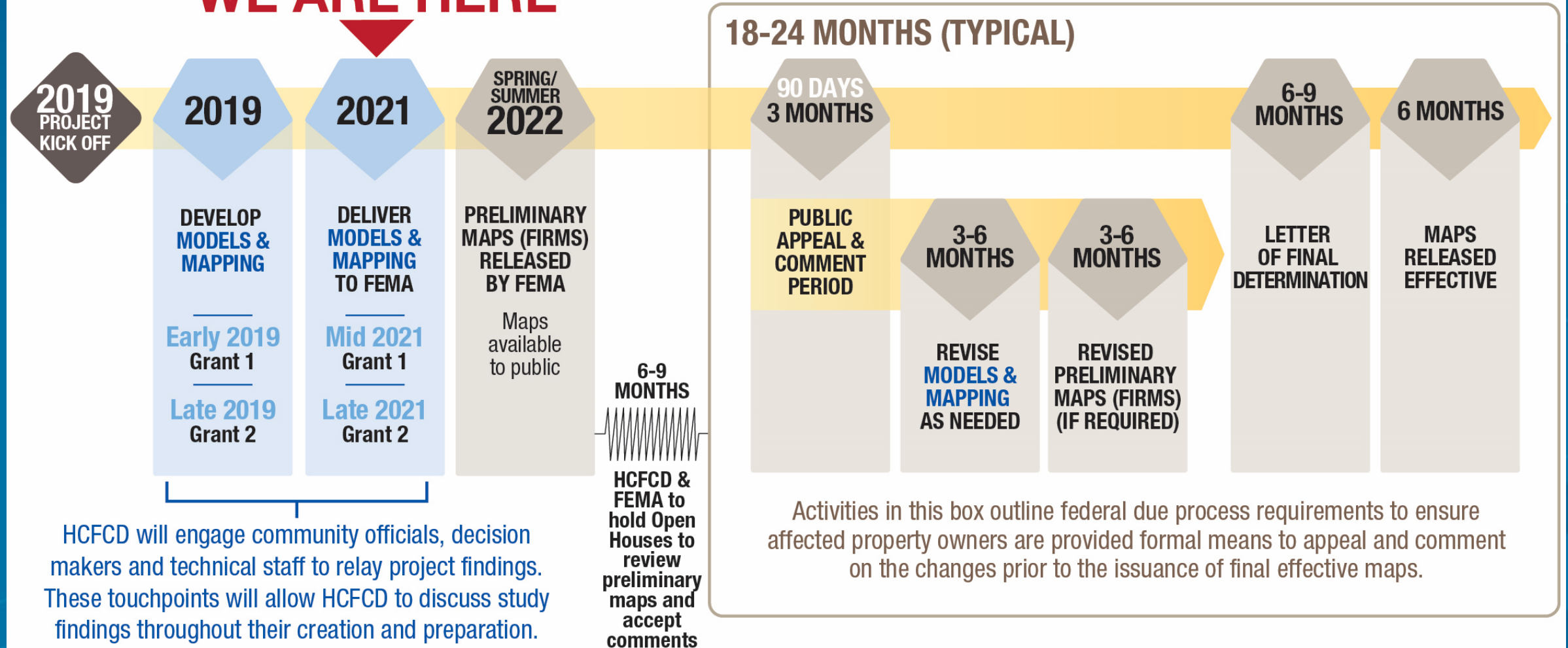
- **Equip Harris County** with up-to-date, comprehensive floodplain mapping and flood risk tools.

# MAAPnext Timeline

## FLOOD INSURANCE RATE MAP (FIRM) UPDATE TIMELINE

Milestone Responsibility  HCFCDC  FEMA

**WE ARE HERE**



HCFCDC will engage community officials, decision makers and technical staff to relay project findings. These touchpoints will allow HCFCDC to discuss study findings throughout their creation and preparation.

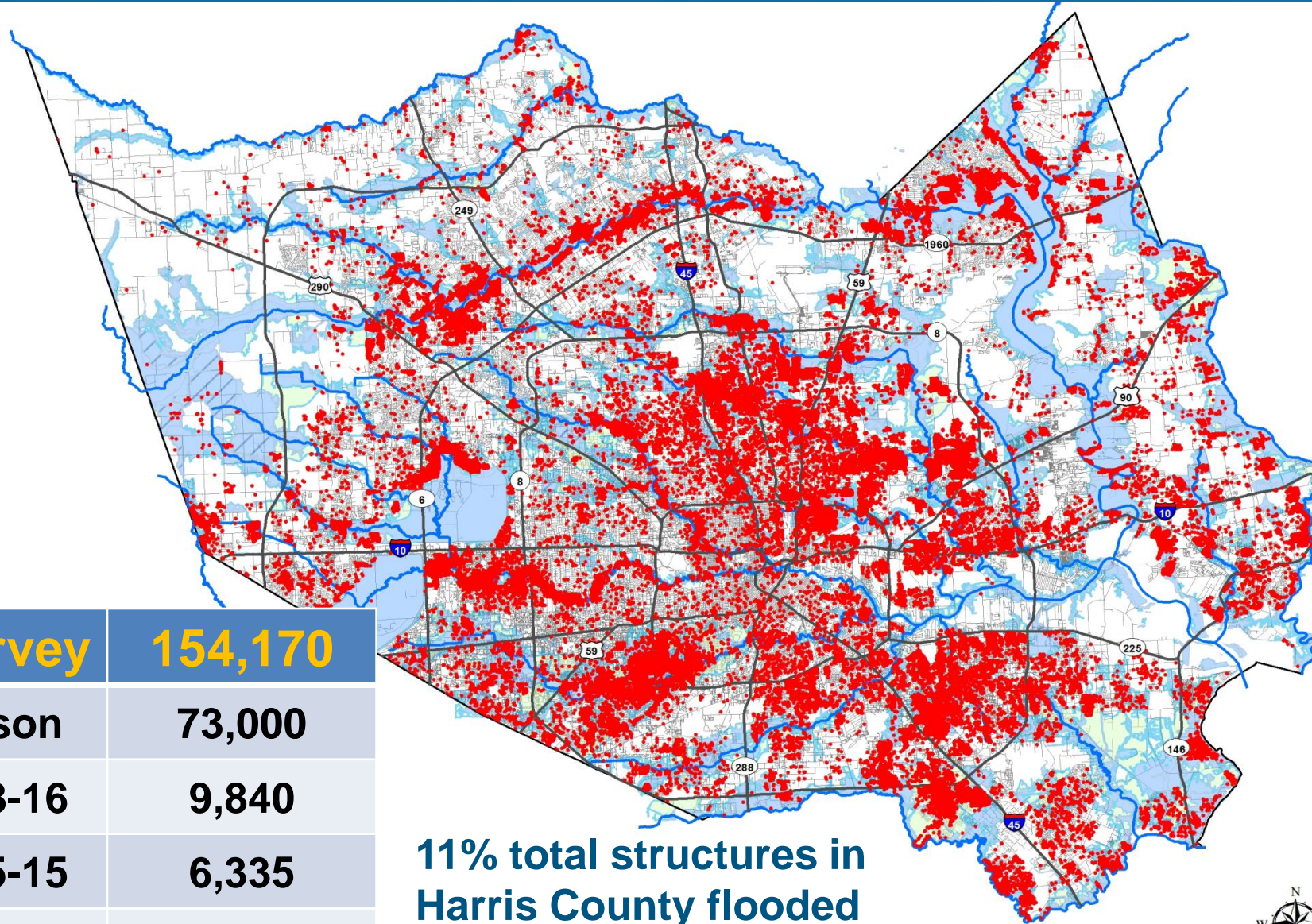
# Local - Release & Review Timeline

## OUTLINE

Step	Date
Public Meetings Campaign (x10)	Q3/Q4 (TBD)
Draft Results Complete & Deliver to FEMA	October 2021
Draft Results Public Release via Online Application	November/Dec 2021
90 Day <b>Local</b> Review & Comment Period	Nov. – Feb. 2022
90 Day <b>Local</b> Response Period	Feb. – May 2022
FEMA Preliminary Maps Release	Est. Mid 2022

\* Maps will not be final and effect insurance rates until end of 2023\*

# Study Drivers & Need



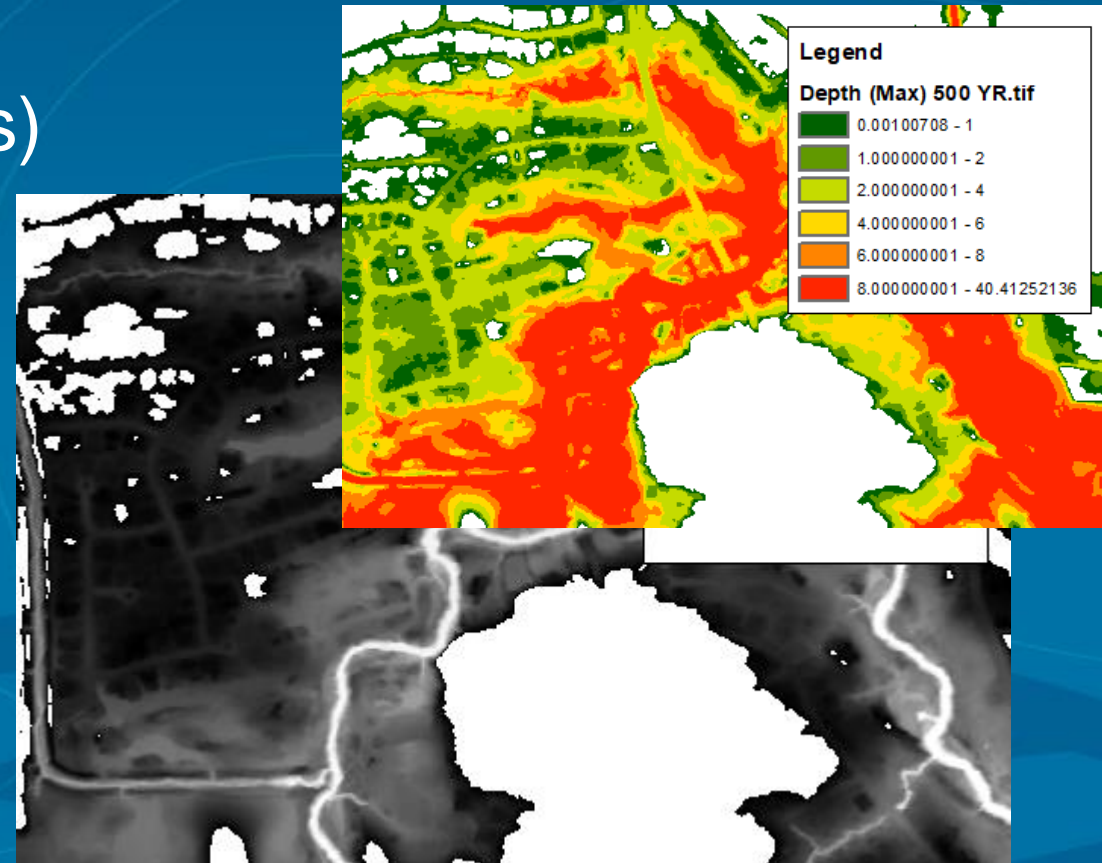
<b>Harvey</b>	<b>154,170</b>
<b>Allison</b>	<b>73,000</b>
<b>4-18-16</b>	<b>9,840</b>
<b>5-25-15</b>	<b>6,335</b>
<b>6-19-06</b>	<b>3,370</b>

**11% total structures in  
Harris County flooded  
105,340 or 68% outside 1% floodplain**



# What is MAAPnext

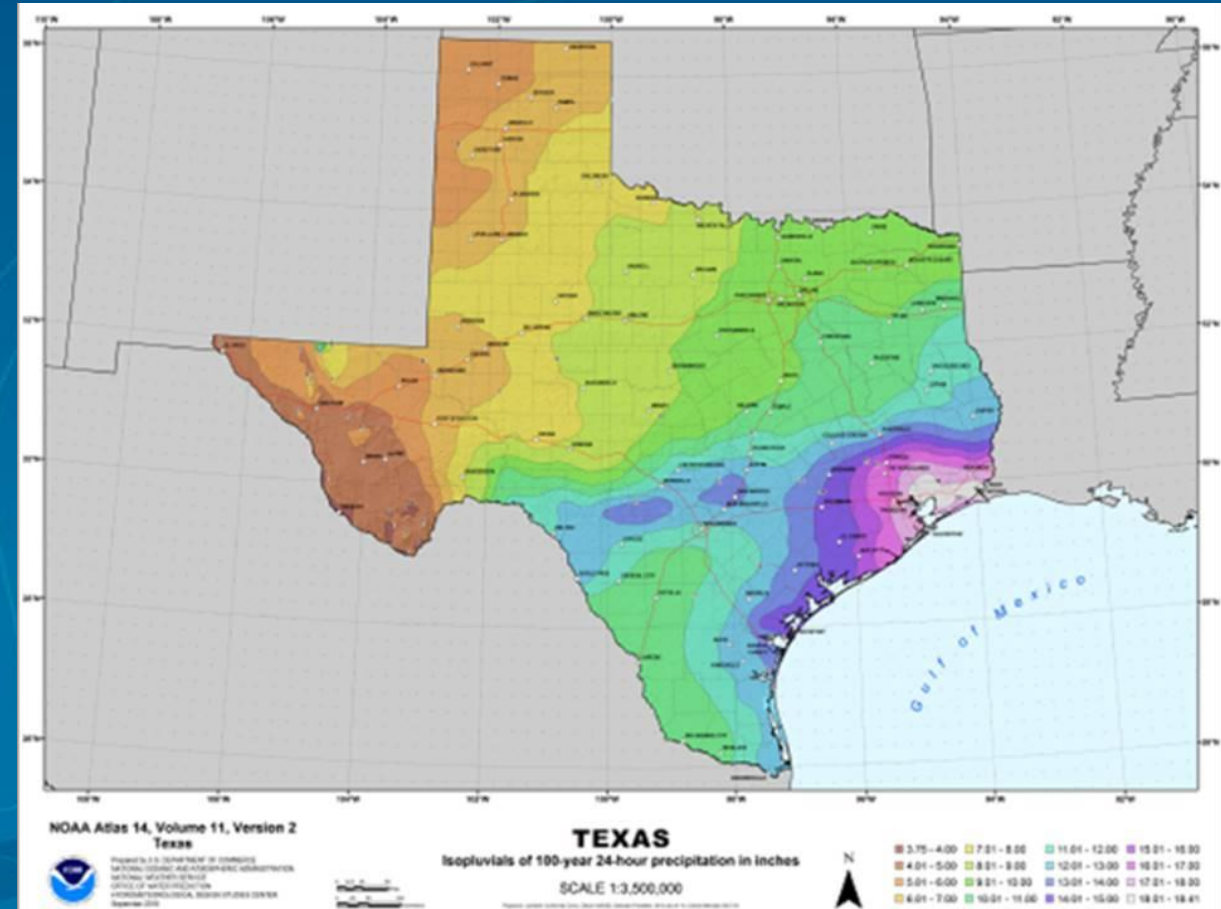
- Comprehensive county-wide floodplain study developing new:
  - Flood Insurance Rate Maps (FIRMs)
  - Flood Risk Products
  - Engineering & Regulatory Tools
  - Educational Resources
  - Online Interactive Mapping Tools



# Key Changes

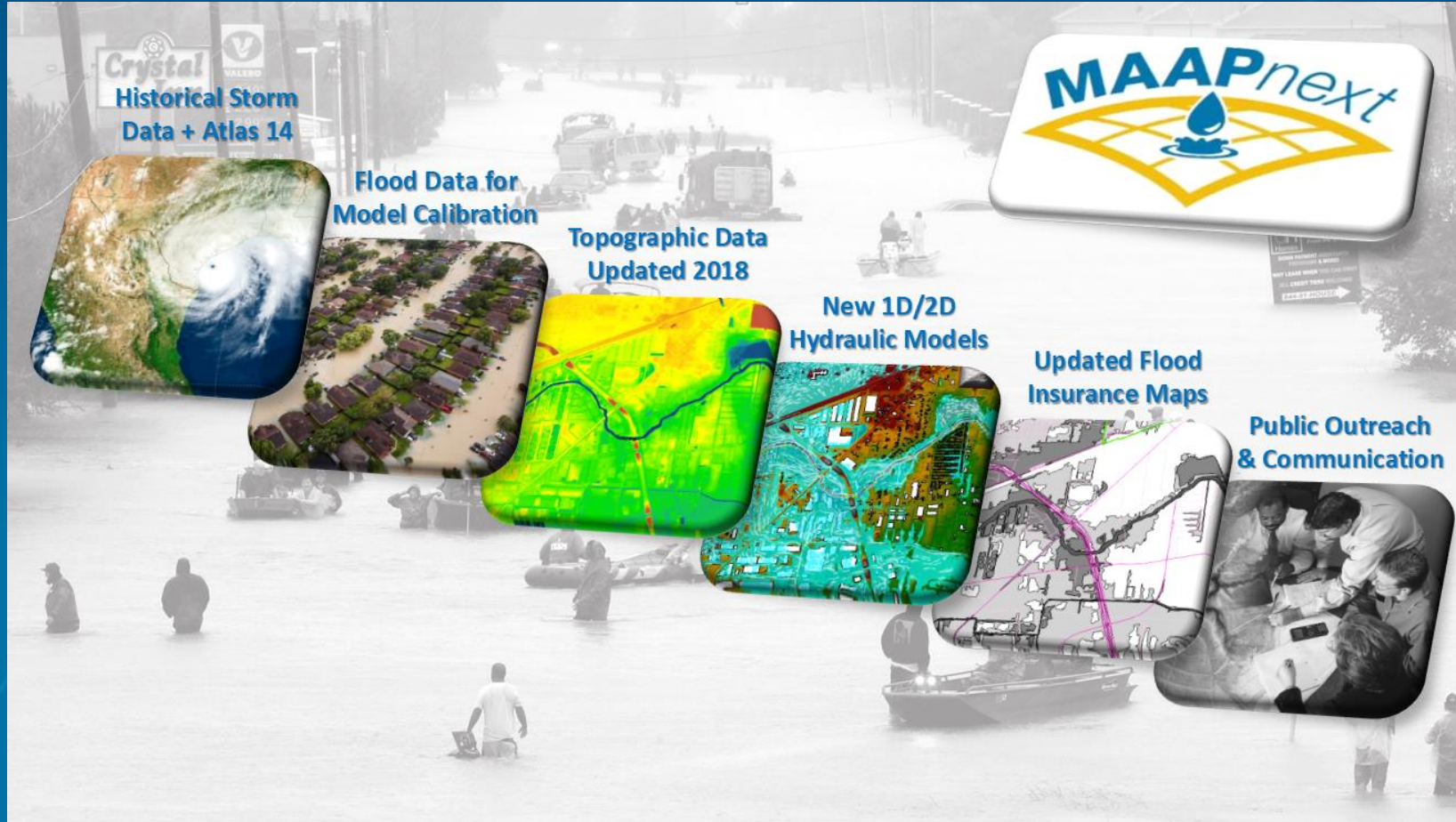
- Rainfall – NOAA Atlas 14
  - ~30% **Increase** in 100-YR
    - Approx. 13” to 18”
  - ~36% **Increase** in 500-YR
    - Approx. 19” to 25”

*MAAPnext 100-Year Rainfall is approximately equal to Current 500-Year Effective Rainfall totals*

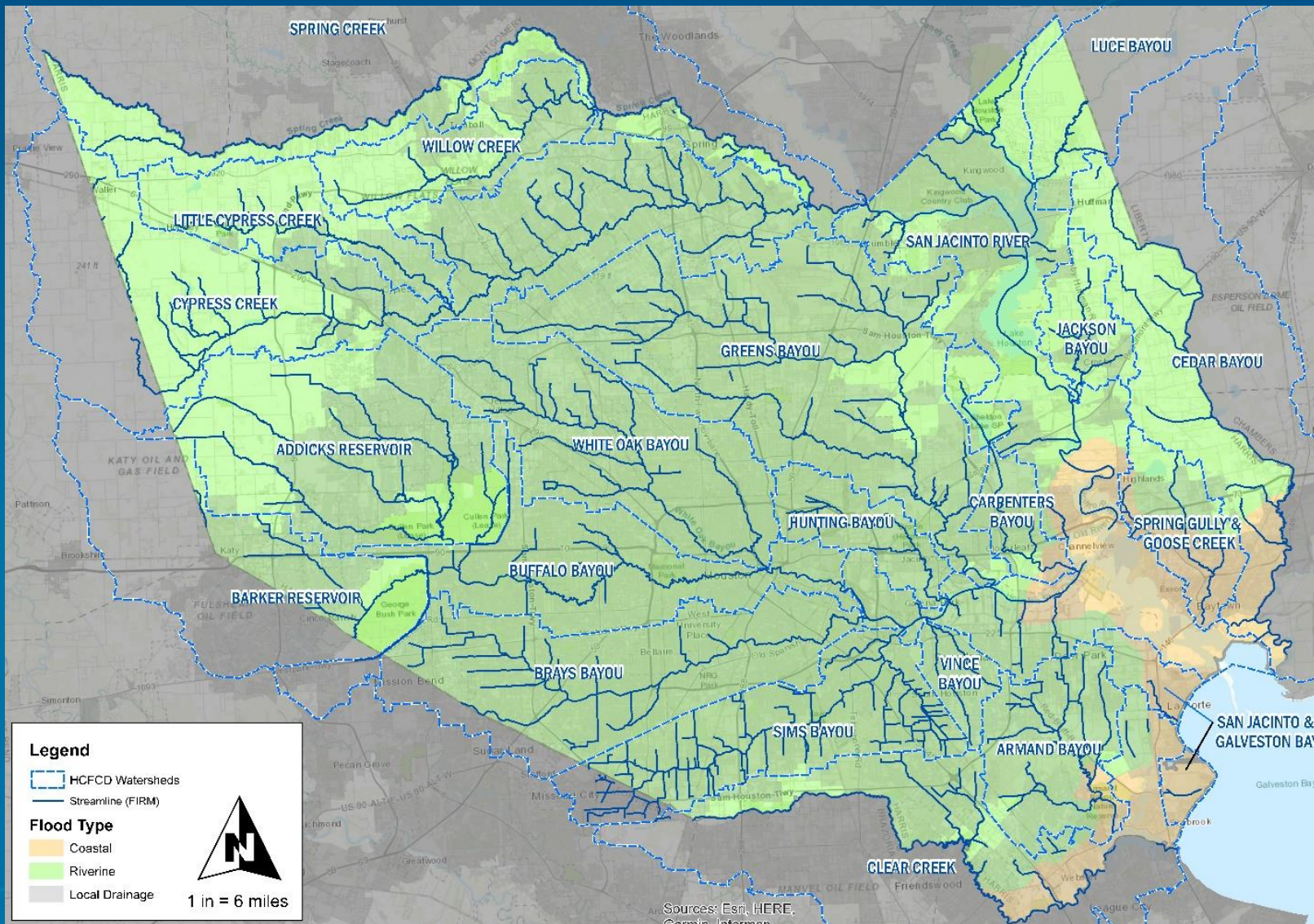




# MAAPnext Tech Components

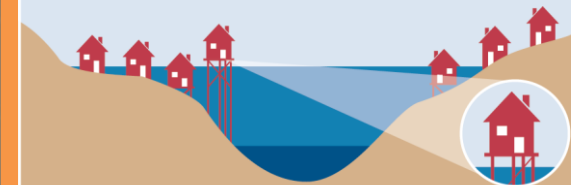


# Flooding Types



## FIRMs – Flood Hazard Depicted

### RIVERINE



### COASTAL



## FIRMs – Flooding Not Depicted

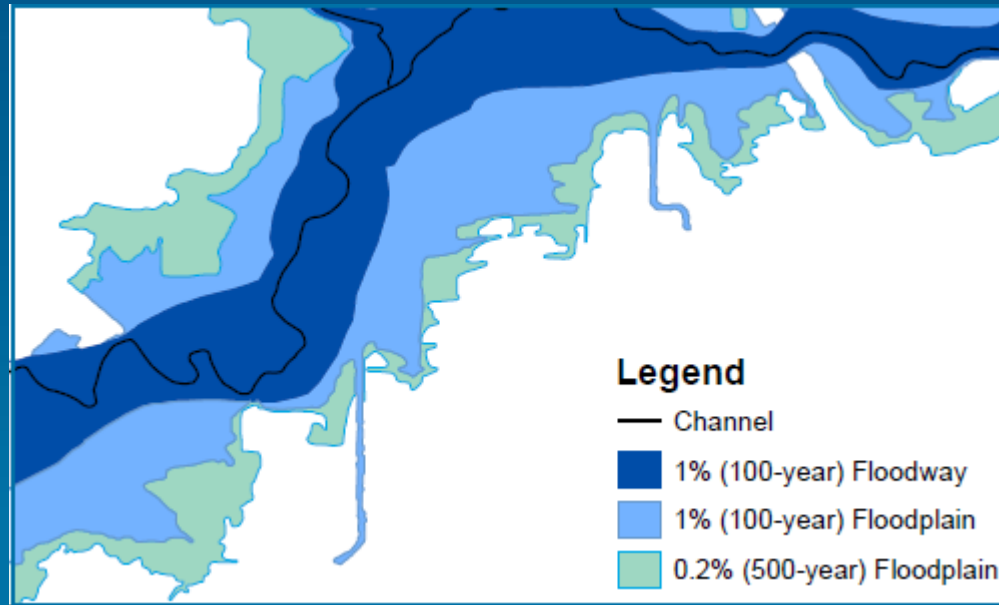
### OVERLAND/LOCAL DRAINAGE



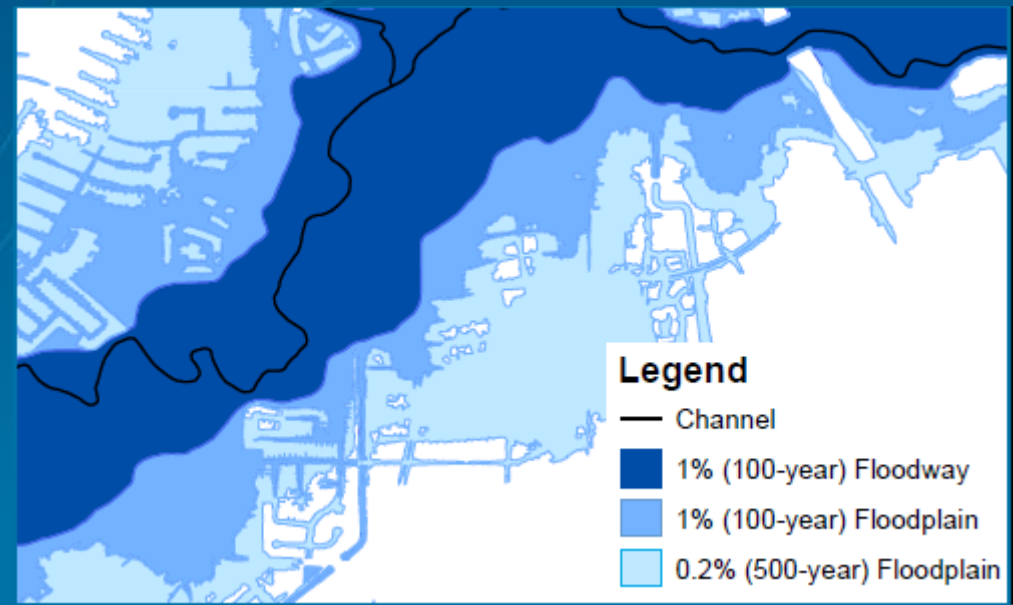
### SHALLOW



# Flood Insurance Rate Map (FIRM)



**FEMA Effective**  
*(Current county-wide mapping)*

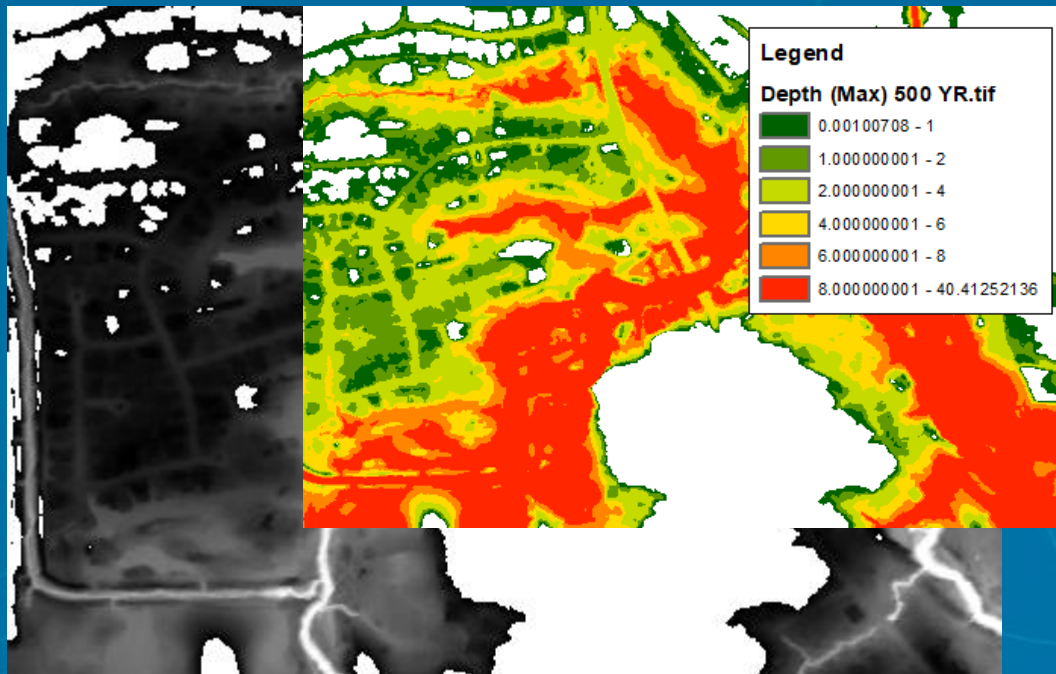


**MAAPnext Draft**

- Additional Detail
- Expanded Floodplains (Atlas 14)

# Flood Risk Products

- Grids at 3 x 3 feet covering riverine & coastal flood risks



## Description

**Depth Grids** - flood depth, in feet, above the ground surface

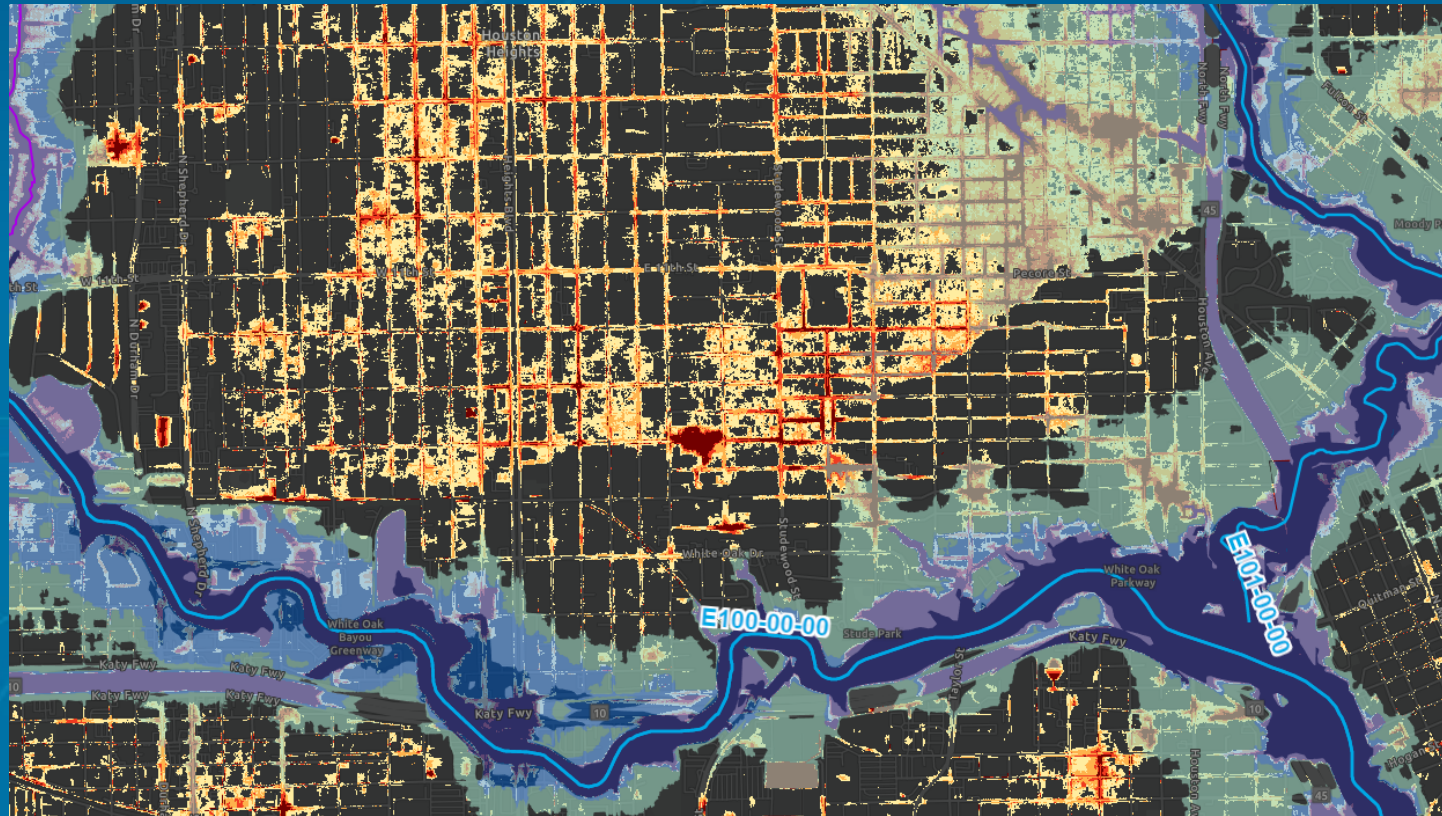
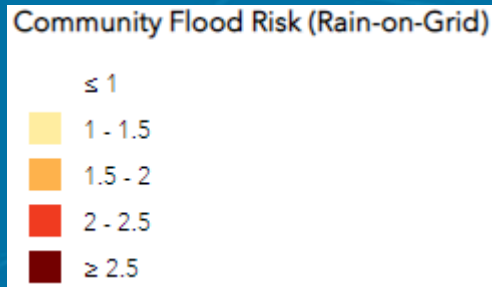
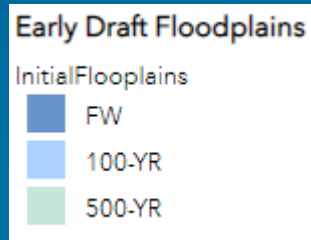
**Water Surface Elevation Grids** – the flood elevation, in feet, above sea level (Equal to Ground elevation + Depth)

**Annual Chance Grids** - chance that a given location will flood in any **single year**

**30-Year Chance Grids** - likelihood of flooding at least once in a 30-year period (average mortgage time period)

## Flood Risk Products:

- Community Flood Risk / Urban Flood Risk
  - Non-FIRM based; Captures different type of flooding
  - Biggest missing piece of the flood risk picture



# Online MAAPnext Application

- All results accessible via most mobile and desktop devices
- GOAL: Provide context & tools to understand and use results
- Dynamic messaging based on a location's specific risk scenario

**MAAPnext** FLOODPLAIN REPORT  
Current as of 3/17/2021

**WHY ARE THE FLOOD RISK MAPS CHANGING?**  
MAAPnext results are currently draft and for informational use only. Official FEMA's Flood Insurance Rate Maps (FIRMs) will be updated to reflect results from MAAPnext by early 2024.

1. Significant increases in expected rainfall events. These are based on NOAA's Atlas 14 data, which contain the latest rainfall data for much of the U.S.

2. Completed flood damage reduction

**1234 Anystreet Road**  
Houston, TX 77007 | **Armand Bayou Watershed**

Regional planning is important on Armand Bayou due to past historical flooding and future development, which is expected for this area. Sizable floodplains in areas along the main channel and in Pasadena, Deer Park, and La Porte watershed is also vulnerable to storm surges from hurricanes or tropical systems. Structural flooding has occurred several times in the past.

**TYPE**

**HIGH**

**Flood Hazard Zone**

- Extreme Risk
- High Risk
- Moderate Risk
- Community Flooding
- Minimal Hazard

**Legend:** Minimal, Community, Moderate, High, Extreme

**Map Layers:**

- HCAD\_Parcels
- Flood Hazard Zone
- Flood Risk Type
- FEMA Effective Floodplains
- Changes Since Last Firm
- Depth Grid - 10 Year
- Depth Grid - 100 Year
- Depth Grid - 500 Year



**Map Layers:**

- HCAD\_Parcels
- Flood Hazard Zone
- Flood Risk Type
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- Depth Grid - 500 Year

Powered by Esri

# Online MAAPnext Application



Search your address to learn about your flood risk



# Online MAAPnext Application

The screenshot displays the MAAPnext online application interface. On the left is a navigation sidebar with a 'Select Language' dropdown and a 'Flood Hazard Zone' legend. The legend includes categories: Extreme Risk (dark blue), High Risk (medium blue), Moderate Risk (light blue), Community Flooding (lightest blue), and Minimal Hazard (white). Below the legend is a list of map layers with toggle icons and information icons, including MAAPNext Watersheds, Flood Hazard Zone, Flood Risk Type, Changes Since Last Firm, FEMA Effective Floodplains, MAAPNext Draft Floodplains, Community Flood Risk, Depth Grid - 10 Year, Depth Grid - 100 Year, Depth Grid - 500 Year, and Water Surface Elevation - 10. The main map area shows a residential neighborhood with streets like Winding Way Dr, Sheraton Oaks Dr, Ash Oak Dr, Francis Marion Dr, Winding Way Dr, Holly View Dr, Oak Cove Dr, Oak Cove Dr, Oak Bay Dr, De Soto St, and Bolivia Blvd. A white location pin is placed on the map. On the right is a detailed property report for 1234 Anystreet Road, Houston, TX 77007. The report includes a 'FLOOD HAZARD' section with a 'HIGH RISK' status and a gauge visualization. The 'FLOOD RISK TYPE' is 'RIVERINE FLOODING', illustrated with a house icon and a river. The 'MAPPING CHANGES' section compares the 'CURRENT ZONE' (0.2% Annual Chance (500-Year)) with the 'PROPOSED ZONE' (1% Annual Chance (100-Year)). The 'FLOOD PROBABILITY' section shows a '2% EVERY YEAR' chance in any given year and a '53% OVER 30-YEARS' chance in a 30-year period. The 'ADDITIONAL PROPERTY SPECIFIC' section lists 'Terrain Elevation XX.X Feet', 'Annual Chance of flooding 3.2%', and '100-YR Base Flood Elevation (BFE) XX.X feet'. A yellow 'FULL REPORT' button is at the bottom of the report.

**MAAPnext** Select Language ▼

**Flood Hazard Zone**

Flood Hazard Zone

- Extreme Risk
- High Risk
- Moderate Risk
- Community Flooding
- Minimal Hazard

MAAPNext Watersheds ⓘ

Flood Hazard Zone ⓘ

Flood Risk Type ⓘ

Changes Since Last Firm ⓘ

FEMA Effective Floodplains ⓘ

MAAPNext Draft Floodplains ⓘ

Community Flood Risk ⓘ

Depth Grid - 10 Year ⓘ

Depth Grid - 100 Year ⓘ

Depth Grid - 500 Year ⓘ

Water Surface Elevation - 10 ⓘ

**1234 Anystreet Road**  
Houston, TX 77007

**FLOOD HAZARD**

**HIGH RISK**

This property is located in an extreme flood risk zone that may be subject to frequent flooding or high flooding depths and velocities.

**FLOOD RISK TYPE**

**RIVERINE FLOODING**

**MAPPING CHANGES**

**CURRENT ZONE** **PROPOSED ZONE**

0.2% Annual Chance (500-Year) 1% Annual Chance (100-Year)

**FLOOD PROBABILITY**

**2% EVERY YEAR** percent chance in any given year that the location will be flooded

**53% OVER 30-YEARS** percent chance in a 30-year period that the location will be flooded

**ADDITIONAL PROPERTY SPECIFIC**

Terrain Elevation XX.X Feet Annual Chance of flooding 3.2% 100-YR Base Flood Elevation (BFE) XX.X feet

**FULL REPORT**



# Online MAAPnext Application




- Full location specific report



- Context and education




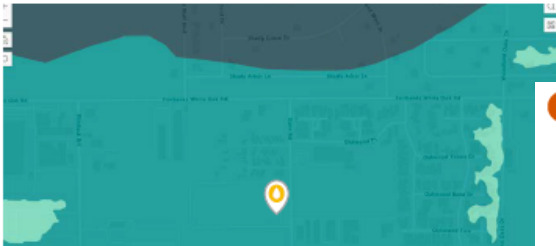
- Take Action



## FLOODPLAIN REPORT

Current as of 3/17/2021





Minimal
Community
Moderate
High
Extreme

**1234 Anystreet Road**  
Houston, TX 77007

**Armand Bayou Watershed**

Regional planning is important on Armand Bayou due to past historical flood and future development, which is expected for this area. Sizable floodplains are in areas along the main channel and in Pasadena, Deer Park, and La Porte. The watershed is also vulnerable to storm surges from hurricanes or tropical storm. Structural flooding has occurred several times in the past.

**WHY ARE THE FLOOD RISK MAPS CHANGING?**  
MAAPnext results are currently

### RISK

**Your location's flood probability**  
This location has a 2% chance of flooding each year and a 53% chance of flooding at least once over 30 years, which is the typical length of a home mortgage.  
**Note:** Results are highly detailed and can vary across a property. On the map, click on various points around a property to find out how risk may vary.

**2%**  
EVERY YEAR

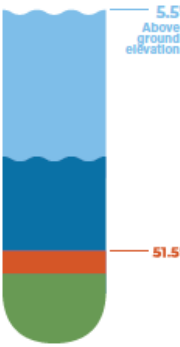
percent chance in any given year that the location will be flooded

**53%**  
OVER 30-YEARS

percent chance in a 30-year period that the location will be flooded

**HOW LIKELY IS A CHANCE OF FLOODING?**  
Probability is the extent to which a flood is likely to occur; however, probability cannot determine with certainty when something will actually take place. Therefore, understanding the likelihood of flooding over time, such as the length of a home mortgage, can help to make informed choices.


**Potential water depth at your location**  
The lower the height a home is built over the ground, especially in areas of identified flood risk, the greater the risk of flooding. Homes with elevations lower than identified flood elevation are especially at risk.




**Estimated flood depth scale**

- 0.2% Flood (500 year) water depth
- 1% Flood (100 year) water depth
- Estimated home elevation
- Ground elevation


**Typical foundation types and heights**  
Floodplain maps are based on a ground surface and therefore it is possible to be in a high-risk zone but elevated above that risk. See graphic on the right for common foundation types and typical heights above ground to elevate properties.



**SLAB-ON-GRADE**  
0.5' TO 1.5'

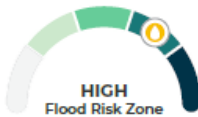


**PIER AND BEAM**  
1.5' TO 2.5'

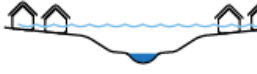


**OPEN FOUNDATIONS**  
> 2.5'

### TYPE



**Flood Hazard Level**  
This property is located in a **HIGH** flood risk zone. These areas are subject to inundation from heavy and intense storm events.




**Flood Risk Type**  
This property is located in an area subject to **riverine flood risk**. This means flooding may occur when nearby bayous or streams exceed their capacity. **Urban flooding** is secondary risk for this property.

### MAPPING CHANGES

**Flood Insurance Rate Maps (FIRMS)**  
FEMA Flood Insurance Rate Maps (FIRMs) are likely to be updated with MAAPnext results by early 2024. Changes to these results are possible before they are finalized by FEMA.

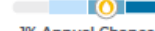
**CURRENT ZONE**



0.2% Annual Chance (500-Year)

>

**PROPOSED ZONE**



1% Annual Chance (100-Year)

MAAPnext has identified many changes to the floodplains in Harris County watersheds. Currently the proposed zones are for local community use only and are considered draft. The official Flood Insurance Rate Maps (FIRMs) are undergoing a regulatory update process led by FEMA.

HARRIS COUNTY  
FLOOD CONTROL DISTRICT

**Thank you!**  
**[www.maapnext.org](http://www.maapnext.org)**