

# Atlas 14 A New Understanding of Flood Risk

**National Weather Service study updates our understanding of flood risk.**



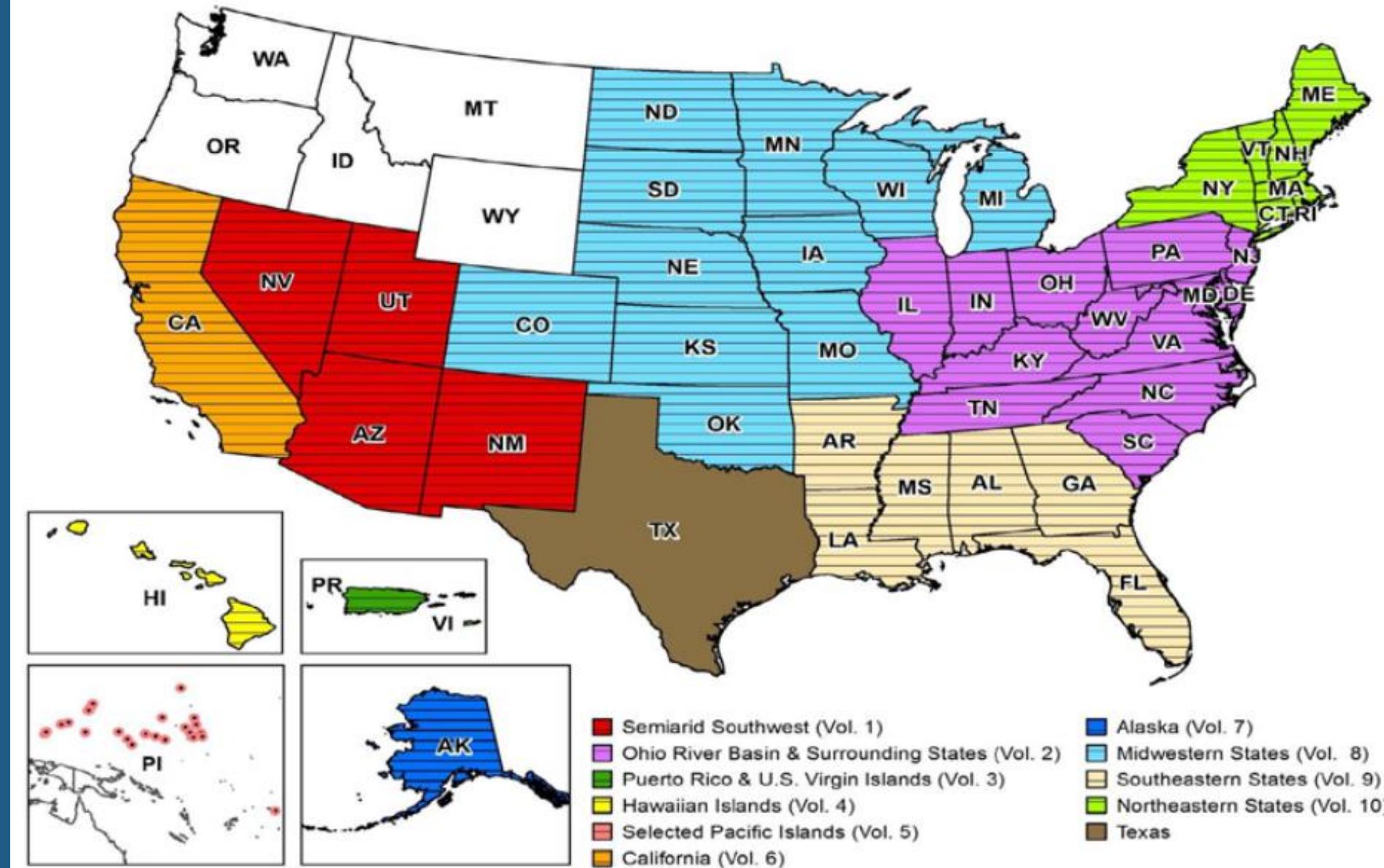
## Overview

- Study background
- Rainfall data updates
- Impacts to floodplains
- Recommended floodplain regulation amendments
- Next steps



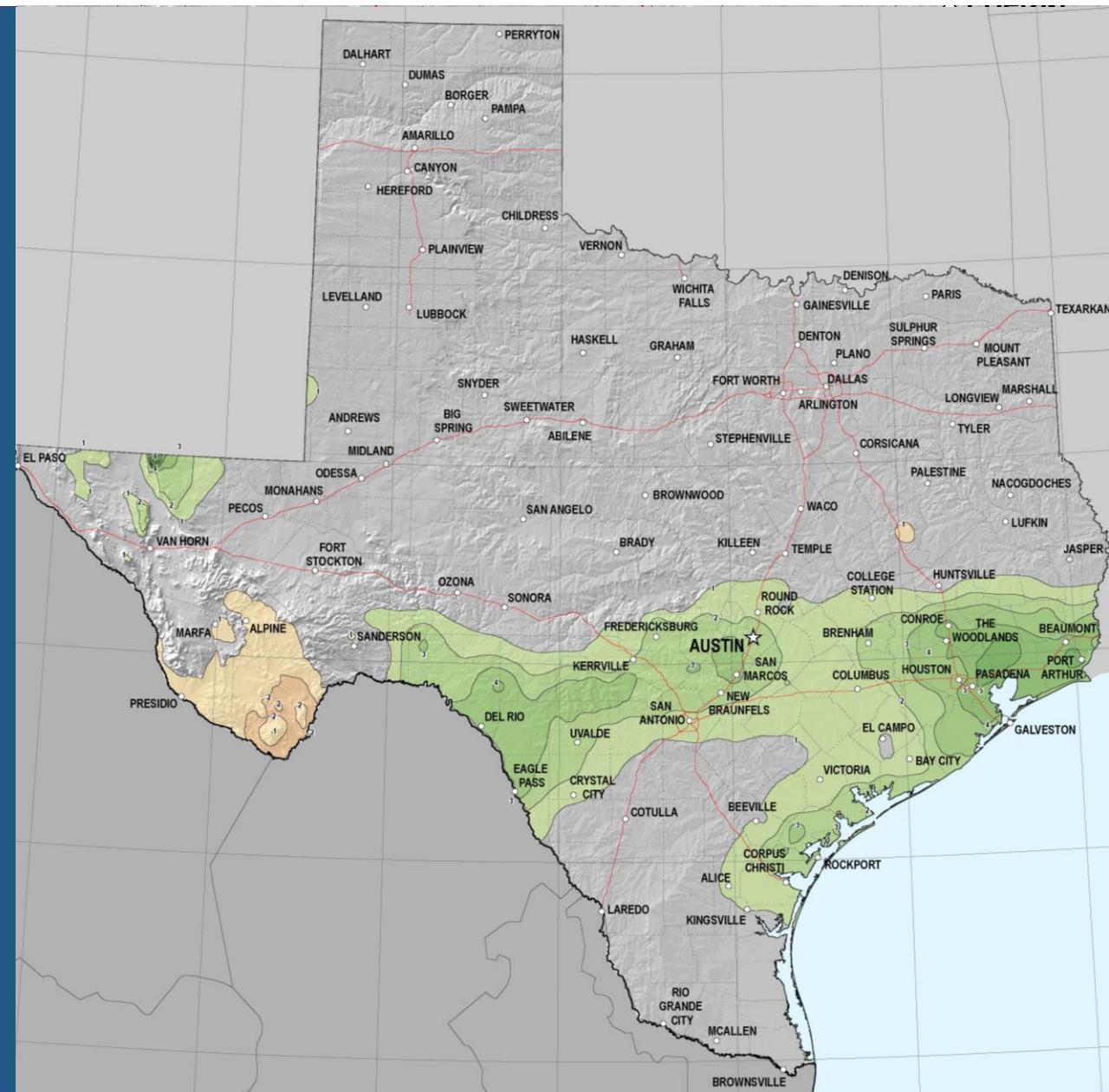
# Atlas 14 Background

- Nationwide study of rainfall intensities
- **Partners**
  - **Federal** National Weather Service, U. S. Army Corps of Engineers, Federal Highway Administration
  - **State/Local** TxDOT, Harris County Flood Control District, City of Austin, et al.



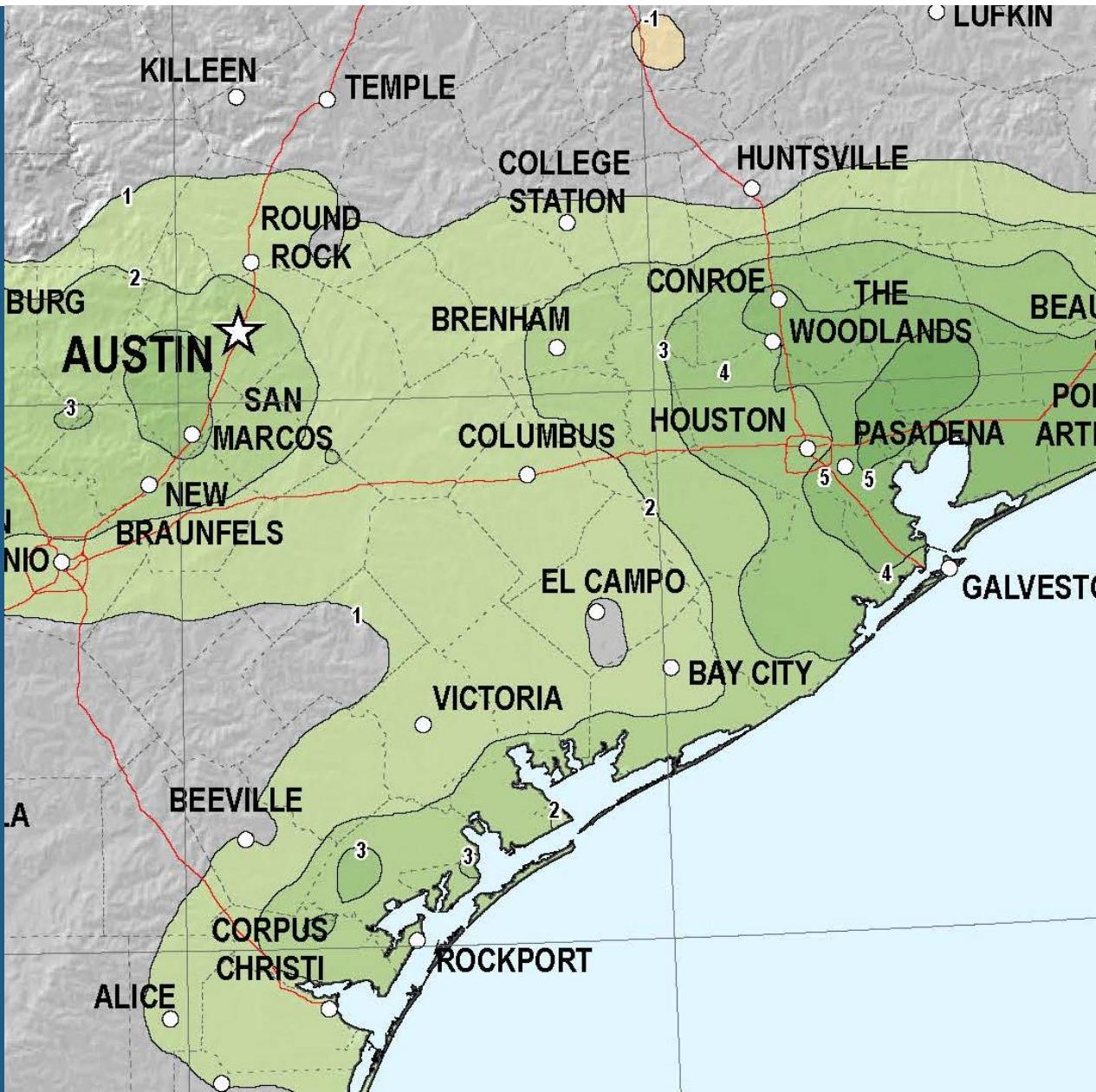
# Rainfall Depth Changes (preliminary)

- Examination of historic rainfall data
- Adds data from 1994 – 2017
- Colorado River watershed not significantly impacted



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# Austin Rainfall Impacts

Storm Level	Current Rainfall Depth (24 hour storm)	Updated Rainfall Depth* (24 hour storm)
25-year (4% chance)	7.6 inches	Almost 10 inches
100-year (1% chance)	10.2 inches	Up to 13+ inches
500-year (0.2% chance)	13.5 inches	Not yet available

\* preliminary



## Flooding in Houston / Harris County

- Memorial Day 2015
- Tax Day 2016
- Hurricane Harvey 2017

Photo: Houston Chronicle

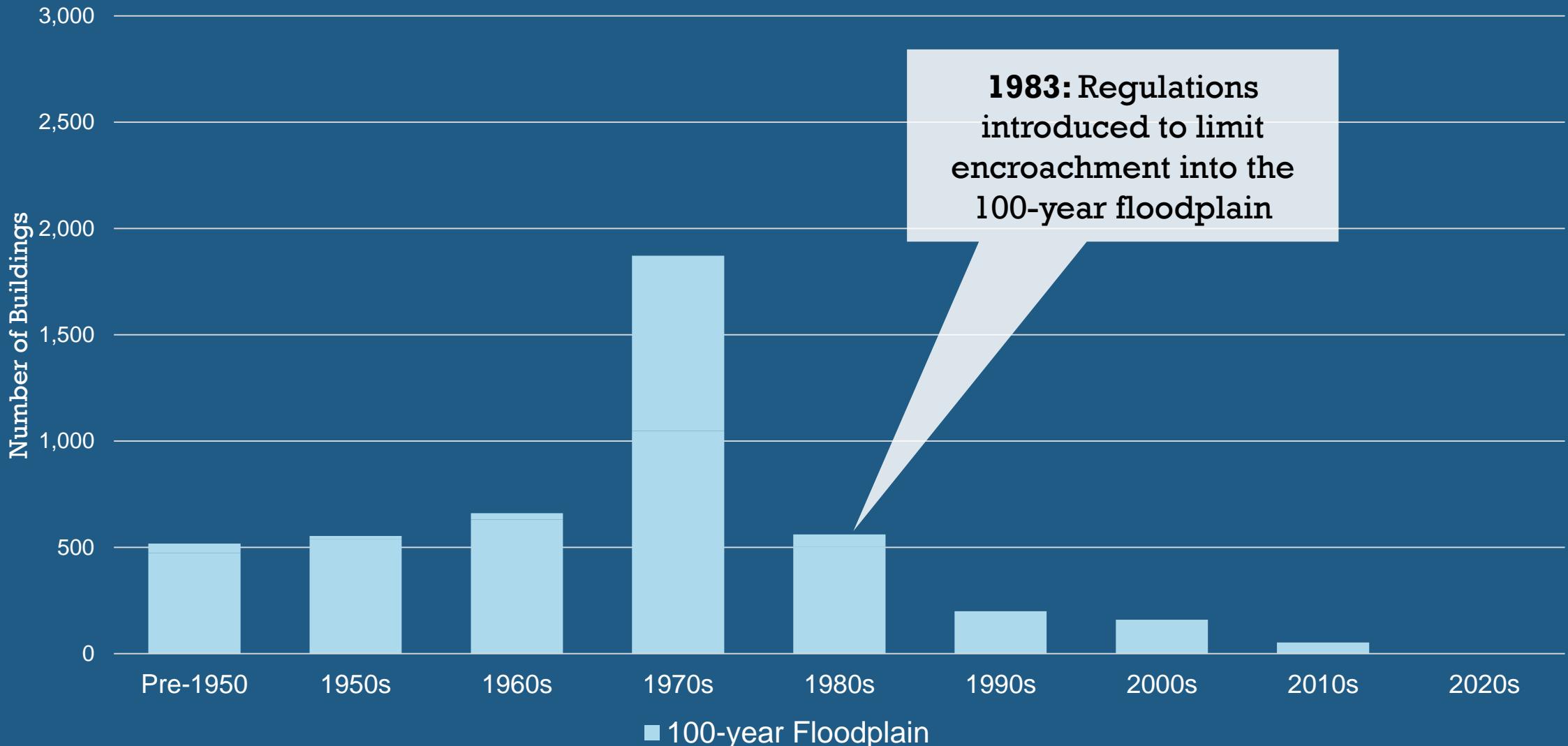


## Flooding in Austin

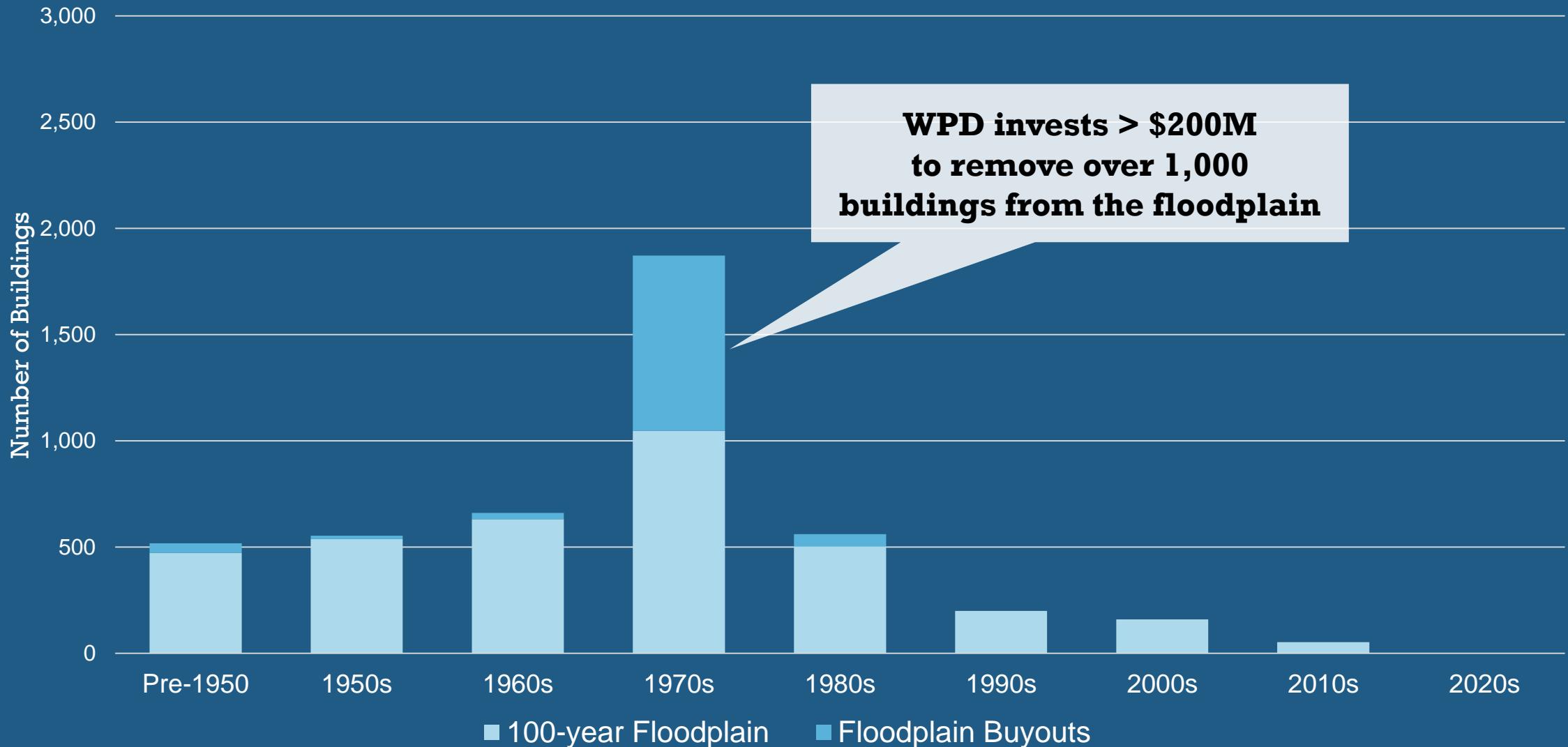
- Halloween 2013 and 2015
- Memorial Day 2015
- May 2016

## Impacts to Citywide floodplains and buildings

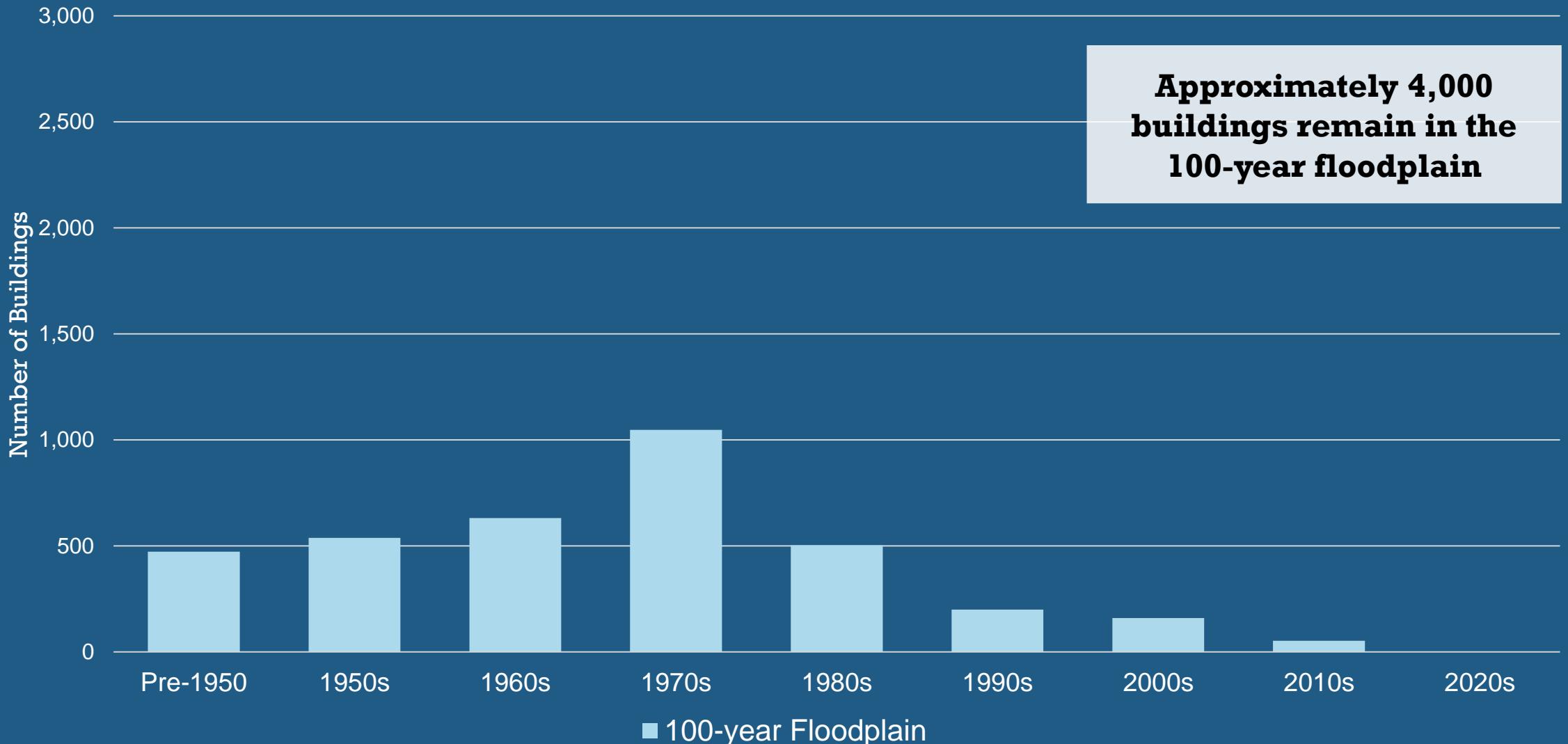
Floodplain	<u>Approximate number of buildings in the floodplain</u>	<u>Approximate percent of City area in the floodplain</u>
Current 100-year	4,000	9%
Current 500-year (excluding Colorado River floodplain)	7,200	11%
<b>Difference</b>	<b>3,200</b>	<b>2%</b>



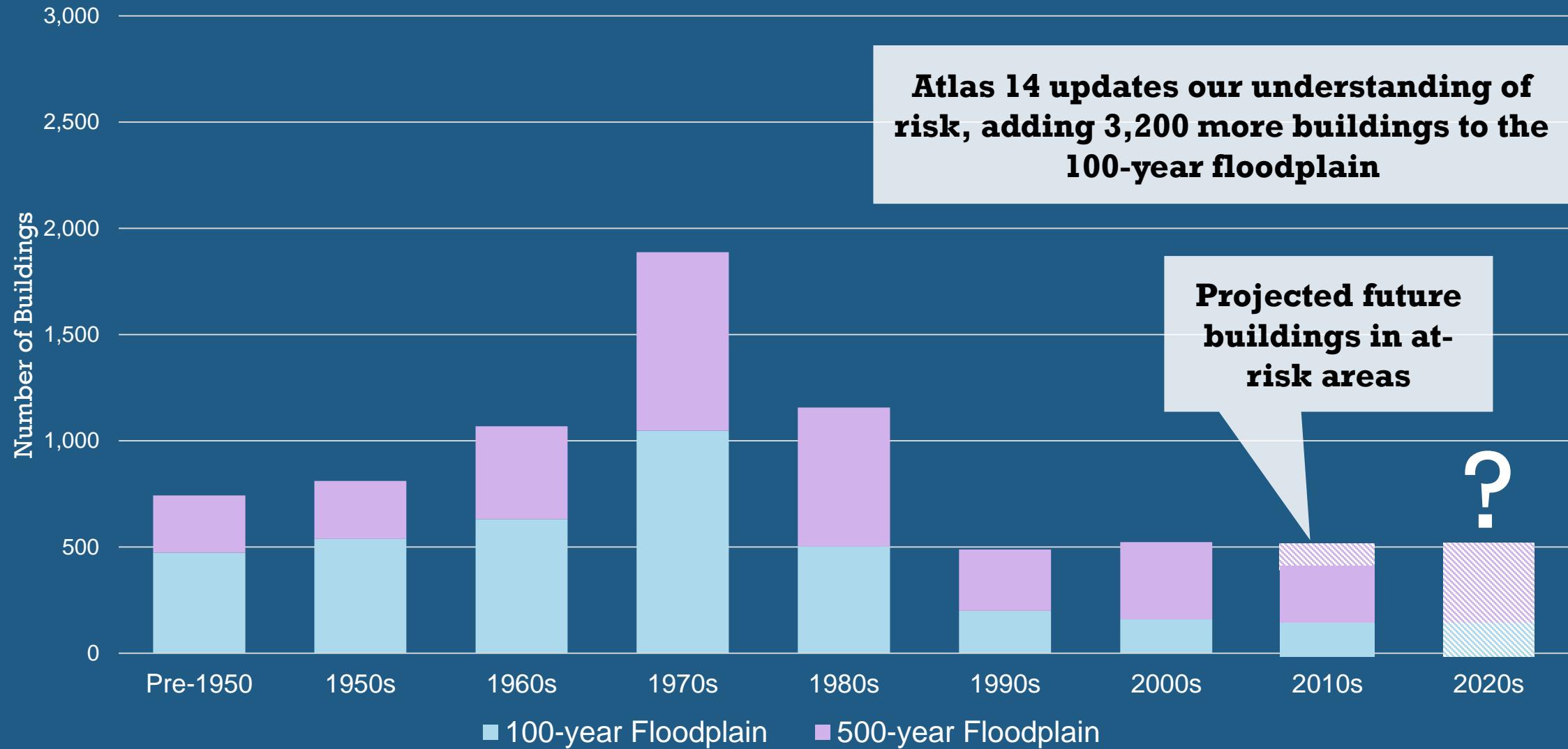
*Number of buildings constructed in the 100-year floodplain by decade*



*Number of buildings constructed in the 100-year floodplain by decade*



*Number of buildings the current 100-year floodplain by decade*



*Number of buildings in the current 100-year and updated Atlas 14 floodplain by decade*

What does a

## 1% Annual Chance of Flooding Mean?

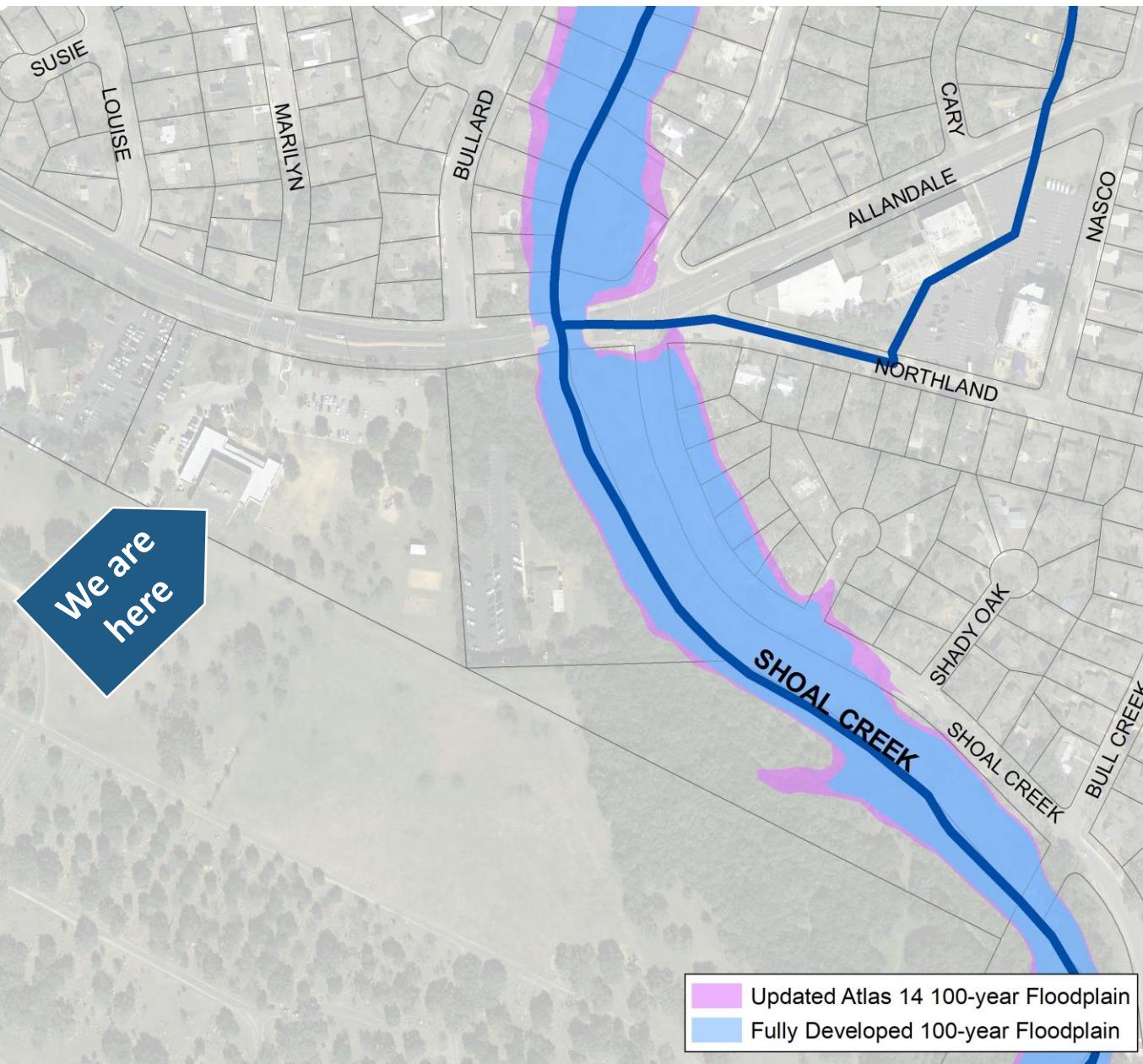
- A 100-year flood has a 1% chance of happening every year
- It has a 26% chance of happening over a 30-year mortgage
- Can occur multiple times per year; does not occur every 100 years.
- FEMA and nationwide standard to map flood hazard areas.



What does the new understanding of  
**Flood Risk Mean?**

- More buildings in the 100-year floodplain.
- Depth of flooding increases.
- More low water crossings at risk of flooding.
- Depth and velocity of flooding over roadways increase.



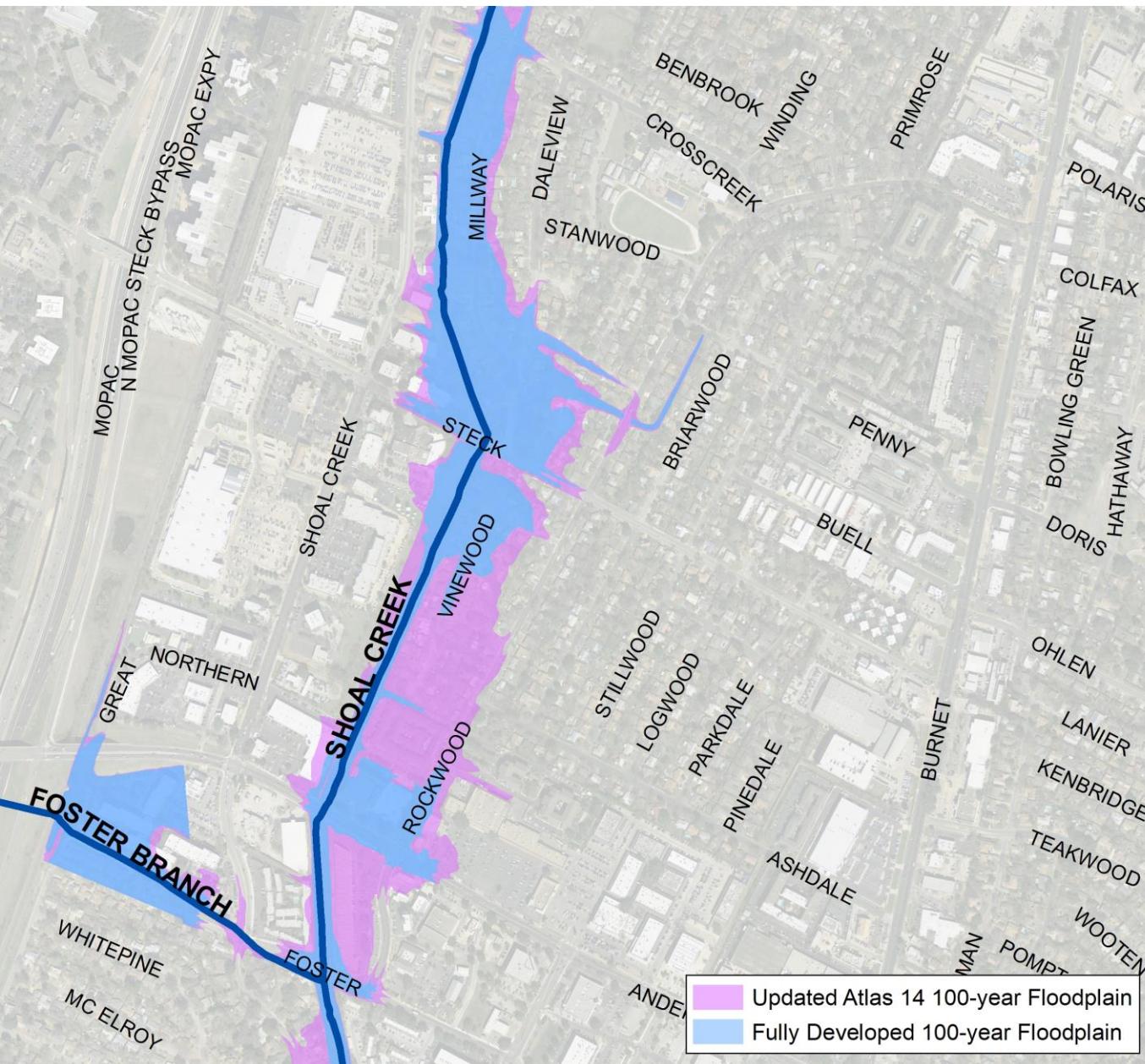


Austin's

## Floodplains Will Expand

- More homes and businesses are at risk of flooding than previously thought.
- Affects ability to develop, remodel, or redevelop property.
- Affects the need for and the cost of flood insurance.
- Floodplains will need to be re-studied.
- See impacts at [ATXfloodpro.com](http://ATXfloodpro.com)



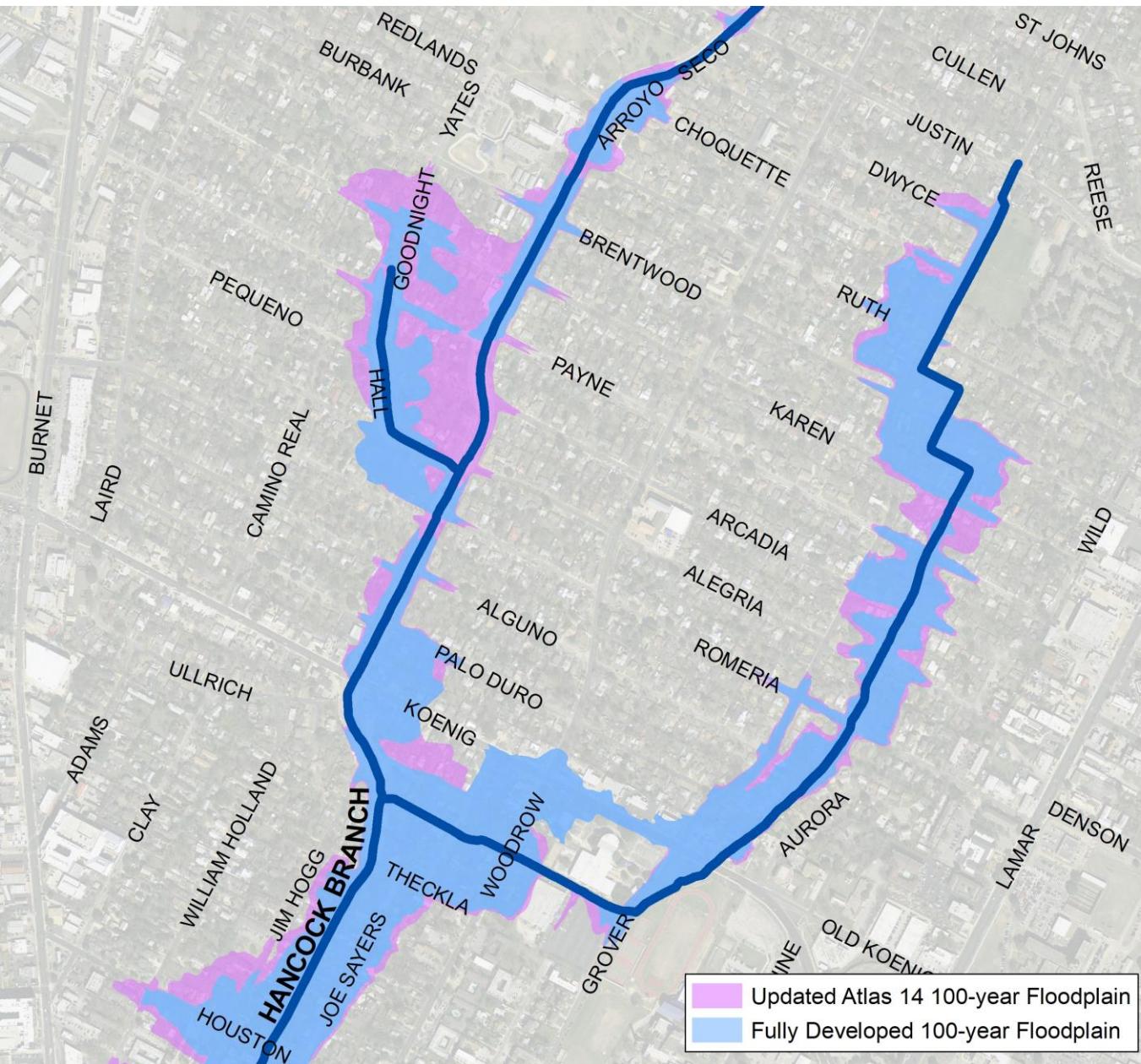


Austin's

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 **FloodPro**

Explore Atlas 14 Changes X

**I want to...**

**Atlas 14 Changes**

The National Weather Service is completing a historical rainfall study, called Atlas 14. This study shows that Central Texas is more likely to experience larger storms than previously thought. This means that severe flooding is also more likely. To discover if your property has an increased flood risk, please enter an address in the address search below.

■ Interim Atlas 14 100-Year Floodplain  
■ Current 100-Year Floodplain

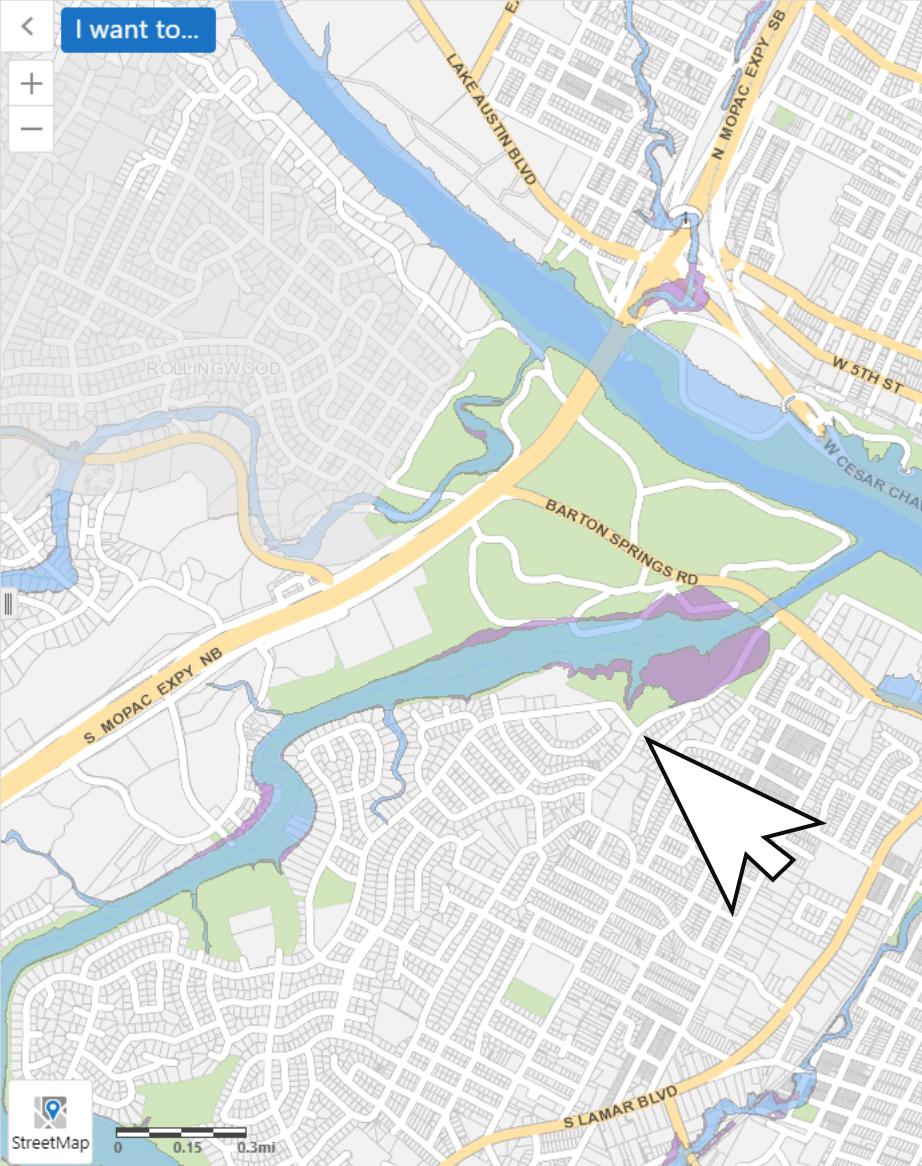
[Atlas 14 website](#)

**Address Search**

Enter a street address starting with a House Number (Example: 505 Barton Springs Rd.).

Street Address: \*

**Search** **Cancel**



Home Layers Explore A... StreetMap 0 0.15 0.3mi

# Using Floodpro

- Go to [ATXfloodpro.com](http://ATXfloodpro.com)
- Click “I want to...”
- Click “Explore Atlas 14 Changes”
- Enter an address to search

# *Proposed Floodplain Regulations*

# Hurricane Harvey: Houston's Regulatory Response

## **Harris County toughens regulations on construction after Hurricane Harvey, including higher builds**

By [Mihir Zaveri](#) Updated 1:54 pm CST, Tuesday, December 5, 2017

NEWS

## **Houston City Council approves 500-year floodplain regulation**

By Aaron Barker - Senior Web Editor

Posted: 8:32 AM, April 04, 2018

Updated: 5:02 PM, April 04, 2018

# Bastrop's Response



DEVELOPMENT

Thursday, August 23, 2018 by Syeda Hasan

## Citing flooding concerns, Bastrop temporarily stops new development

Drainage issues prompt temporary halt to development in Bastrop

By: Alyssa Goard [✉](#)

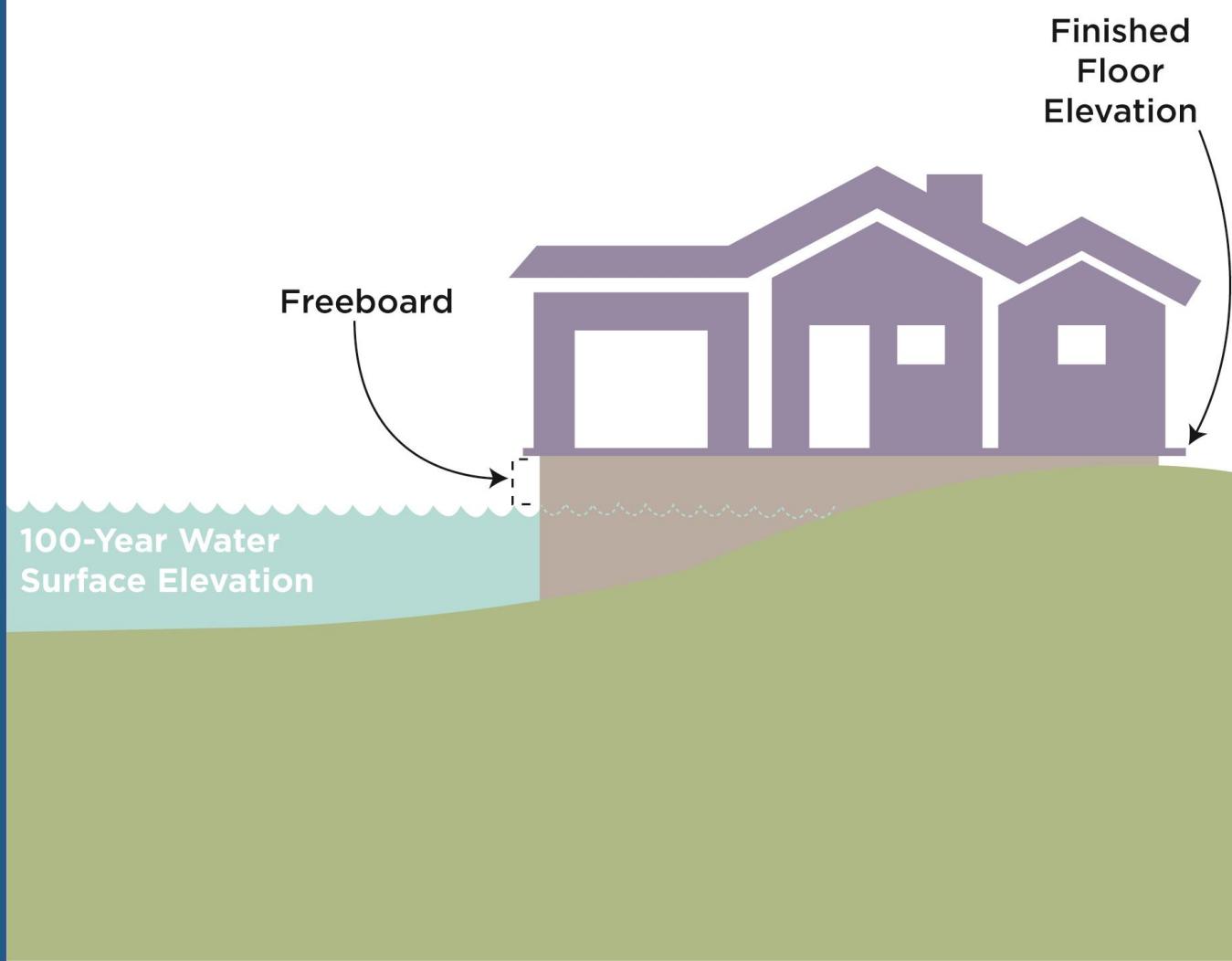
Posted: Aug 15, 2018 08:48 PM CDT

Updated: Aug 15, 2018 08:53 PM CDT



# Proposed Land Development Code Amendments

- Revise floodplain definitions
- Revise floodplain management rules





## Objectives

- Limit construction of new buildings in areas with known flood risk
- Simplify rules so that buildings within the floodplain can more easily redevelop to reduce flood risk



# Proposed Floodplain Definitions

- New 100-year floodplain => current FEMA 500-year floodplain
- New 25-year floodplain => current City 100-year floodplain

Storm Level	Current Rainfall Depth (24 hour storm)	Updated Rainfall Depth* (24 hour storm)
25-year (4% chance)	7.6 inches	Almost 10 inches
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# Floodplain Management Regulation Changes

- Redevelopment Exception
- Colorado River Exception
- Freeboard





## Redevelopment Exception

A residential building may encroach in the 25- or 100-year floodplain as long as it:

- Replaces an existing building
- Is above 100-year floodplain by 2 feet
- Does not increase number of dwelling units
- No adverse flooding impact

If these conditions are met, safe access requirement is waived.



## Redevelopment Exception

Additions can be approved if:

- The home meets 2 feet freeboard requirement.

Renovations can be approved if:

- The renovation is not a substantial improvement.
- If the renovation is a substantial improvement, the home must meet 2 feet freeboard requirement.





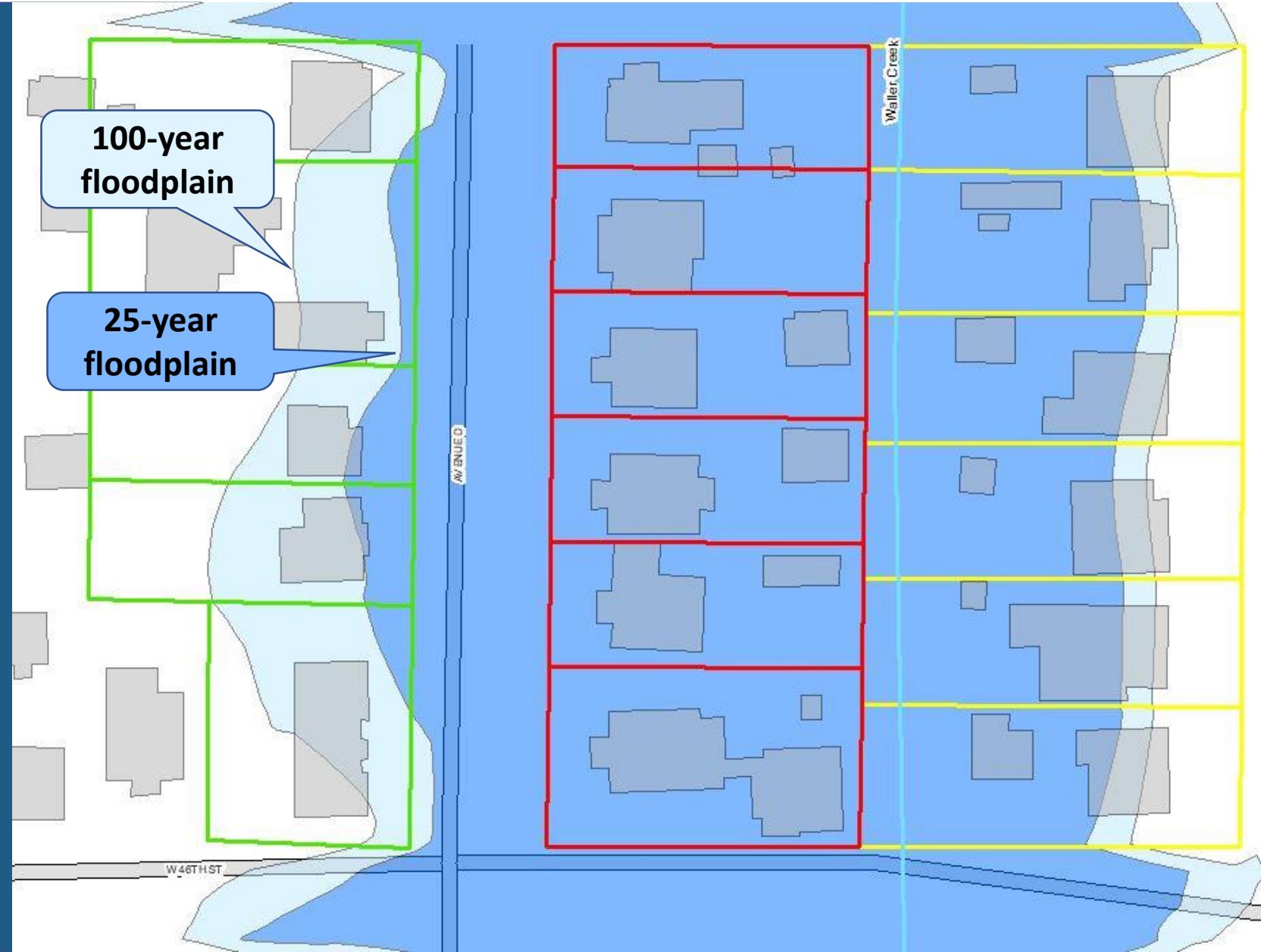
## Why add the Redevelopment Exception?

- Incentivizes redevelopment while reducing flood risk
- Reduces the number of buildings at risk of flooding
- Simplifies the code

# Redevelopment Exception

Under current rules:

- Properties in **green** likely to redevelop under an existing exception
- Properties in **yellow** likely to redevelop with an administrative variance
- Properties in **red** require a Council variance to redevelop

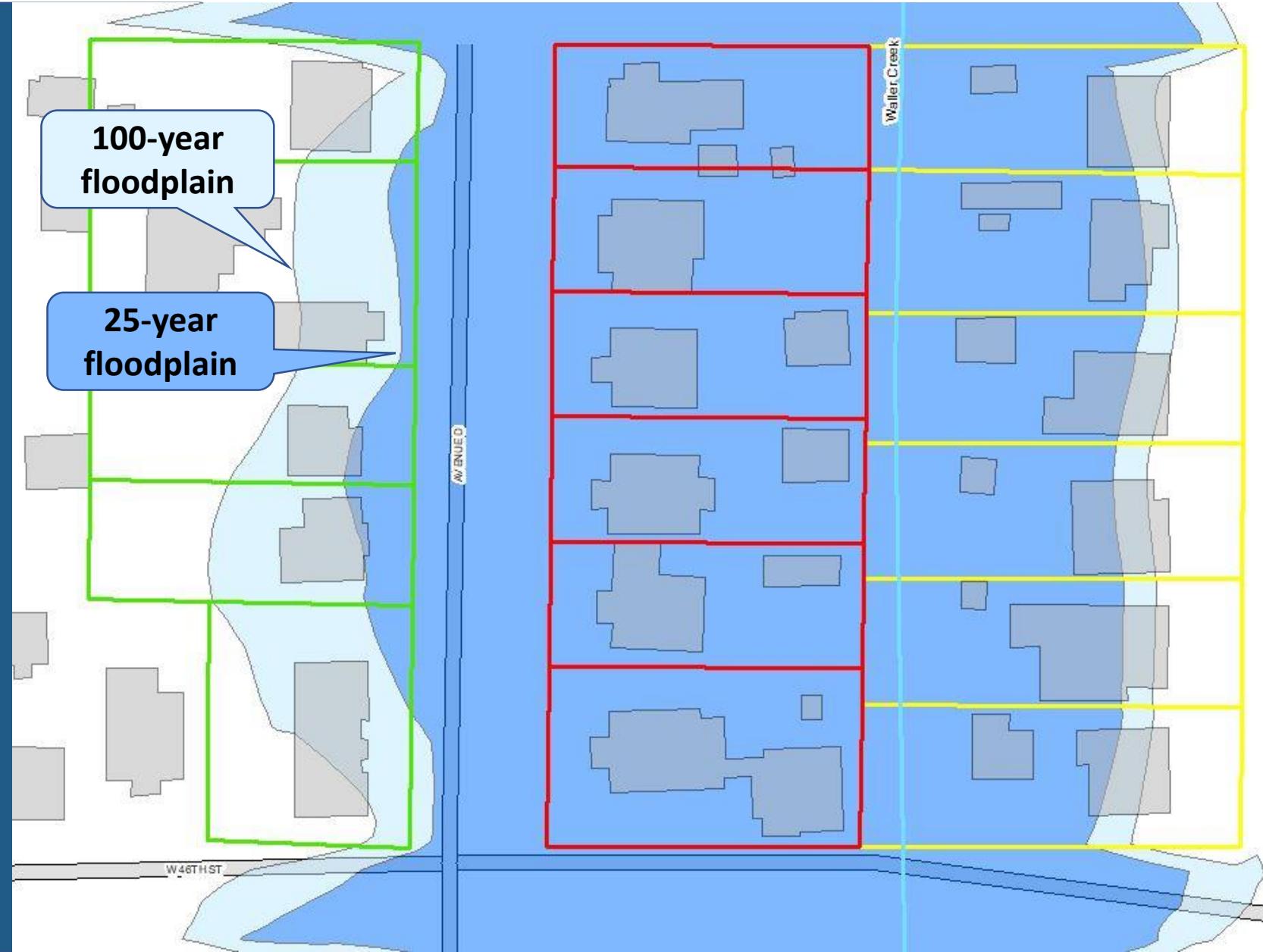


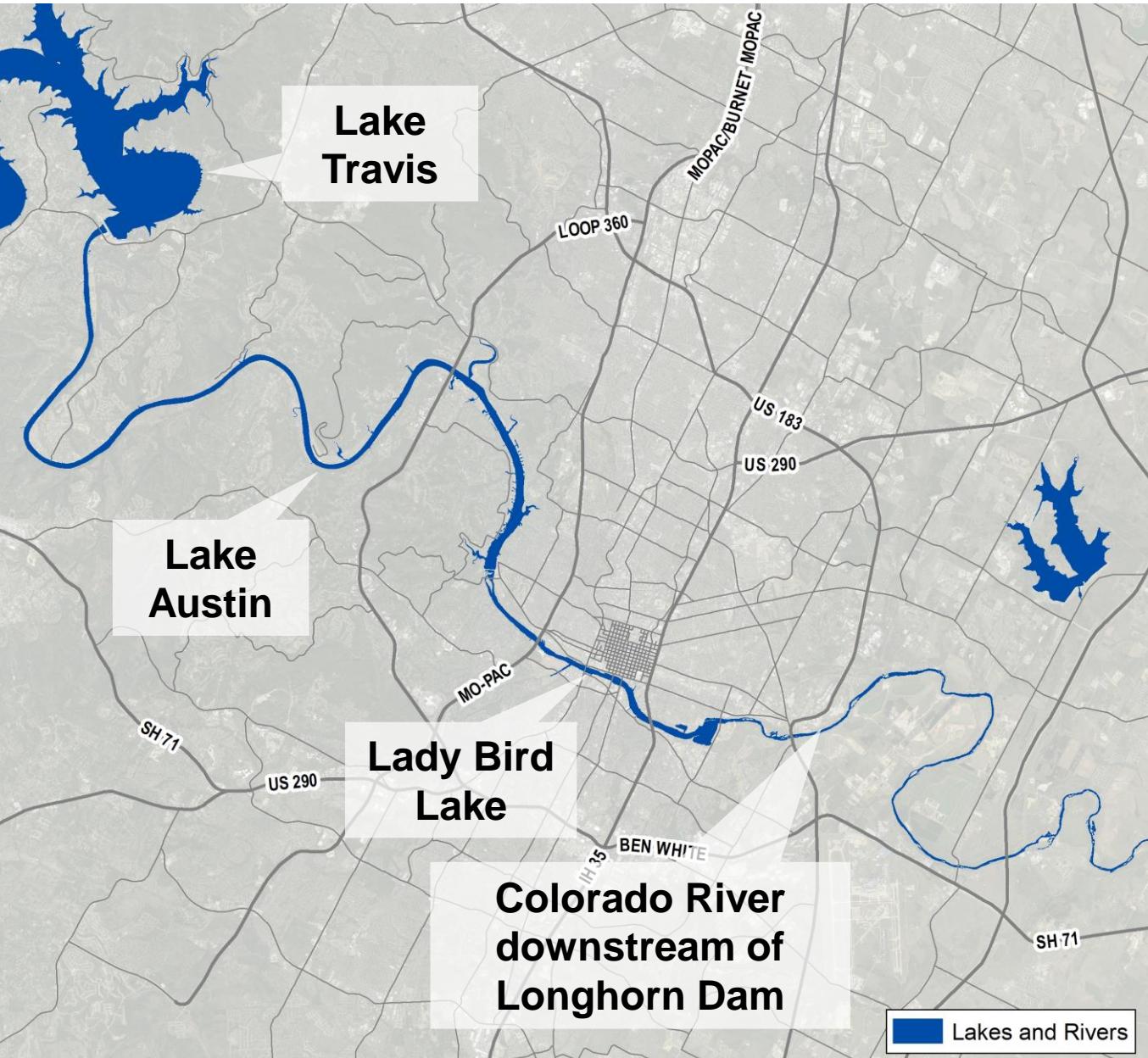
# Redevelopment Exception

Under new rules:

- All properties have same opportunity to redevelop with an elevated finished floor

Flood risk will be reduced in all cases





## Colorado River Exception

- Expand 100-year encroachment exception to include Lake Austin and Lake Travis
- Maintain prohibition on encroachment on 25-year floodplain



## Minimum freeboard to 2 feet

- Minimum height between building's lowest floor and 100-year floodplain
- More than 140 Texas communities have freeboard of 2 feet or higher



## Why increase freeboard?

- Freeboard is the single-most effective means for reducing flood risk to a building in the floodplain
- Simplify code – current freeboard requirements vary by location
- Reduced flood insurance costs





What is the  
**Impact to Flood Insurance?**

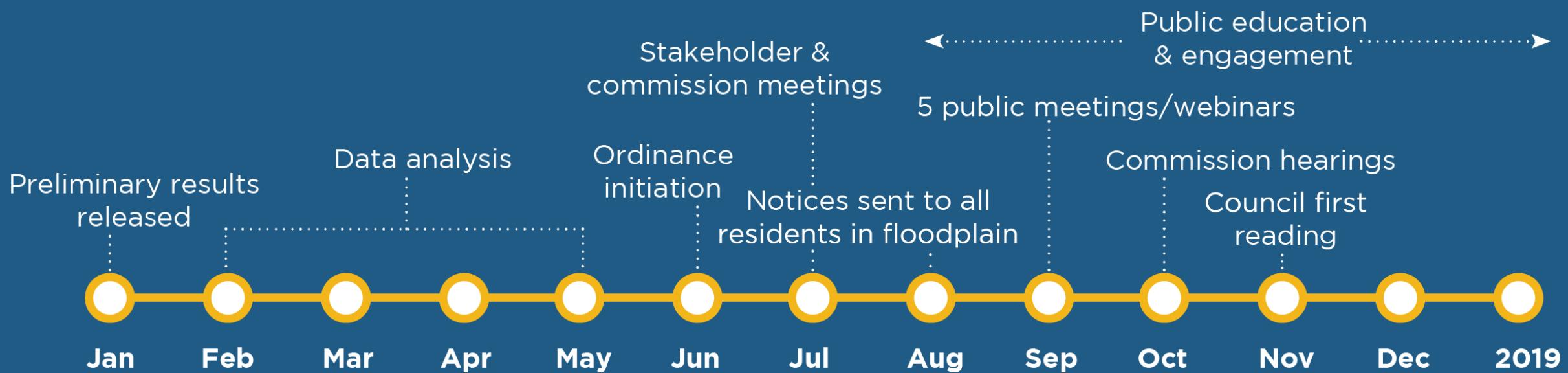
- Flood insurance impacts are dependent on FEMA map update
- Map updates at least 3 years away
- Rates may go up
- Insurance requirements may change
- Talk to an insurance agent now



# Next Steps

- **Oct 2018** – Final Atlas 14 data published
- **Oct – Dec 2018** – WPD staff to determine application of rainfall values for Austin area
- **2019** – Drainage Criteria Manual updates (rules change process)
- **2019 to 2021** – Re-mapping of Austin floodplains:
- **2022** – FEMA map updates

# Timeline



**Follow our progress**  
[AustinTexas.gov/atlas14](http://AustinTexas.gov/atlas14)

**Contact us**  
Atlas14@AustinTexas.gov  
Floodplain Hotline 512-974-2843

**View floodplains**  
[ATXfloodpro.com](http://ATXfloodpro.com)