

# Atlas 14

## UNDERSTANDING AUSTIN'S FLOOD RISK

Environmental Commission

July 18, 2018

# Overview

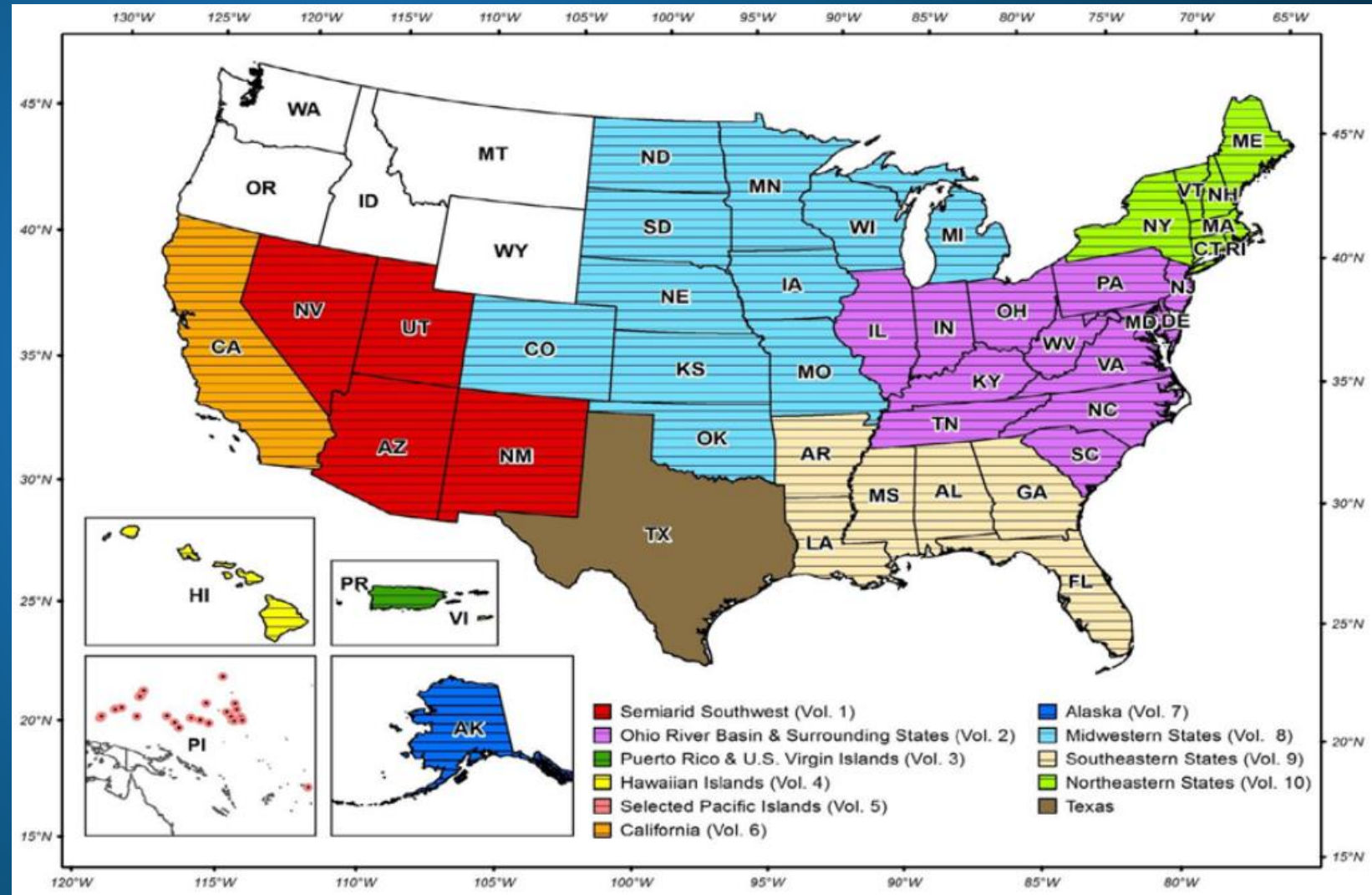
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- ▶ Rainfall Data Changes
- ▶ Need for Action
- ▶ Solution Options
- ▶ Recommended Code Amendments
- ▶ Impacts to Residents and Development
- ▶ Next Steps

# NOAA Atlas 14 - Background

3

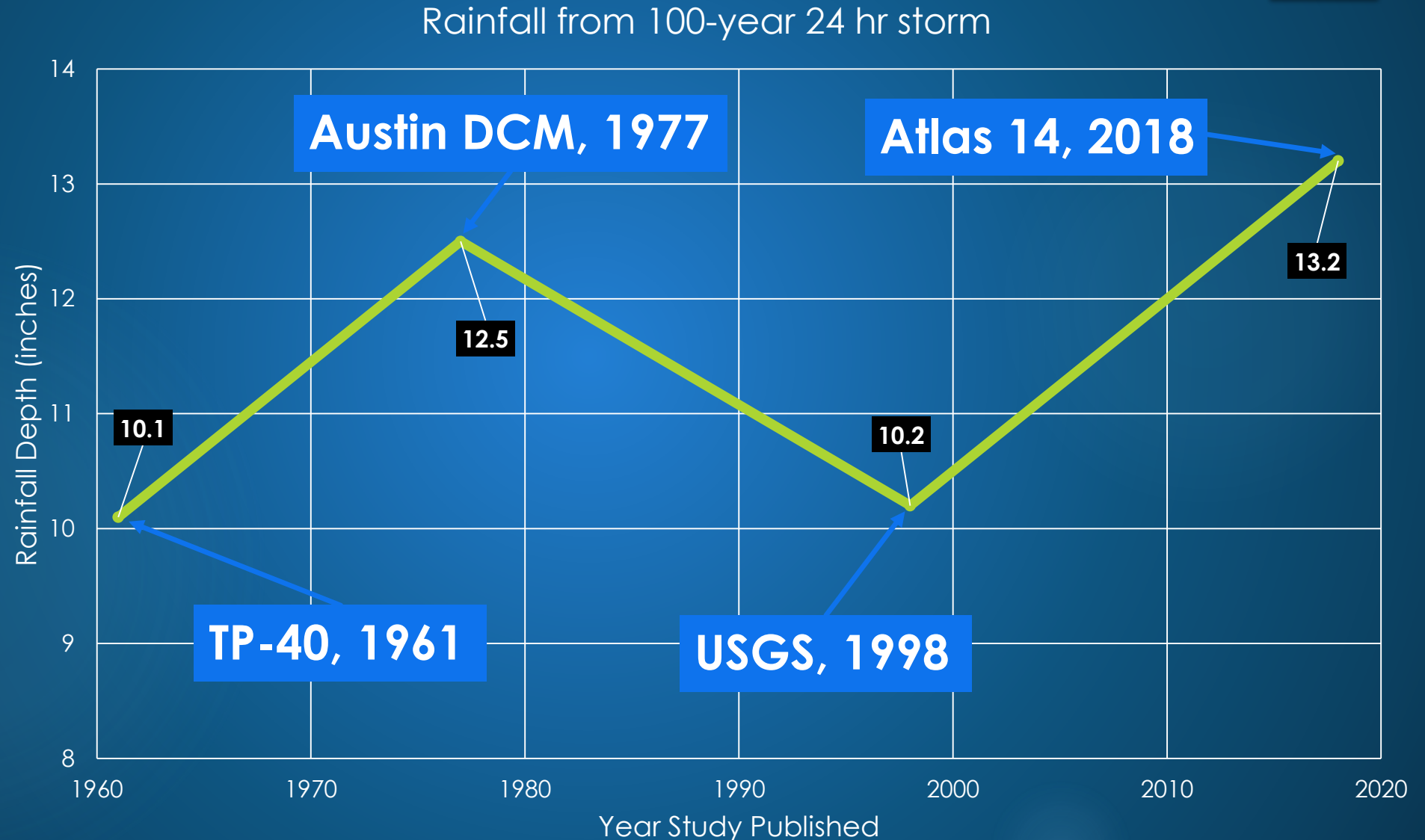
- ▶ Nationwide study of rainfall intensities
- ▶ Partners:
  - ▶ **Federal:** National Weather Service, U. S. Army Corps of Engineers, Federal Highway Administration
  - ▶ **State/Local:** TxDOT, Harris County Flood Control District, City of Austin, et al.





# History of Rainfall Intensity Studies for Austin

4



# Rainfall Depth Changes (Preliminary)

5



**Recurrence  
Interval**

**Current Rainfall  
Depth in inches**

**Atlas 14 Rainfall in  
inches**

**25-year**

**7.6**

**Almost 10**

**100-year**

**10.2**

**Up to 13+**

**500-year**

**13.5**

**Not yet available**

# City-wide Atlas 14 Impacts

6

- Approximate **number of buildings in floodplain** (excluding Colorado River floodplain)

Area	100-Year	500-Year	Difference
City Limits	3,702	6,533	2,831

- Approximate **percent of area in the floodplain** (excluding Colorado River floodplain)

Area	100-Year	500-Year	% Larger
City Limits	7%	9%	26%



# Need for Action

7

## Austin American-Statesman

Tuesday, May 26, 2013 Breaking news at statesman.com

EXPANDED COVERAGE CENTRAL TEXAS FLOODING

### WAVES OF DISASTER

12 people, including holiday visitors, still missing as river sweeps away 72 homes.

Lamar Boulevard turns into a waterway itself as Shoal Creek spills over its banks.

Governor adds 24 counties to devastation list, warns of water's 'tsunami'-like power.



Rescue personnel grab the hand of a man stranded Monday at the northwest corner of Lamar Boulevard and 15th Street after Shoal Creek overflowed its banks, inundated Lamar with rushing water and covered the field at House Park. Several cars were stalled under and near the 15th Street bridge, where spectators gathered in disbelief, taking photographs. ALBERTO MARTINEZ / FORA MORGAN-STATSMAN

### Flood is highest in Texas history

Hays asks citizens to look for missing; rain to continue rest of week.

By Tony D'Onofrio  
tdonofrio@statesman.com

WIMBERLEY — On a day that brought a new round of fierce thunderstorms and torrential rains, authorities continued a grim search Monday for 12 people still missing after being swept from riverfront homes, and property owners returned to dramatic scenes of destruction.

San Marcos and Hays County officials revised upward the property damage wrought by the historic flood, saying 72 homes had been washed away. Texas Gov. Greg Abbott, who toured the scene, said the storms brought a punch that "you cannot candy-coat" and declared a disaster area in 24 additional counties, including Blanton and Hays.

Abbott said the flood in the Wimberley valley is "the highest flood we've ever recorded."

for Dodds' replacement



Celebrating the restaurants that have been doing it right for years

'12 Years a Slave' leads our movie reviews

Saturday: Sunny and cooler, 75/47  
Sunday: Mostly sunny, 75/54  
Monday: Chance of showers, 75/60  
Tuesday: Chance of showers, 75/64

\$1.00

## Austin American-Statesman

Friday, November 1, 2013

Breaking news at statesman.com

CENTRAL TEXAS FLOODING 4 PAGES OF EXPANDED COVERAGE INSIDE

### DELUGE TURNS DEADLY

2 DEAD IN STORM: Victims found in Onion Creek and in Caldwell County.

DAMAGE: Homes, roads, golf course inundated in hard-hit Southeast Austin.



Isabel Rodriguez and her children Christopher, 3, and Rubi, 9 months, are carried on a boat Thursday on Quicksilver Boulevard after their home on South Pleasant Valley Road was flooded. JAY JANNER / AMERICAN-STATSMAN

By Dave Harrison  
dharrison@statesman.com

As a second October deluge triggered a second round of flooding across Central as on Wednesday night, early Thursday morning helicopters and boats plus people from flooded homes and residents lacked their roofs to escape the rising water when storm-swept creeks swallowed neighborhoods.

Emergency workers continued searching flooded areas Thursday, particularly in hard-hit Southeast Austin neighborhoods near Onion Creek, where more than 100 homes were evacuated; officials didn't have a damage estimate or a way to show how many homes had flooded citywide.

The flooding was blamed for one death in Caldwell County; the body of a victim was discovered in Onion Creek in Austin. In El Comite, officials were looking for a 26-year-old Cal Lahe man who reported into the swollen Guadalupe River around 1:30 a.m. Monday.

The storms erupted a second round of flooding.

## 13 die as floods ravage city; losses estimated in millions



By BRUCE WIGHT  
bwight@statesman.com

At least 13 persons, many swept from their cars and homes by the rising, racing waters of Shoal Creek, drowned late Sunday night as flash floods spawned by thunderstorms struck the city with stunning fury.

Another 16 persons were reported still missing late Monday. Of the 13 dead, bodies of one were recovered and the other four were presumed dead by police based on accounts of their disappearances by witnesses.

The search for bodies continued throughout the day as rescue workers dug through mud and debris to several feet thick in some places.

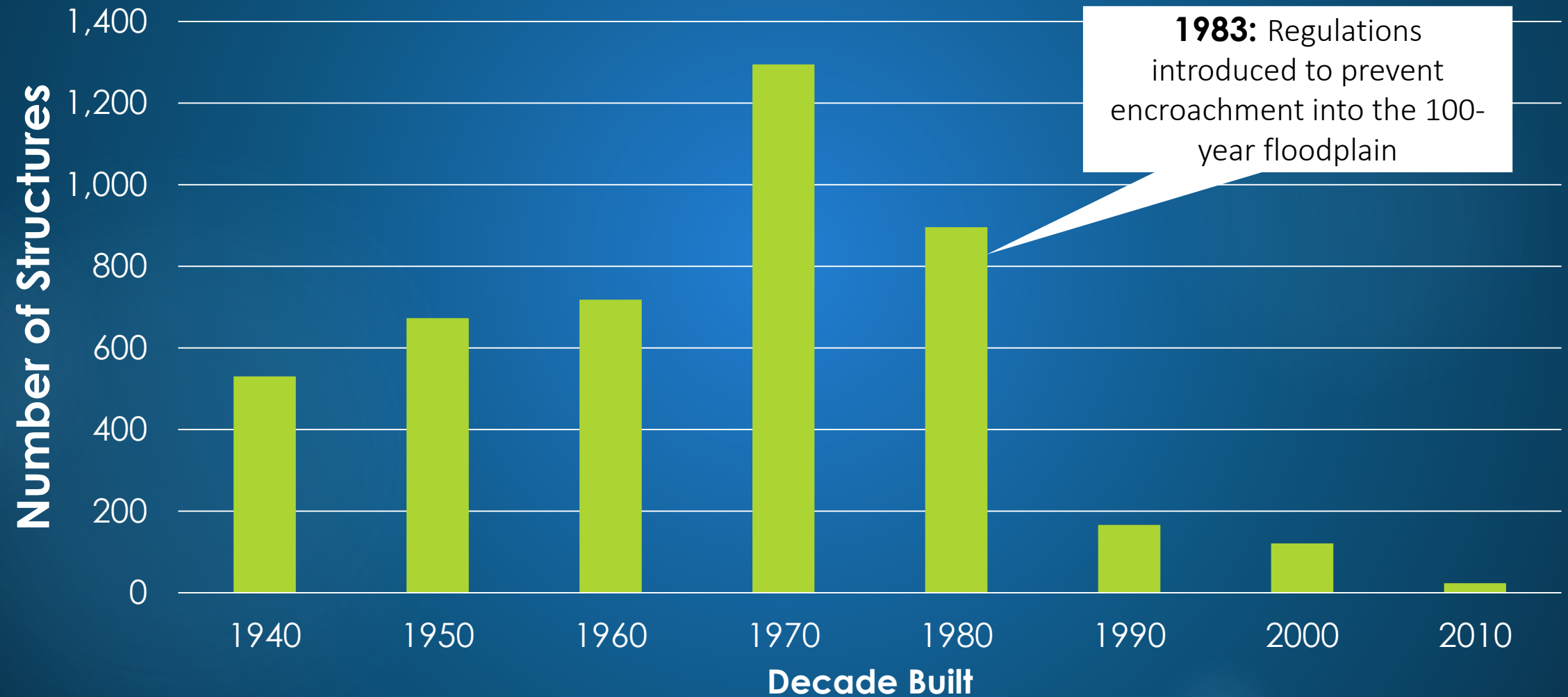
The aftermath



Ana Hernandez, 2, stands amid the destruction at her home at 624 Wood St., waiting for the cleanup to begin.



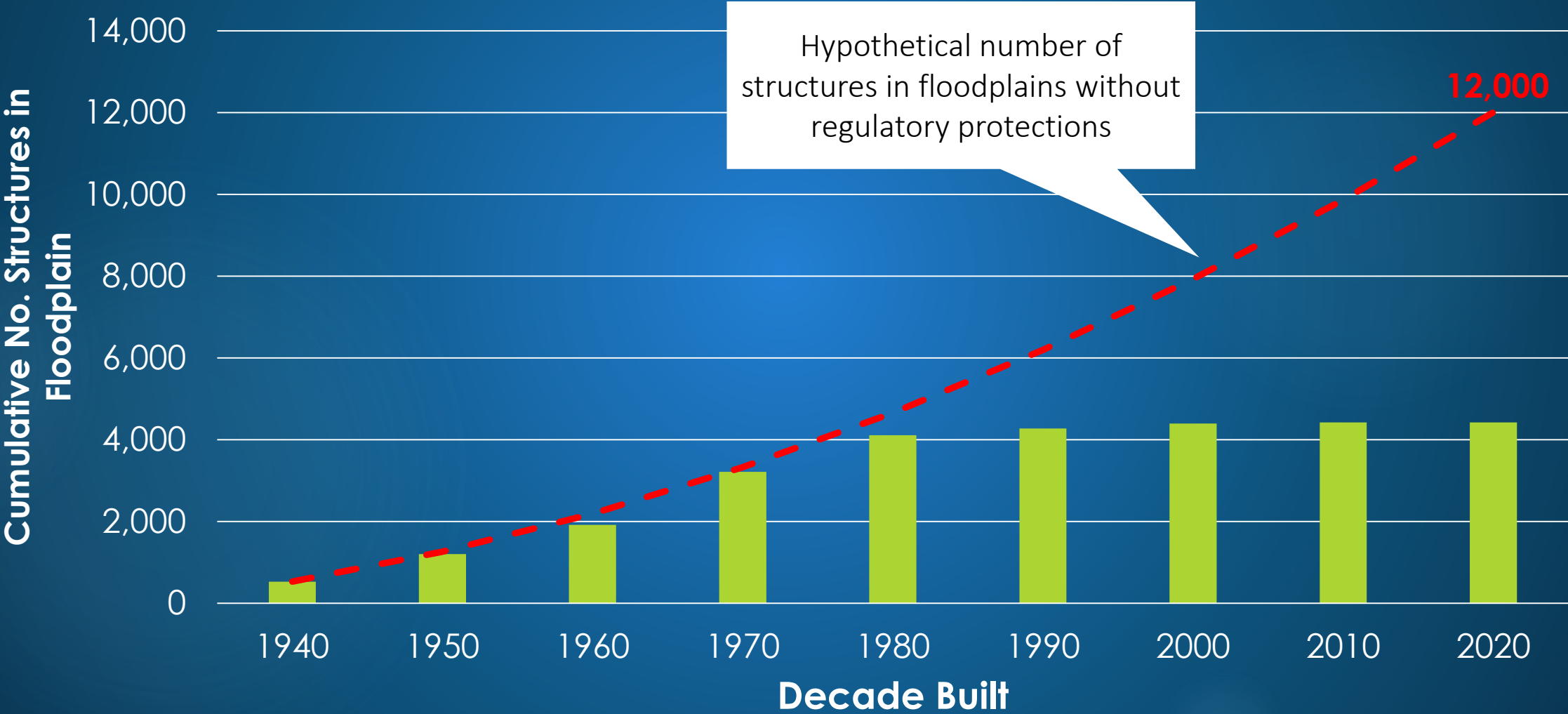
# Watershed Regulations: Flood Mitigation



*Count of structures in the current 100-year floodplain by decade*



# Watershed Regulations: Flood Mitigation



Count of structures in the current 100-year floodplain by decade

# Regulation Revision Options

10

- ▶ Do Nothing
- ▶ Wait to change regs until floodplain studies are final
- ▶ Update regs now using currently available data



# Regulation Revision Options

11

- ▶ Do Nothing

- ▶ Disregard Atlas 14 and maintain current regs

- ▶ Doesn't protect residents from flood hazards based on new understanding of flood risks

# Regulation Revision Options

12

- ▶ Wait to change regs until floodplain studies are updated
  - ▶ Updating floodplain studies will take a minimum of two years
  - ▶ Life/safety implications are too significant to delay
  - ▶ WPD will initiate floodplain study updates immediately



# Act Now to Revise Regulations

13

- ▶ Update regs using currently available data
  - ▶ Provides immediate protection and vital information to residents
  - ▶ Uses readily available, valid data

# Proposed Code Amendment

14

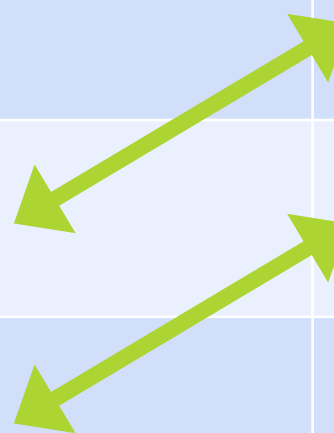
- ▶ Revise floodplain definitions
- ▶ Redevelopment exception
- ▶ Colorado River exception
- ▶ Change minimum freeboard to 2 feet



# Proposed Code Amendment

15

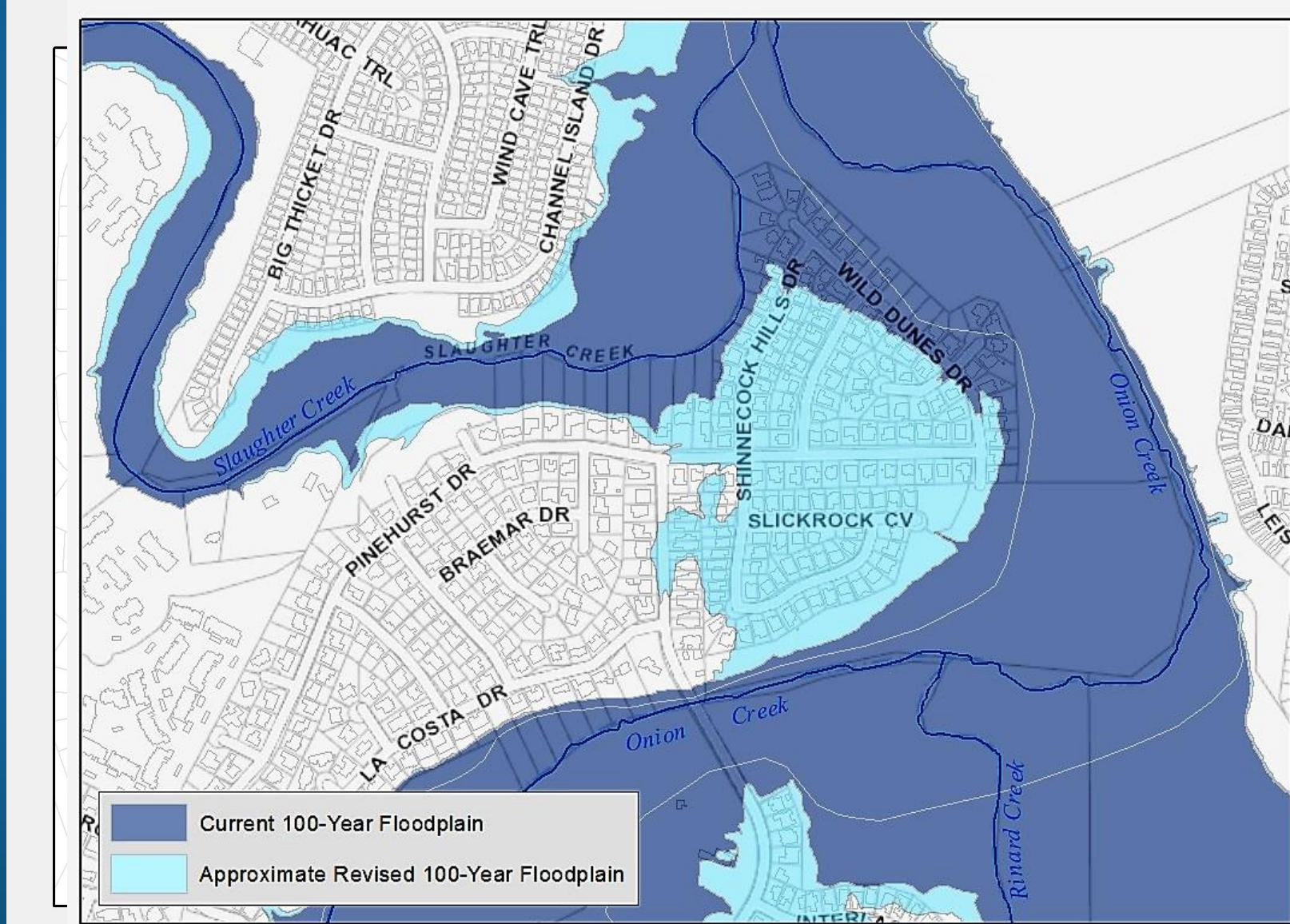
Recurrence Interval	Current Rainfall Depth in inches	Atlas 14
25-year	7.6	Almost 10 inches
100-year	10.2	Up to 13+ inches
500-year	13.5	Not yet available



# Revise floodplain definitions

16

- ▶ 100-year = current 500-year
- ▶ 25-year = current 100-year

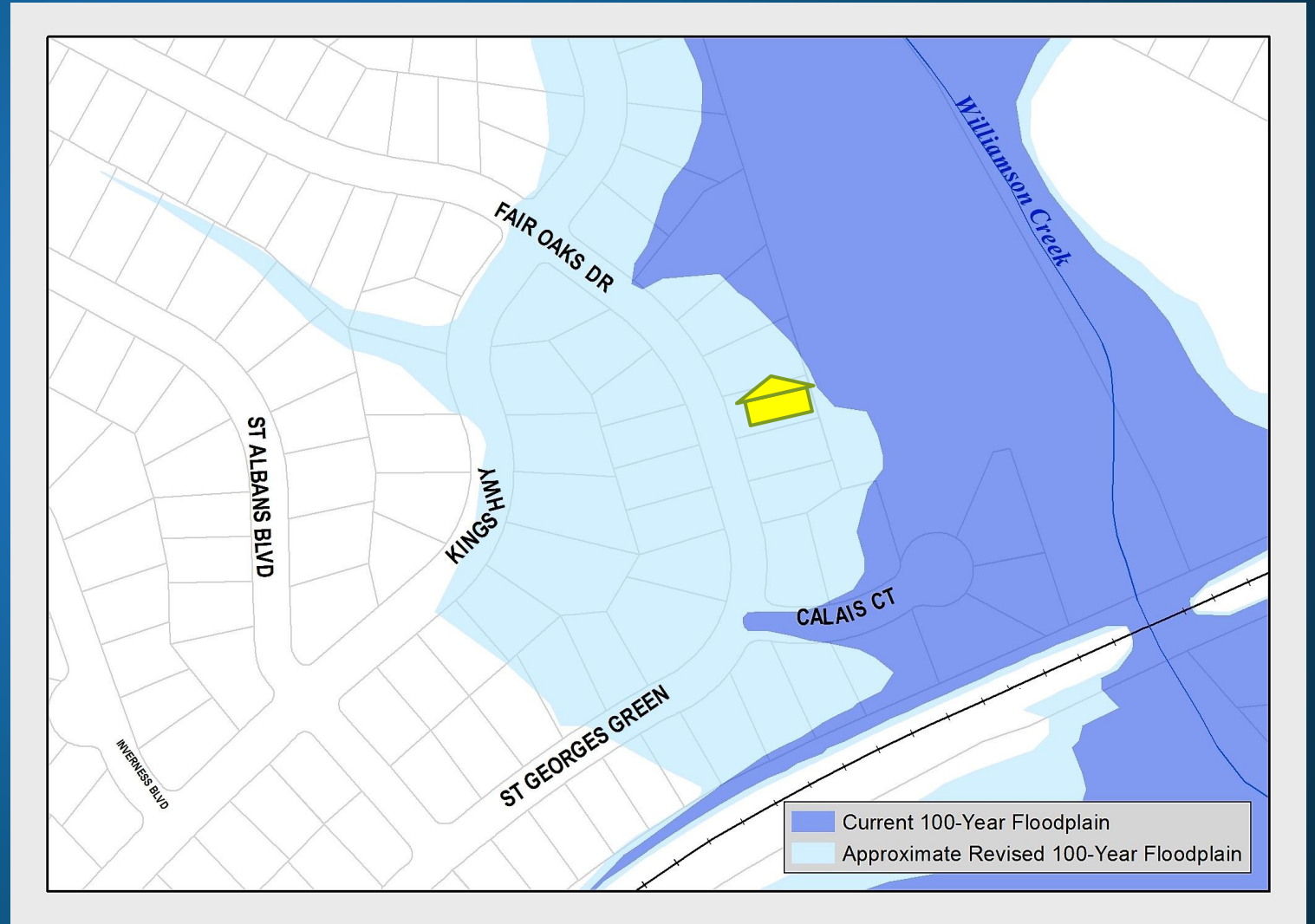




# Revise floodplain definitions

17

- ▶ Encroachment
  - ▶ **Must satisfy floodplain rules**
- ▶ Safe access
  - ▶ **Access path min. 1-ft above**
- ▶ Freeboard
  - ▶ **Min. 2-ft above**





## 18

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- This map illustrates the floodplains of the Colorado River and its tributaries in the El Paso area. The Colorado River flows from the top left towards the bottom right. Major tributaries shown include Lake Austin Blvd, Barton Creek, and the Colorado River itself. The map is overlaid with a grid of city streets, including I-10, I-69, and various local roads like W 15th St, W 12th St, W 8th St, W 7th St, W 6th St, W 5th St, W 4th St, W 3rd St, W 2nd St, W 1st St, E 15th St, E 14th St, E 13th St, E 12th St, E 11th St, E 10th St, E 9th St, E 8th St, E 7th St, E 6th St, E 5th St, E 4th St, E 3rd St, E 2nd St, E 1st St, S 1st St, S 2nd St, S 3rd St, S 4th St, S 5th St, S 6th St, S 7th St, S 8th St, S 9th St, S 10th St, S 11th St, S 12th St, S 13th St, S 14th St, S 15th St, S 16th St, S 17th St, S 18th St, S 19th St, S 20th St, S 21st St, S 22nd St, S 23rd St, S 24th St, S 25th St, S 26th St, S 27th St, S 28th St, S 29th St, S 30th St, S 31st St, S 32nd St, S 33rd St, S 34th St, S 35th St, S 36th St, S 37th St, S 38th St, S 39th St, S 40th St, S 41st St, S 42nd St, S 43rd St, S 44th St, S 45th St, S 46th St, S 47th St, S 48th St, S 49th St, S 50th St, S 51st St, S 52nd St, S 53rd St, S 54th St, S 55th St, S 56th St, S 57th St, S 58th St, S 59th St, S 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# Revise floodplain definitions – Why?

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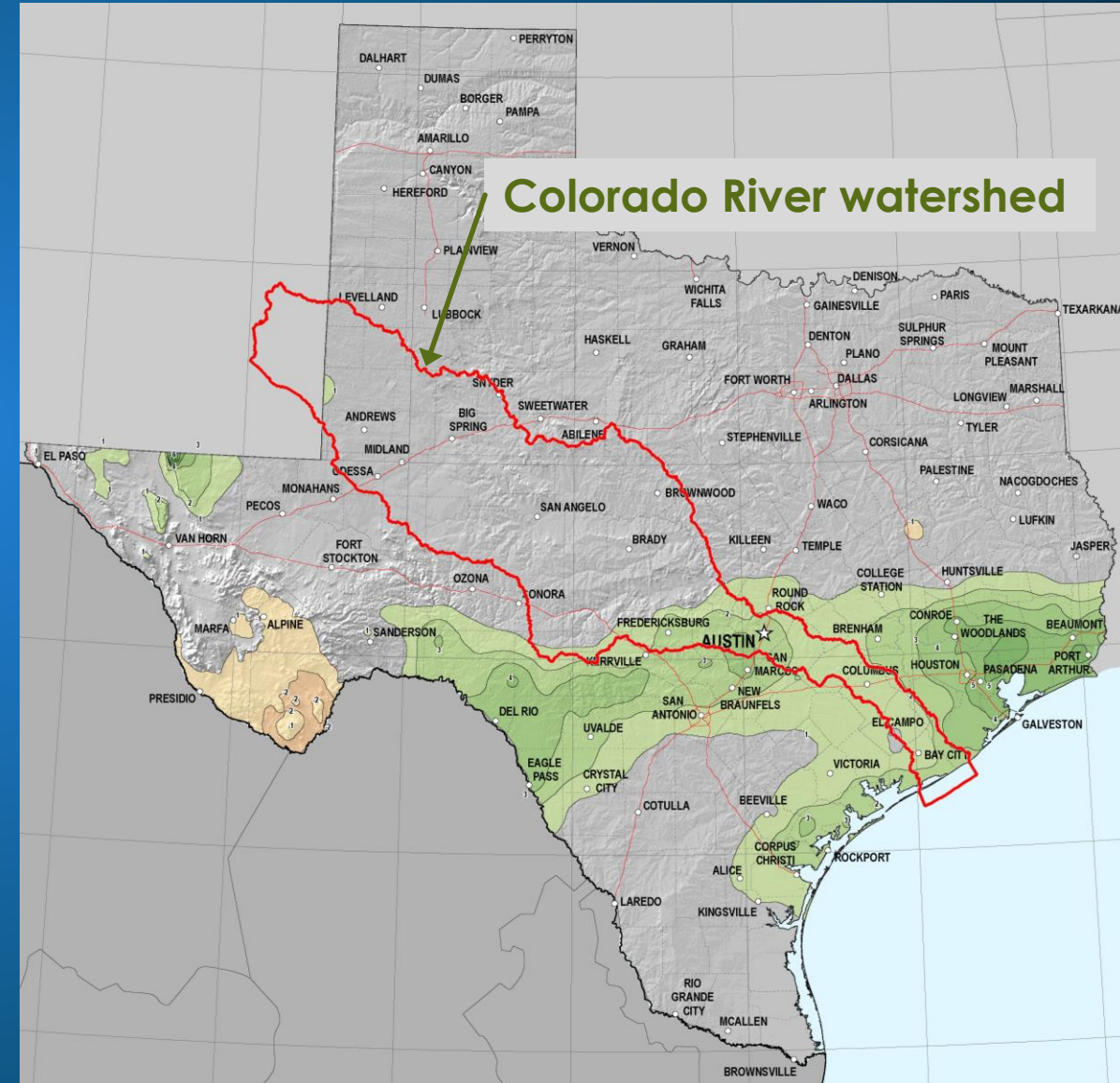
- ▶ Inform public of current understanding of flood risk
- ▶ Current, valid 500-year is approximate new 100-year



# Revise floodplain definitions – Why?

20

- Atlas 14 changes not expected to significantly affect Colorado River watershed upstream of Austin



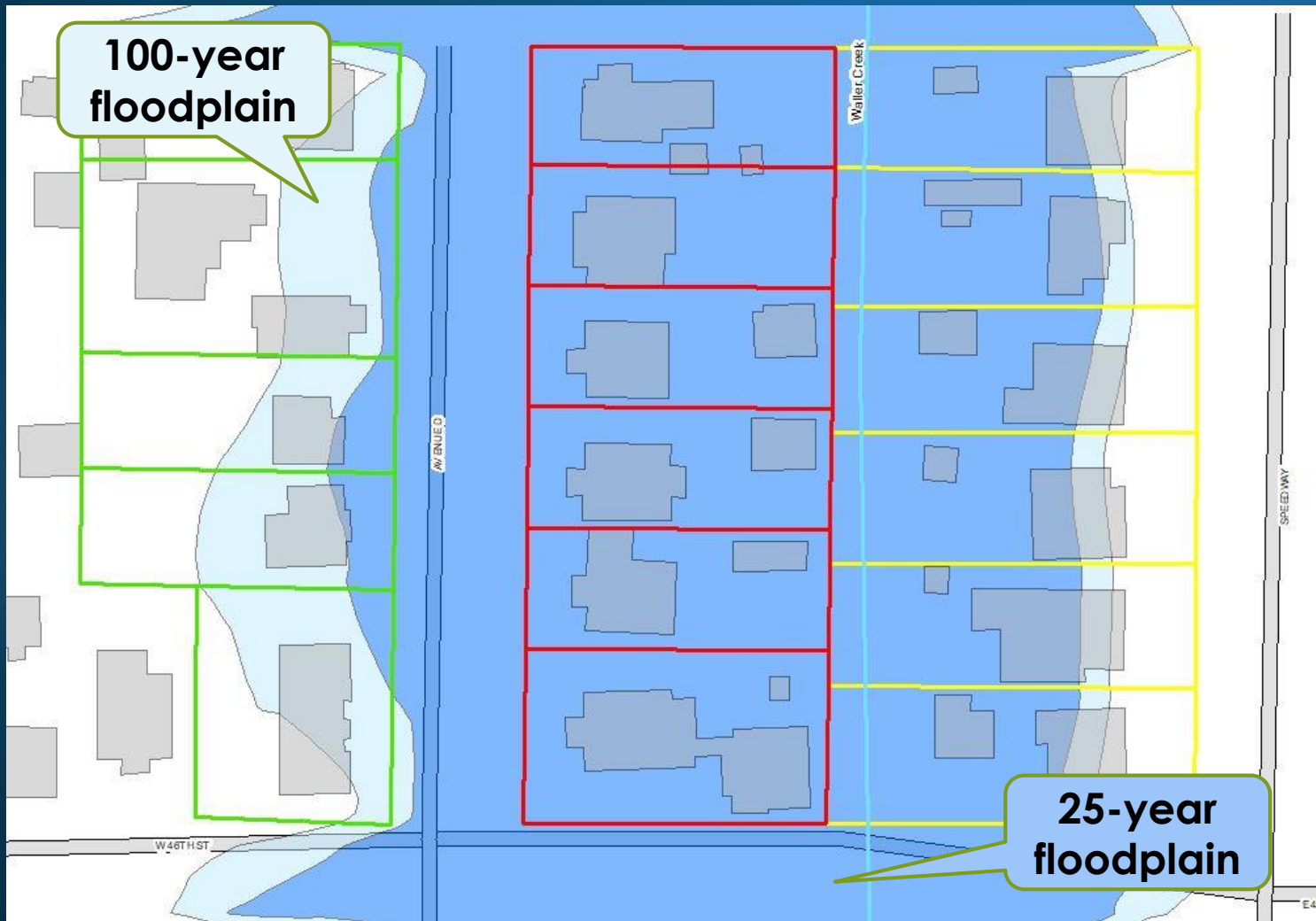
# Redevelopment exception

21

- ▶ A residential building in the 25- or 100-year floodplain can be redeveloped as long as it reduces flood risk
  - ▶ **Above 100-year floodplain by 2 feet**
  - ▶ **A maximum gross floor area that is the larger of existing or 2,200 square feet**
  - ▶ **Does not increase number of dwelling units**
- ▶ Replaces the pre-1983 exception

# Redevelopment exception

22



## Under current rules:

Properties in **green** likely to redevelop under the pre-1983 exception

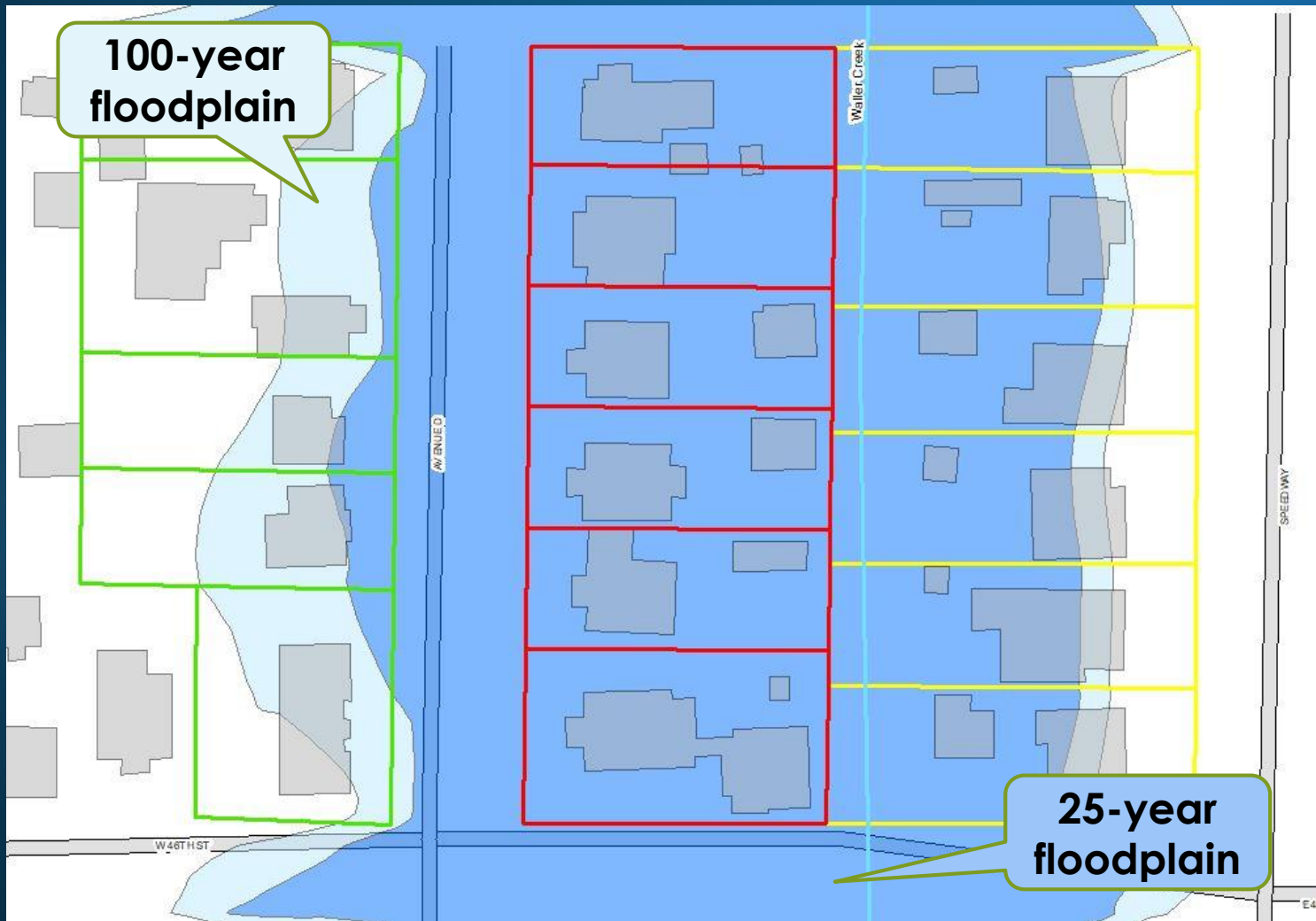
Properties in **yellow** likely to redevelop with an administrative variance

Properties in **red** require a Council variance to redevelop



# Redevelopment exception

23



## Under new rules:

All properties have same opportunity to redevelop with a size limitation and elevated finished floor under an exception

**Flood risk will be reduced in all cases**

# Redevelopment exception

24

- ▶ How does this apply to additions?
  - ▶ If the home meets freeboard and the addition doesn't exceed the size limitation, then it may be approved under this exception

# Redevelopment exception

25

- ▶ How does this apply to renovations?
  - ▶ If the renovation is not a substantial improvement, then it may be approved under the existing code
  - ▶ If the renovation is a substantial improvement and the home meets freeboard, then it may be approved under this exception



# Redevelopment exception – Why?

26

- ▶ Incentivizes redevelopment while reducing flood risk
- ▶ Over time reduces the number of buildings at risk of flooding
- ▶ Simplify code
- ▶ 2,200 sq. ft. is median single-family home size in Austin

# Colorado River exception

27

- **Expand** 100-year encroachment exception to include Lake Austin and Lake Travis



# Colorado River exception – Why?

28

- ▶ Colorado River flooding is not expected to happen in a “flash”
- ▶ Still requires no adverse impact and freeboard – waives safe access





# Minimum freeboard to 2 feet

29

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



# Minimum freeboard to 2 feet – Why?

30

- ▶ Freeboard is the single-most effective means for reducing flood risk to a building in the floodplain
- ▶ Simplify code – current freeboard requirement for administrative floodplain variances and Central Business Area exception is 2 feet, elsewhere it's 1 foot
- ▶ Reduced flood insurance costs can offset increased construction cost

# Atlas 14 Impact to homeowners

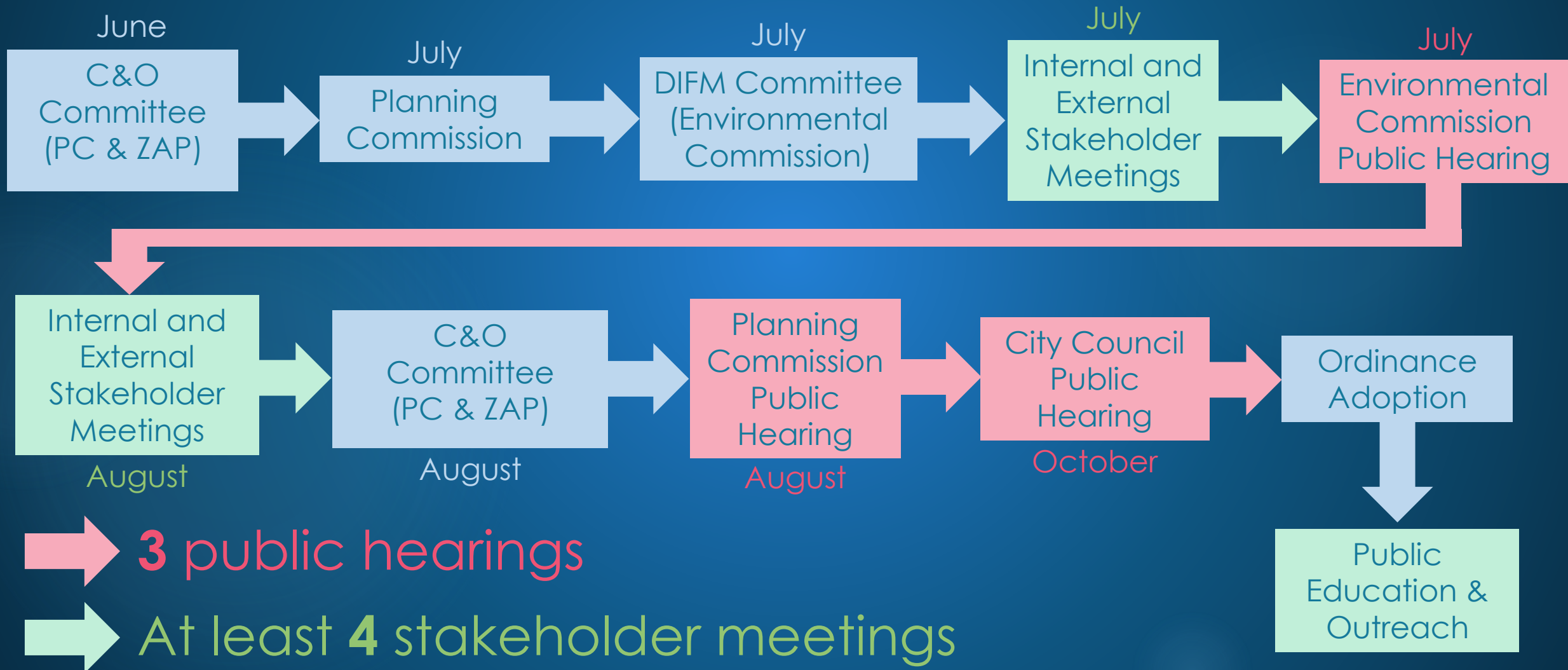
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- ▶ New understanding of flood risk
- ▶ Flood insurance changes at least 3 years away
  - ▶ Rates may go up
  - ▶ Insurance requirements may change
  - ▶ Talk to an insurance agent now



# Code Amendment Process and Timeline

32



# Next Steps

33

- ▶ Public Hearings & Stakeholder Meetings
  - ▶ Check [AustinTexas.gov/atlas14](https://austintexas.gov/atlas14) for details
- ▶ Public Education & Outreach
  - ▶ Post cards to properties in 100/500-year floodplains
  - ▶ Geographically based public meetings
- ▶ WPD staff to determine application of rainfall values for Austin area (Oct-Dec 2018)
- ▶ Rules change process – DCM (Q2 or Q3 of FY 2019)
- ▶ Re-mapping of Austin floodplains (2019 – 2021)

A dark blue background with a vertical gradient, darker at the bottom. Numerous thin, white vertical lines represent falling rain. At the bottom, several sets of concentric white circles represent ripples on a water surface.

**Questions?**