

Atlas 14

UNDERSTANDING AUSTIN'S FLOOD RISK

Environmental Commission

July 18, 2018

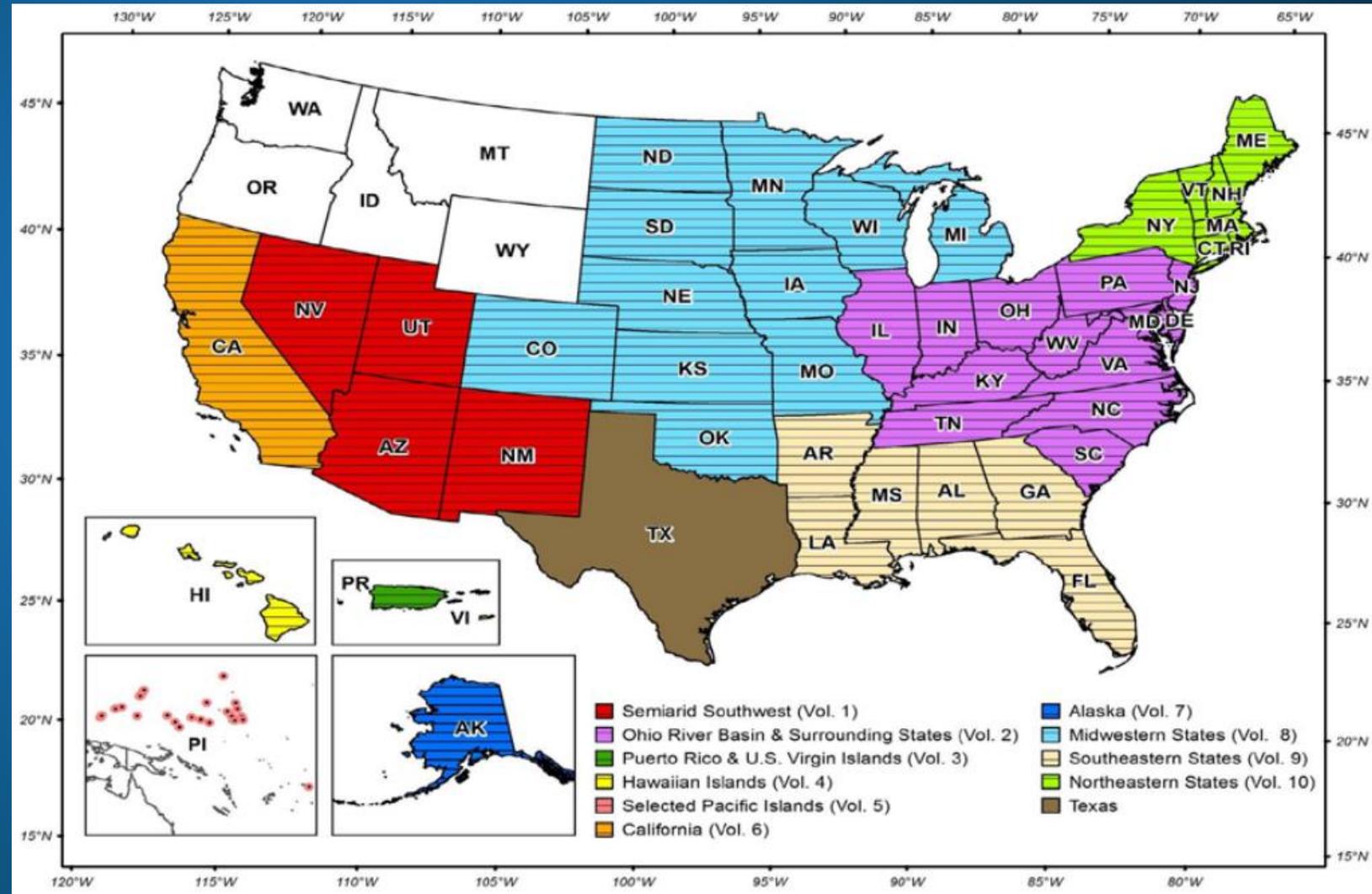
Overview

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

NOAA Atlas 14 - Background

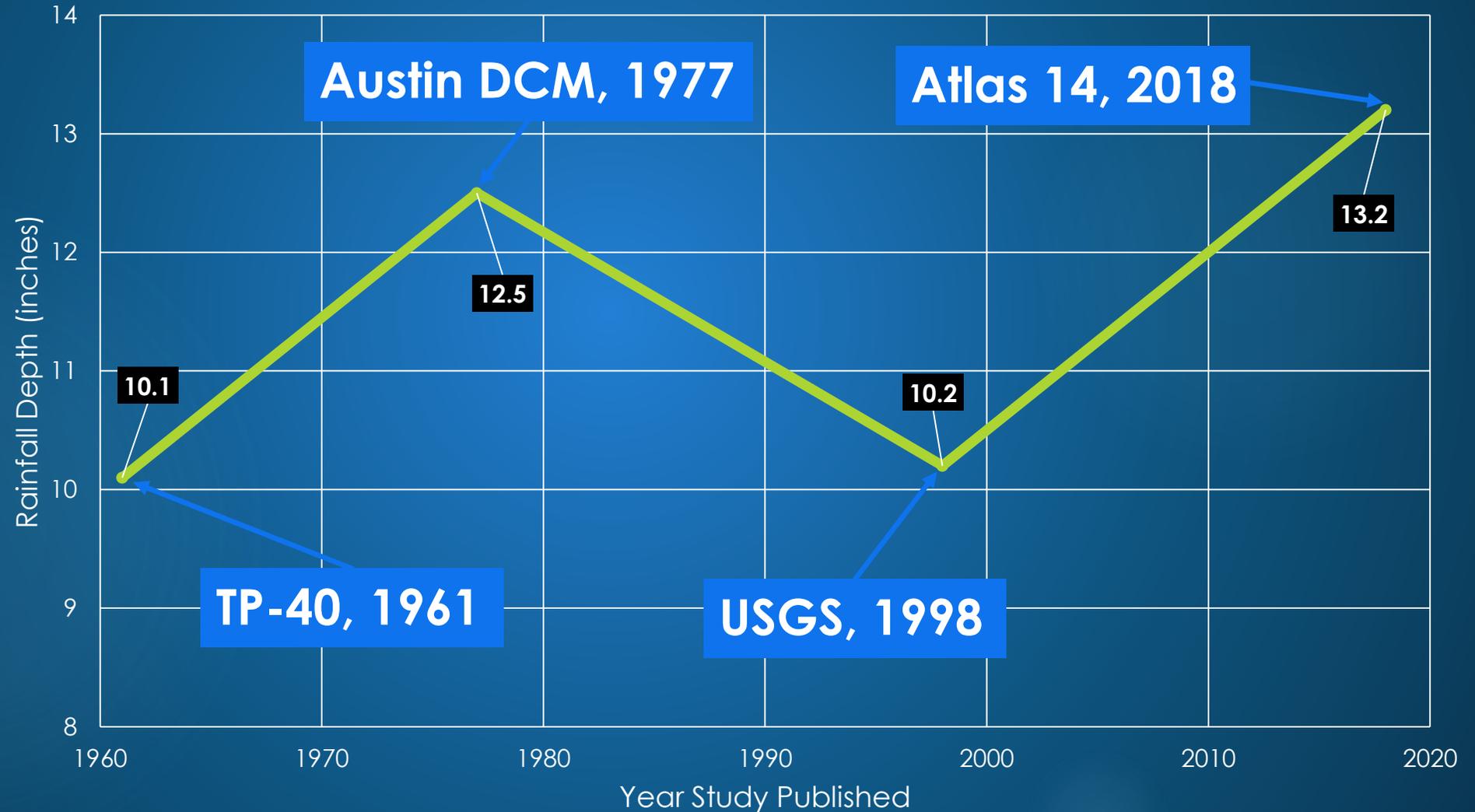
3

- ▶ 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

Rainfall from 100-year 24 hr storm



Rainfall Depth Changes (Preliminary)



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

- ▶ 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



Austin American-Statesman

Tuesday, May 26, 2013

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 / FORN AMERICAN STATESMAN

Flood is highest in Texas history

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

By Tony Dierzek
tdierzek@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 Bastrop 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, 75/67
Sunday: Mostly sunny, 75/54
Monday: Chance of showers, 76/60
Tuesday: Chance of showers, 75/64

Austin American-Statesman

Friday, November 1, 2013

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 JANNEY / AMERICAN STATESMAN

By Dave Harmon
dharmon@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 water when storm-swollen 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 tally of how many homes had flooded citywide.

The flooding was blamed for one death in Caldwell County; the body of a 46-year-old man was discovered in Onion Creek in Austin. In Caldwell County, officials were searching for a 26-year-old Cal Lake man who reported into the swollen Guadalupe River around 1:30 a.m. Monday.

The storms erupted a



Austin American-Statesman

tuesday morning

13 die as floods ravage city; losses estimated in millions



By BRUCE HIGHT

hight@statesman.com

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

Another 10 persons were reported still missing late Monday. Of the 13 dead, bodies of nine 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 several feet thick in some places.

Less-severe flood damage was reported along several low-lying creek areas in North and East Austin. Some flooding also occurred as far north as Round Rock. For the most part, though, Shoal Creek and the Hill Country escaped problems from the storms that inflicted damage most heavily along Shoal Creek.

Dollar estimates on the extensive property damage to homes, businesses and public facilities were sketchy, but George Fisher, assistant police chief, said it was in the "millions."

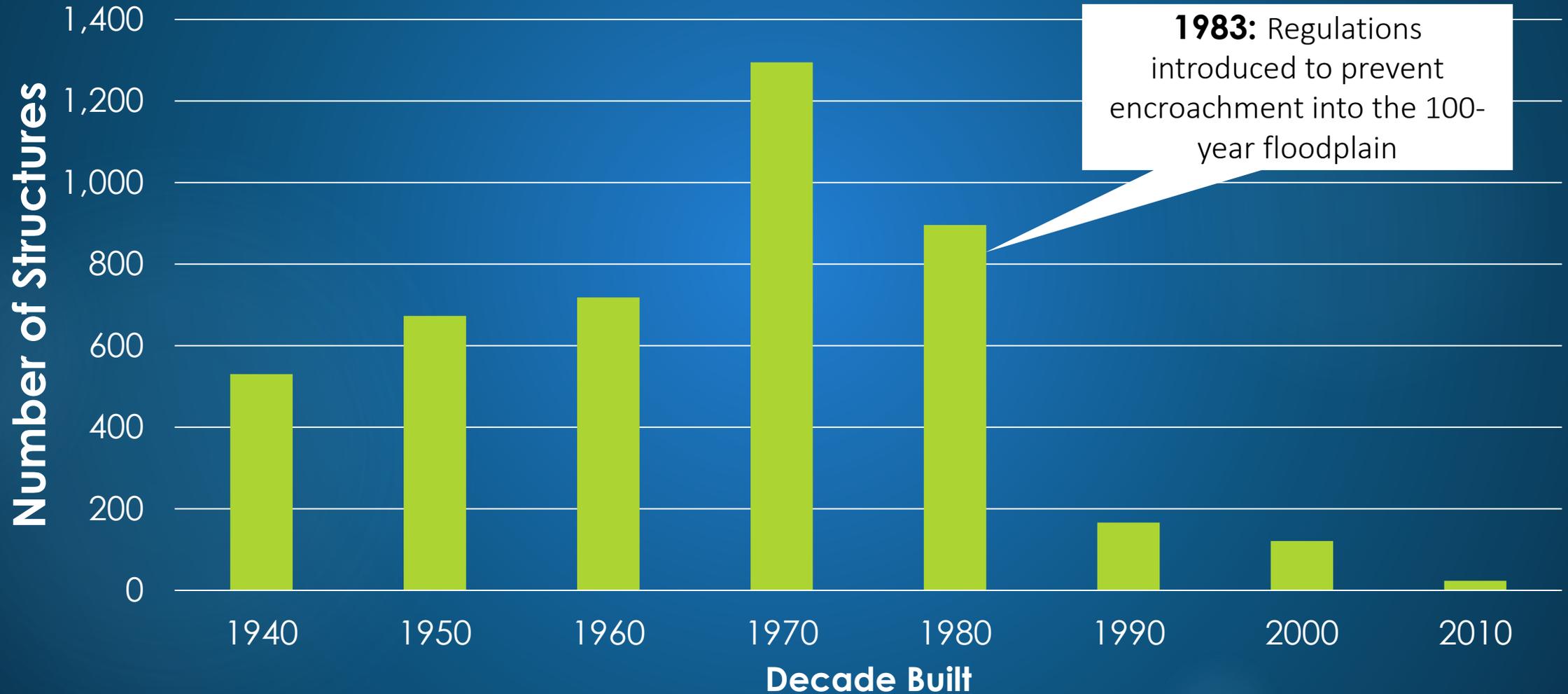
It was apparently the worst flood in the city since 1950.

The aftermath



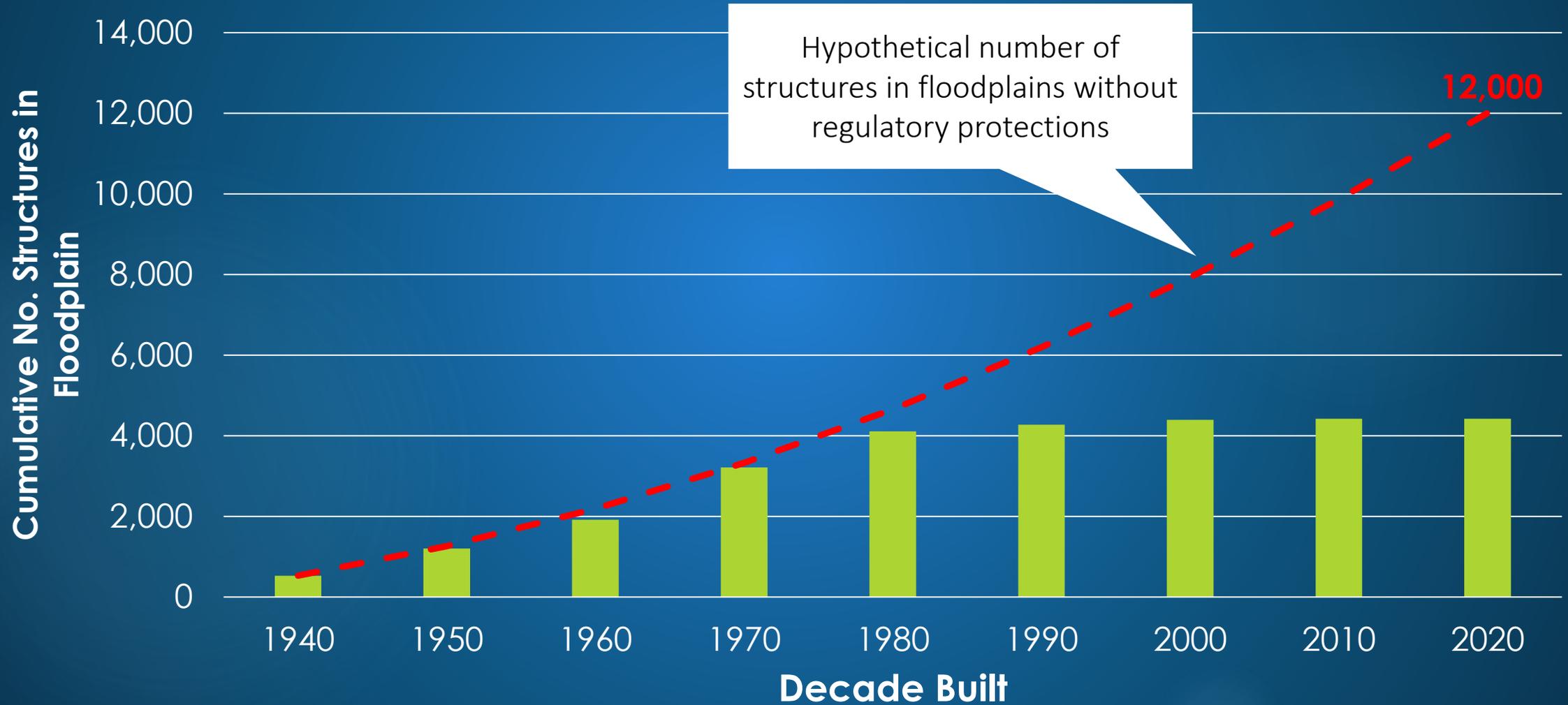
Ana Hernandez, 2, stands amid the destruction at her home at 624 Wood St., waiting for the cleanup to begin.

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

- ▶ 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**

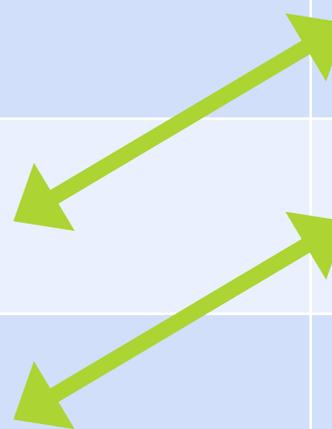
Proposed Code Amendment

14

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

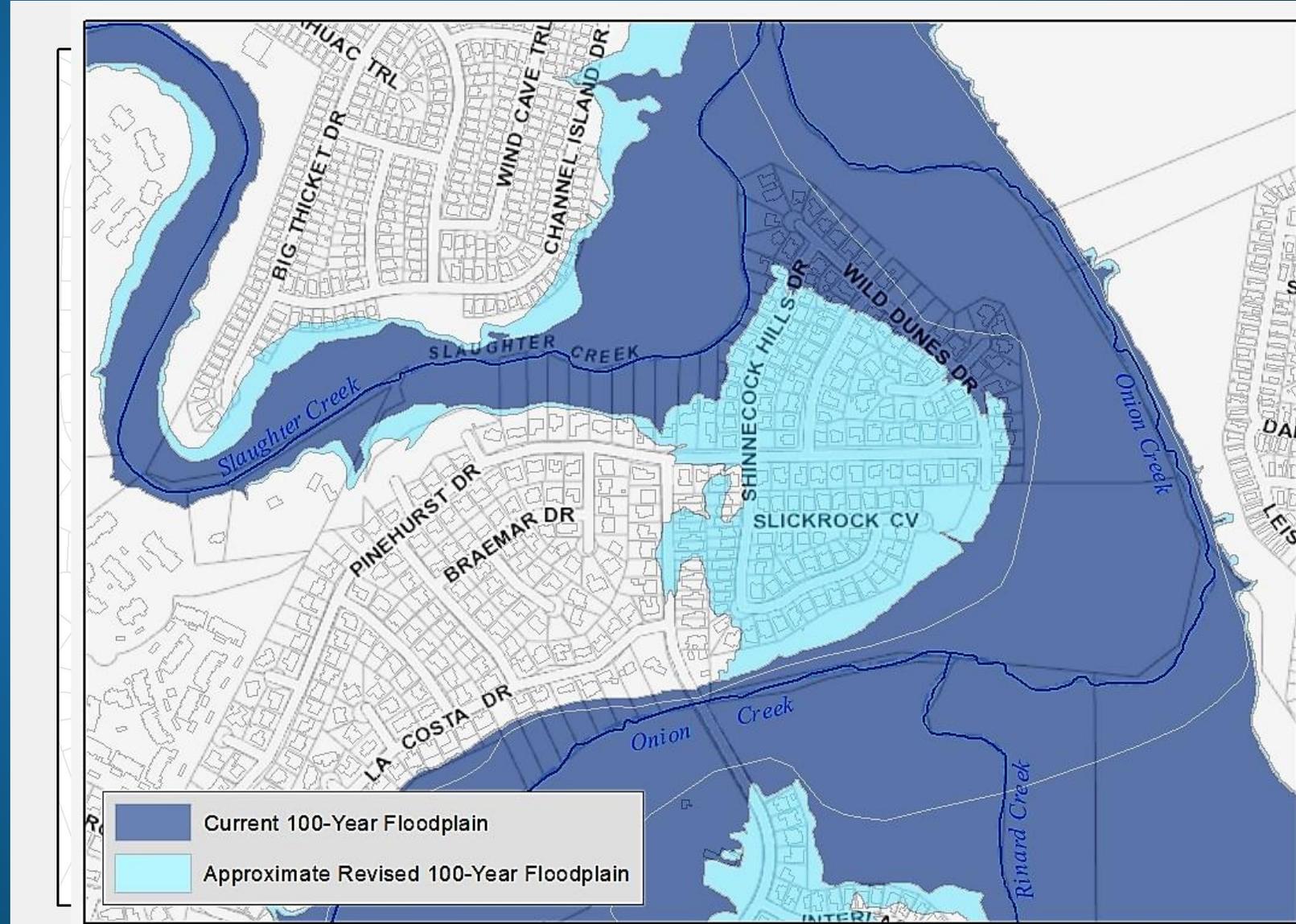
Proposed Code Amendment

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

The table shows a comparison between current rainfall depths and Atlas 14 values for three recurrence intervals: 25-year, 100-year, and 500-year. The current rainfall depths are 7.6, 10.2, and 13.5 inches respectively. The Atlas 14 values are 'Almost 10 inches', 'Up to 13+ inches', and 'Not yet available'. Three green arrows point from the Atlas 14 values to the current rainfall depths, indicating that the current values are lower than the Atlas 14 values.

Revise floodplain definitions

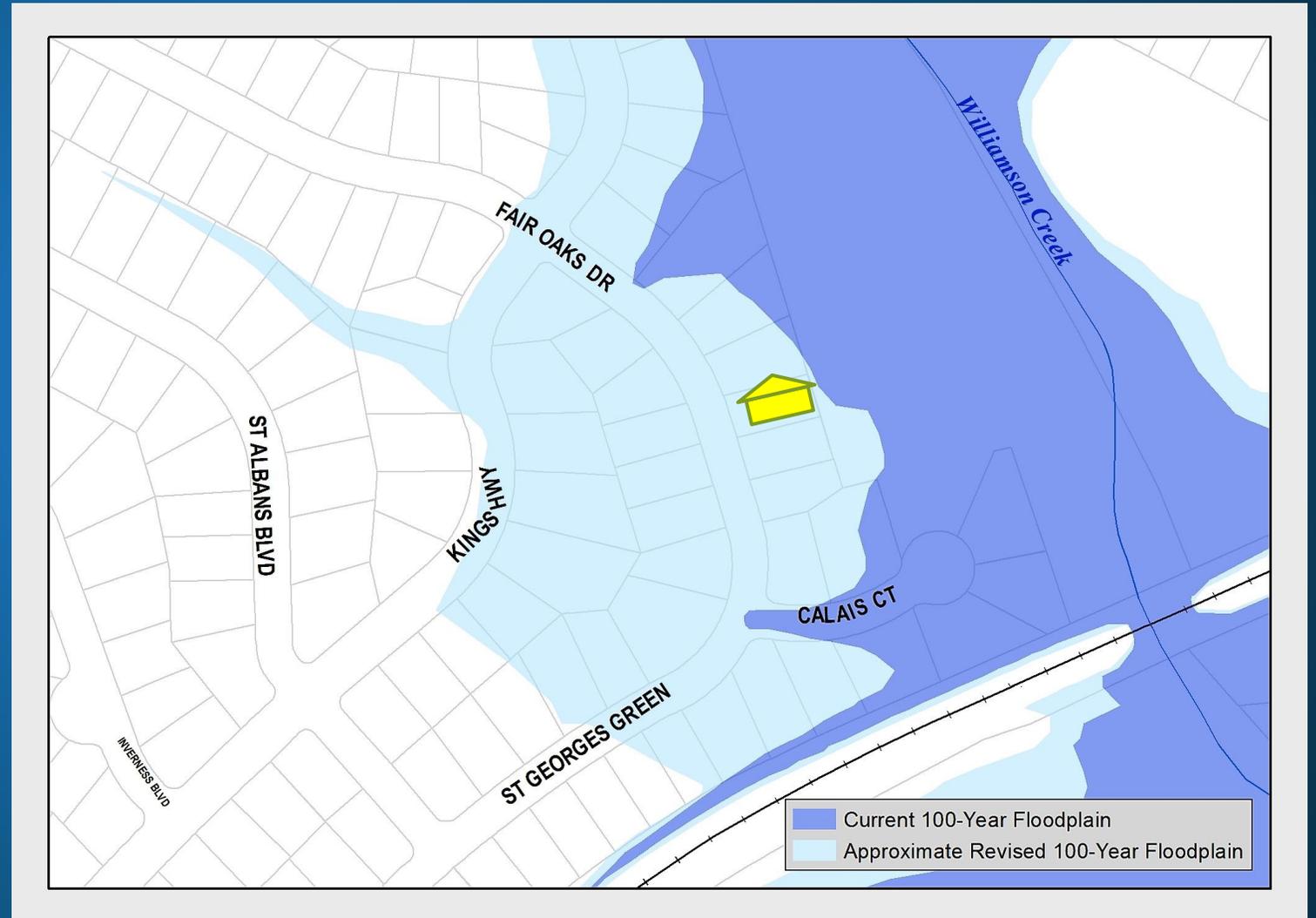
- ▶ 100-year = current 500-year
- ▶ 25-year = current 100-year



Revise floodplain definitions

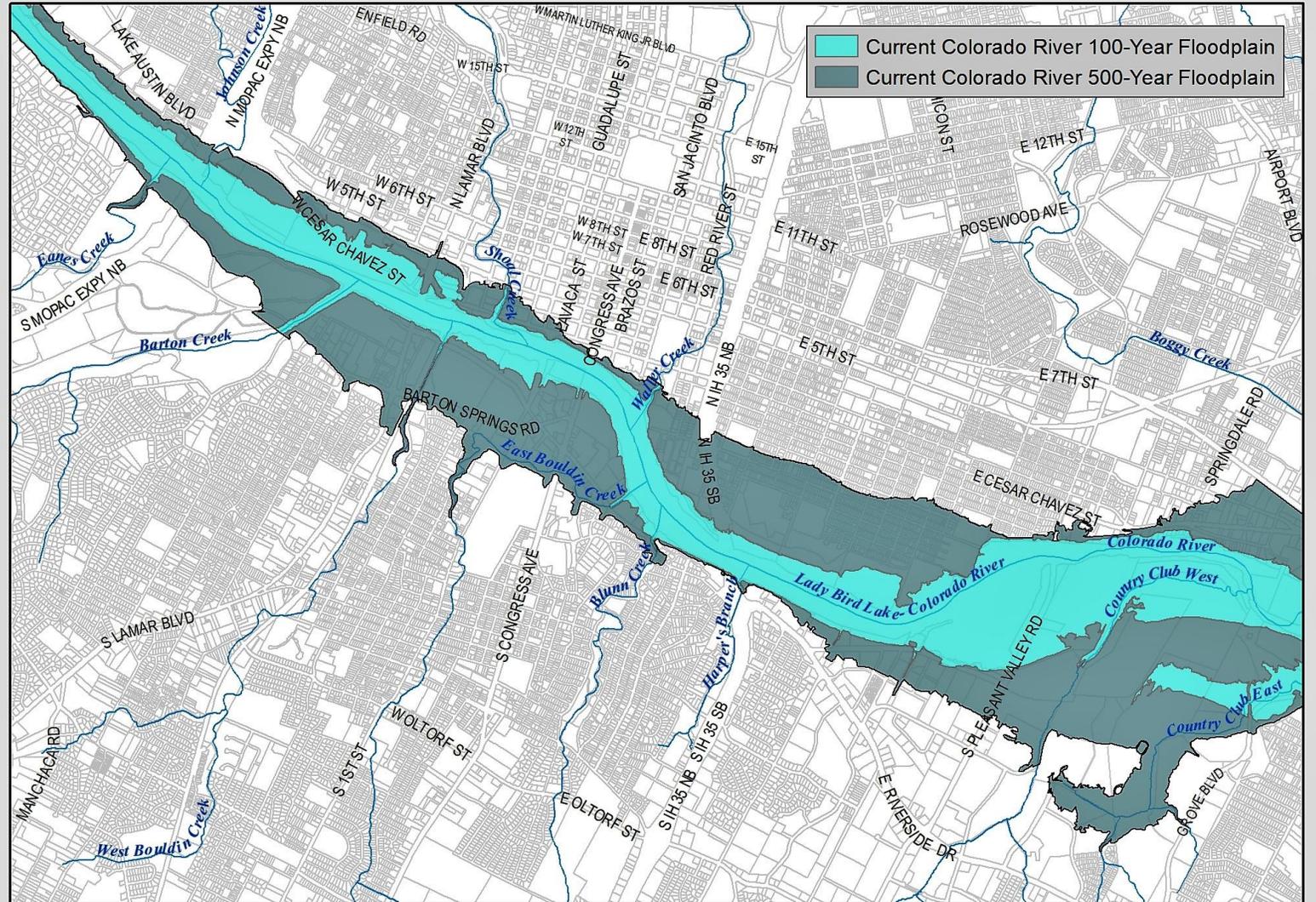
17

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



Colorado River Floodplain

► **Maintain** current 100-year floodplain along Colorado River



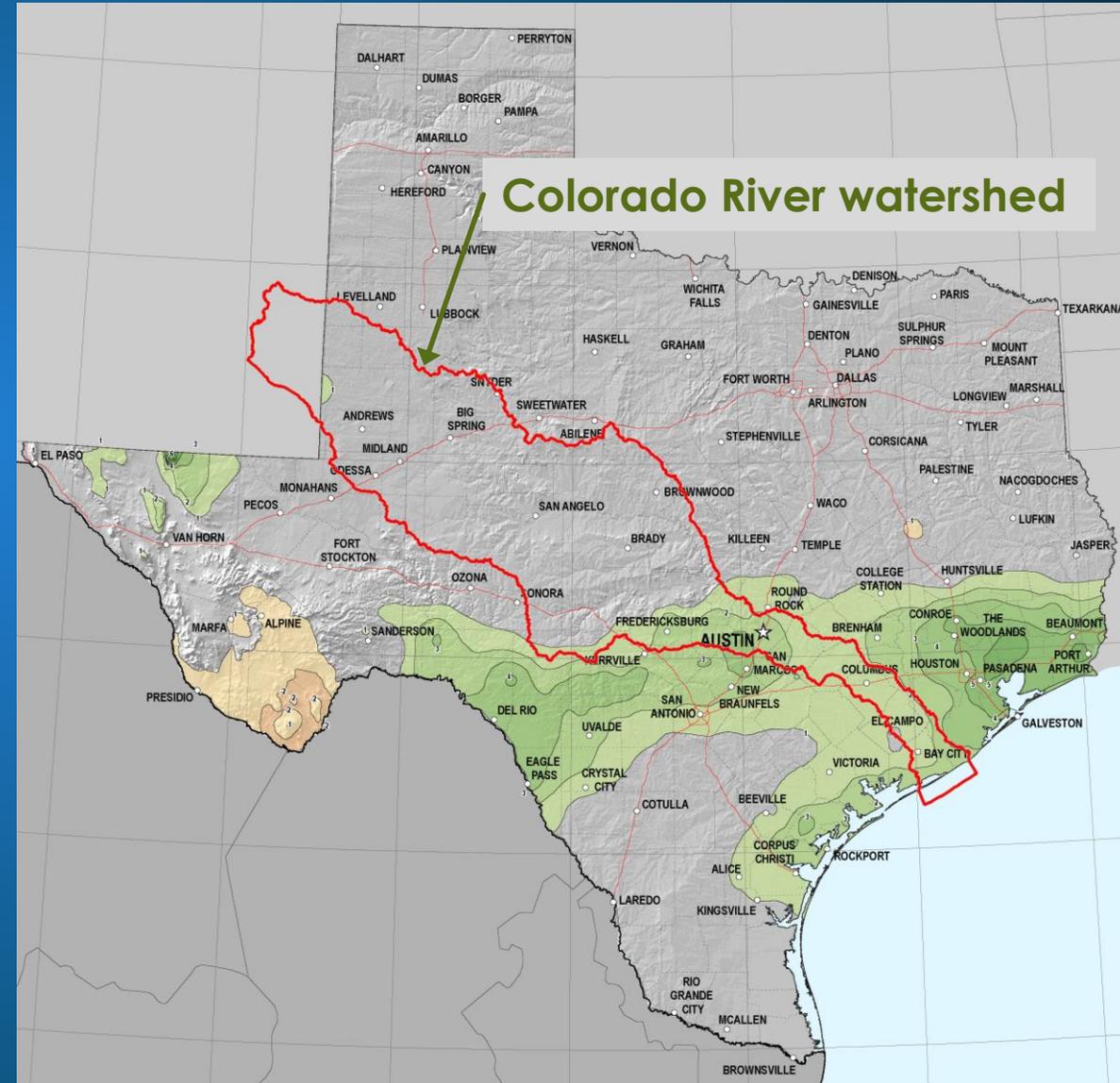
Revise floodplain definitions – Why?

19

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

Revise floodplain definitions – Why?

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



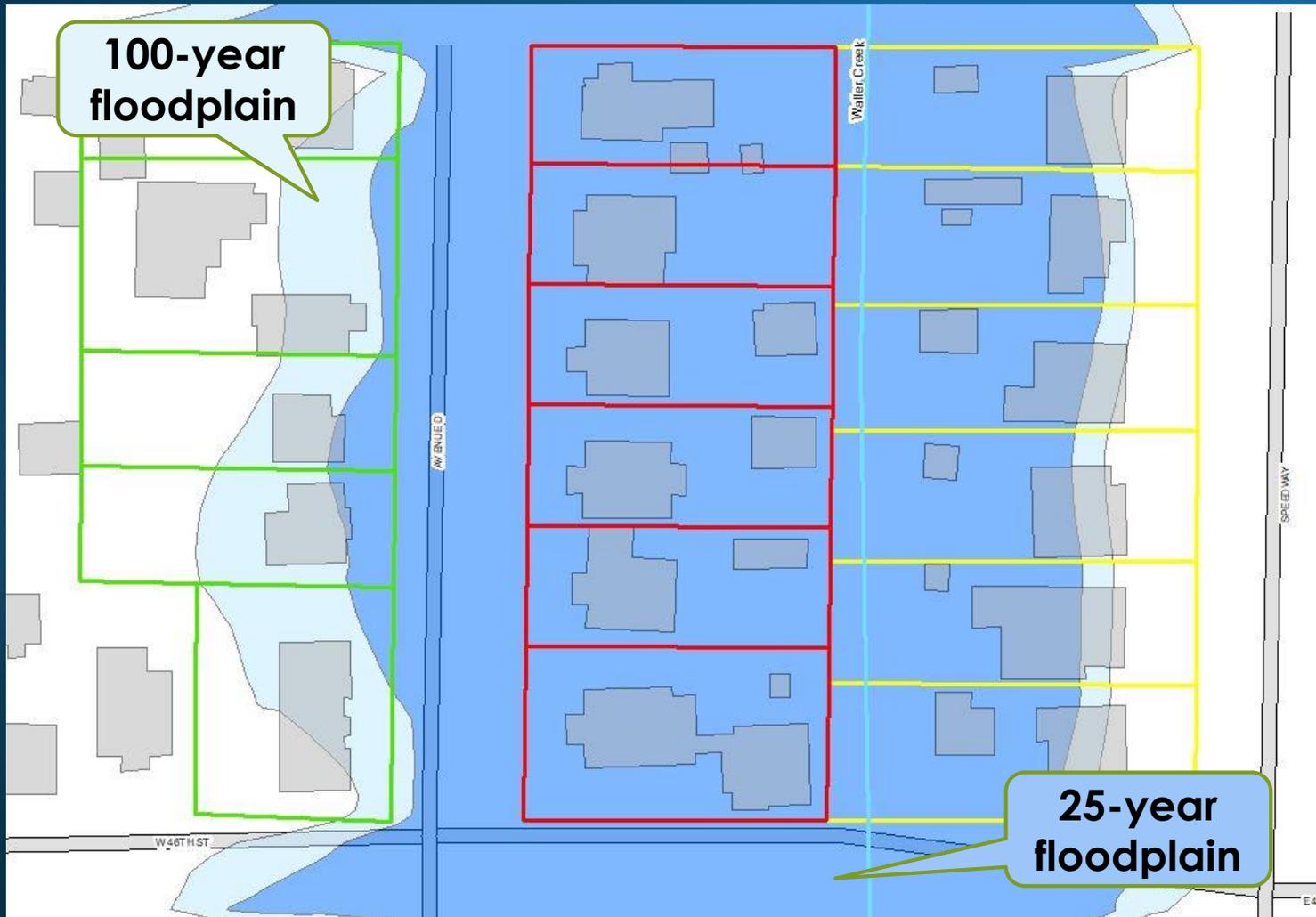
Redevelopment exception

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:

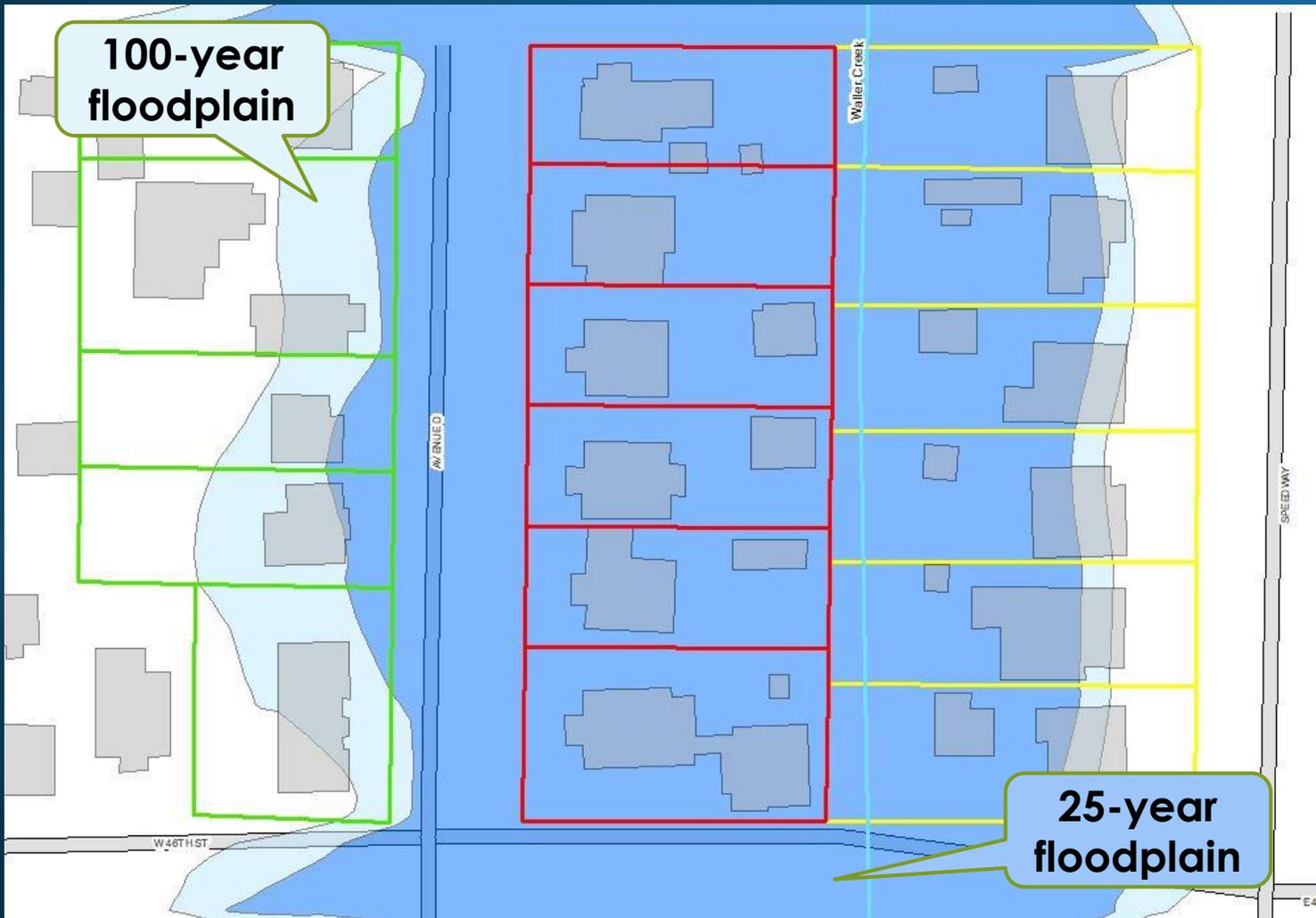
Properties in **green** likely to redevelop under the pre-1983 exception

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

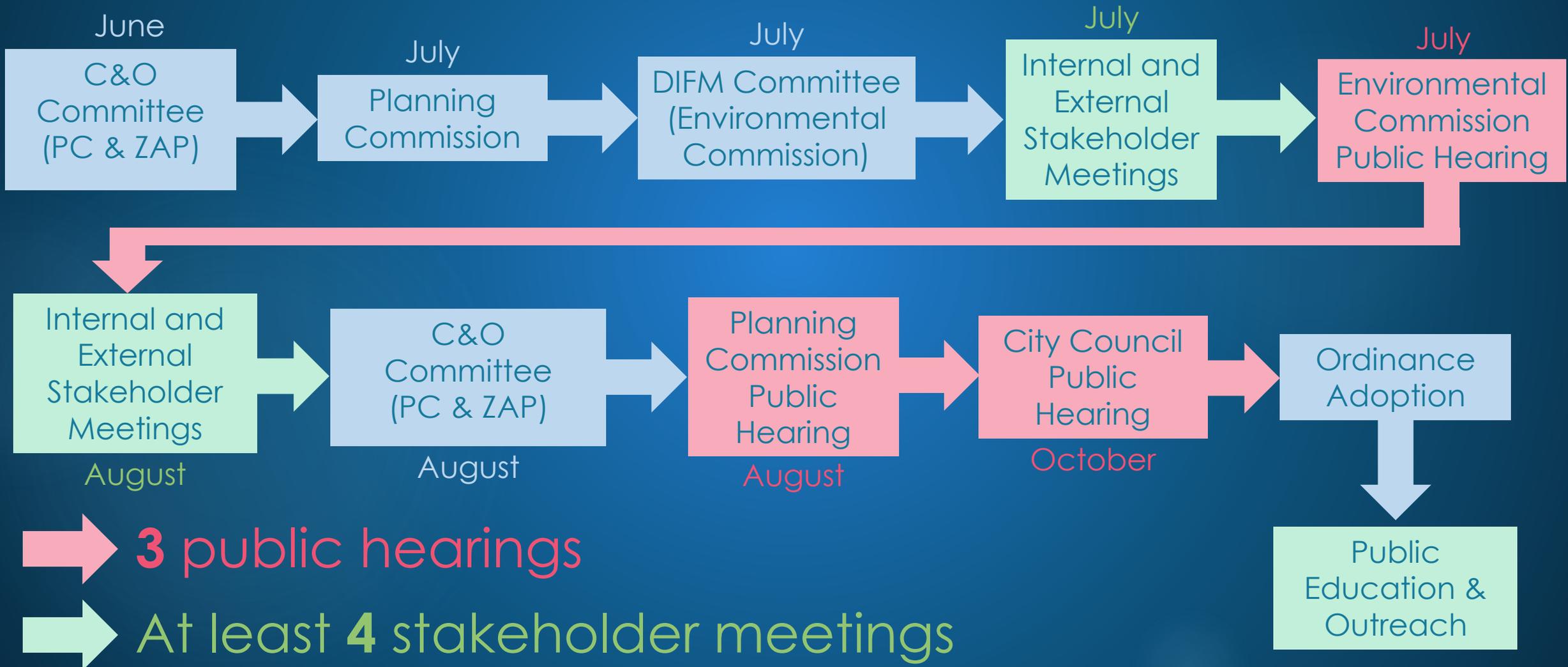
- ▶ Freeboard is the single-most effective means for reducing flood risk to a building in the floodplain
- ▶ Simplify code – current freeboard requirement for administrative floodplain variances and Central Business Area exception is 2 feet, elsewhere it's 1 foot
- ▶ Reduced flood insurance costs can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

Atlas 14 Impact to homeowners

31

- ▶ 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



Next Steps

- ▶ Public Hearings & Stakeholder Meetings
 - ▶ **Check [AustinTexas.gov/atlas14](https://www.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)

Questions?