



Atlas 14 A New Understanding of Flood Risk

National Weather Service study updates our understanding of flood risk



Overview

- Study background
- Impacts to floodplains
- Flood risk reduction strategies
- Impacts in Creek Bend floodwall area
- Current floodplain regulations and recommended amendments
- Next steps

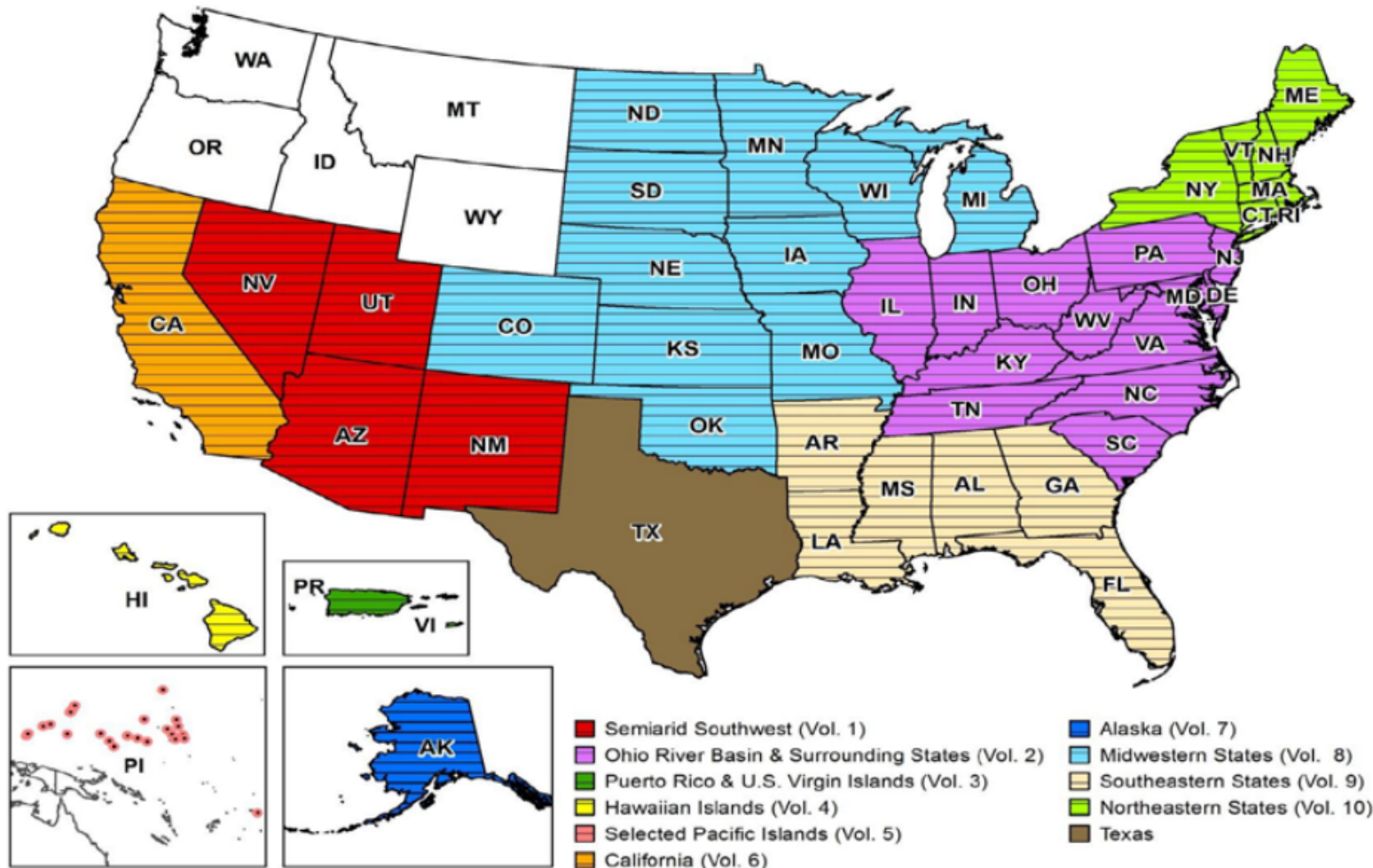
What is Atlas 14?

Atlas 14 Background

- Nationwide study of rainfall intensities

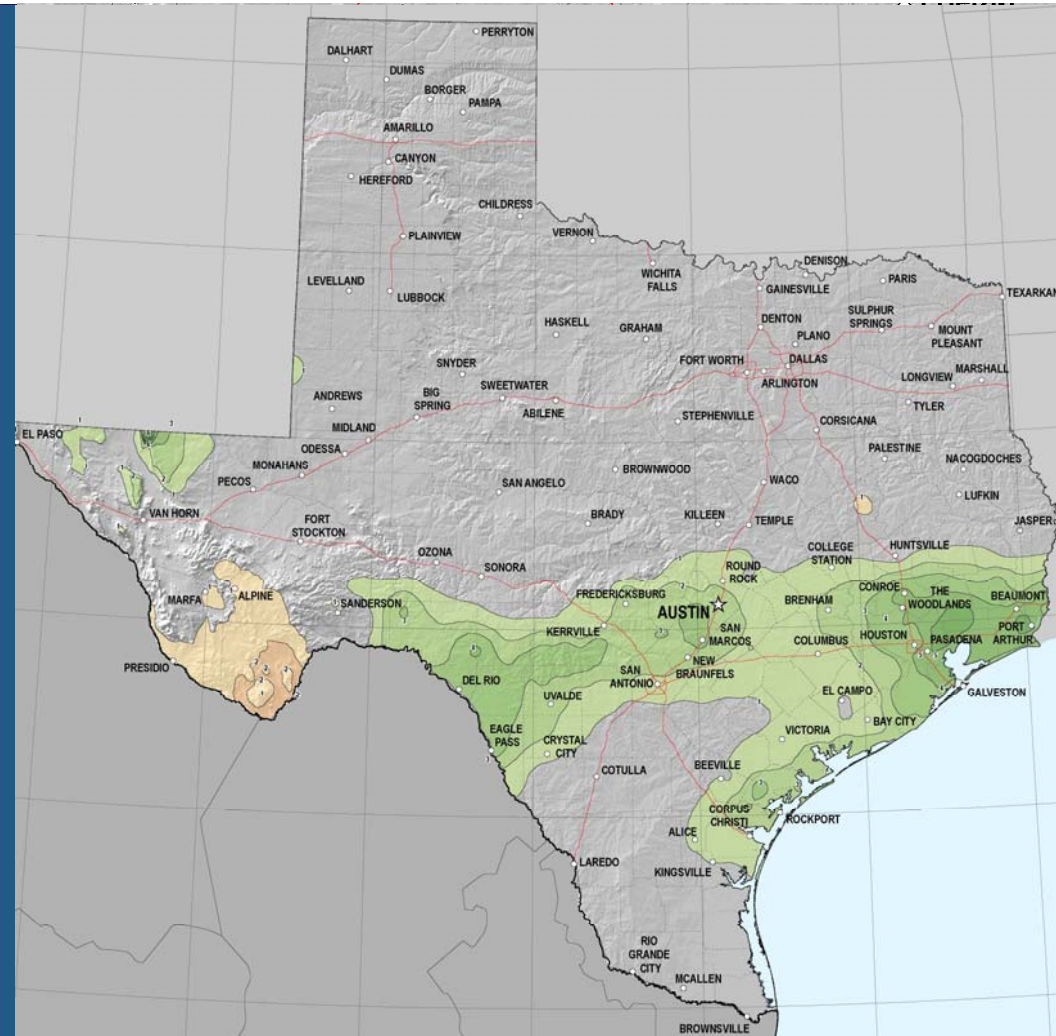
Partners

- **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



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

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



Floodplain Impacts



Why Does Flooding Occur?

- Flooding occurs when rainfall overloads the primary drainage system, the creeks (“**creek flooding**”)

OR

- overloads the secondary drainage system, the storm drains (“**local flooding**”)

What does the new understanding of

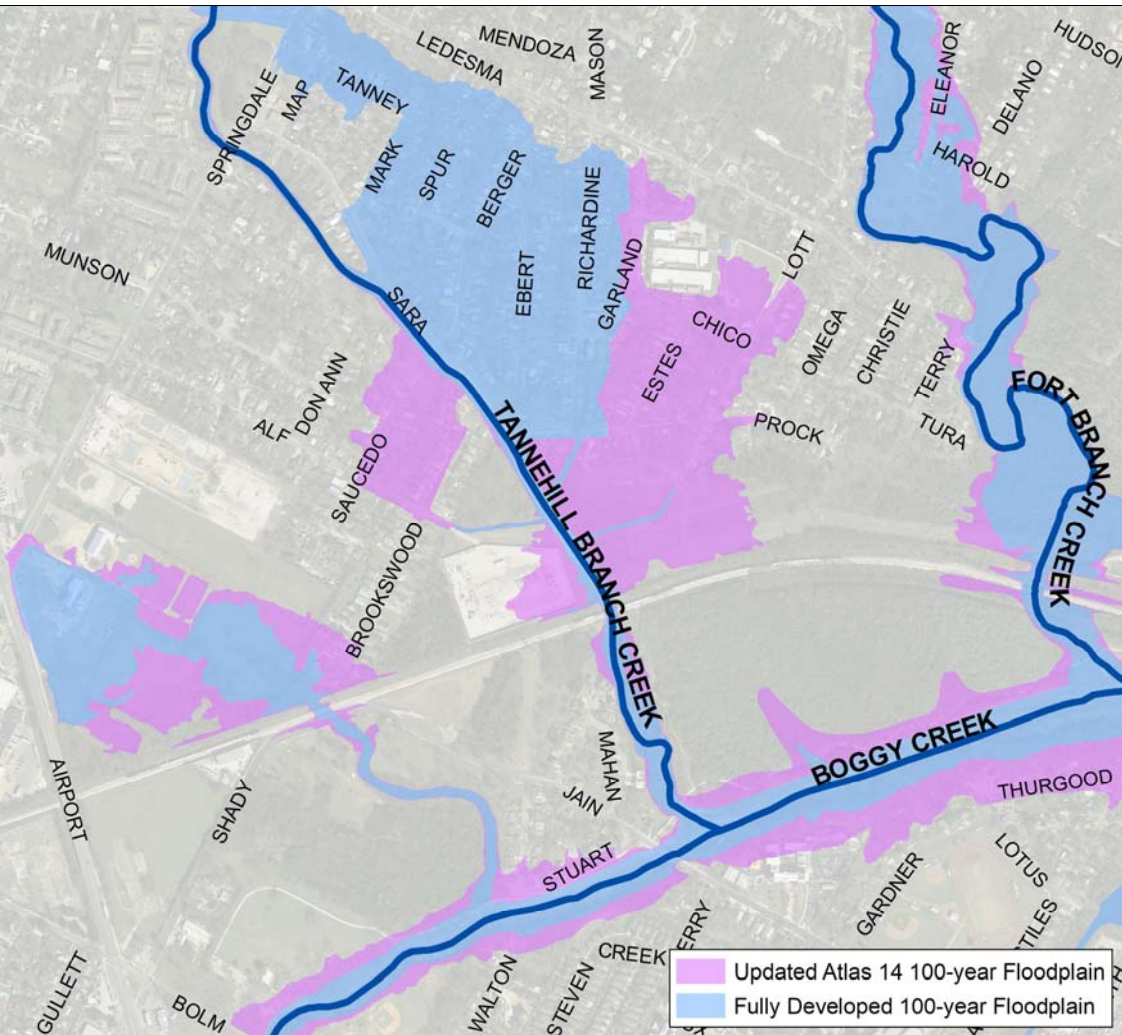
Flood Risk Mean?

- 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



Impacts to Citywide floodplains and buildings

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



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

FloodPro

Explore Atlas 14 Changes × < 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
- Click “I want to...”
- Click “Explore Atlas 14 Changes”
- Enter an address to search

Flood Risk Reduction Strategies

Overview of

Flood Risk Reduction Strategies

How do we minimize existing flood risk for development that occurred before modern regulations?

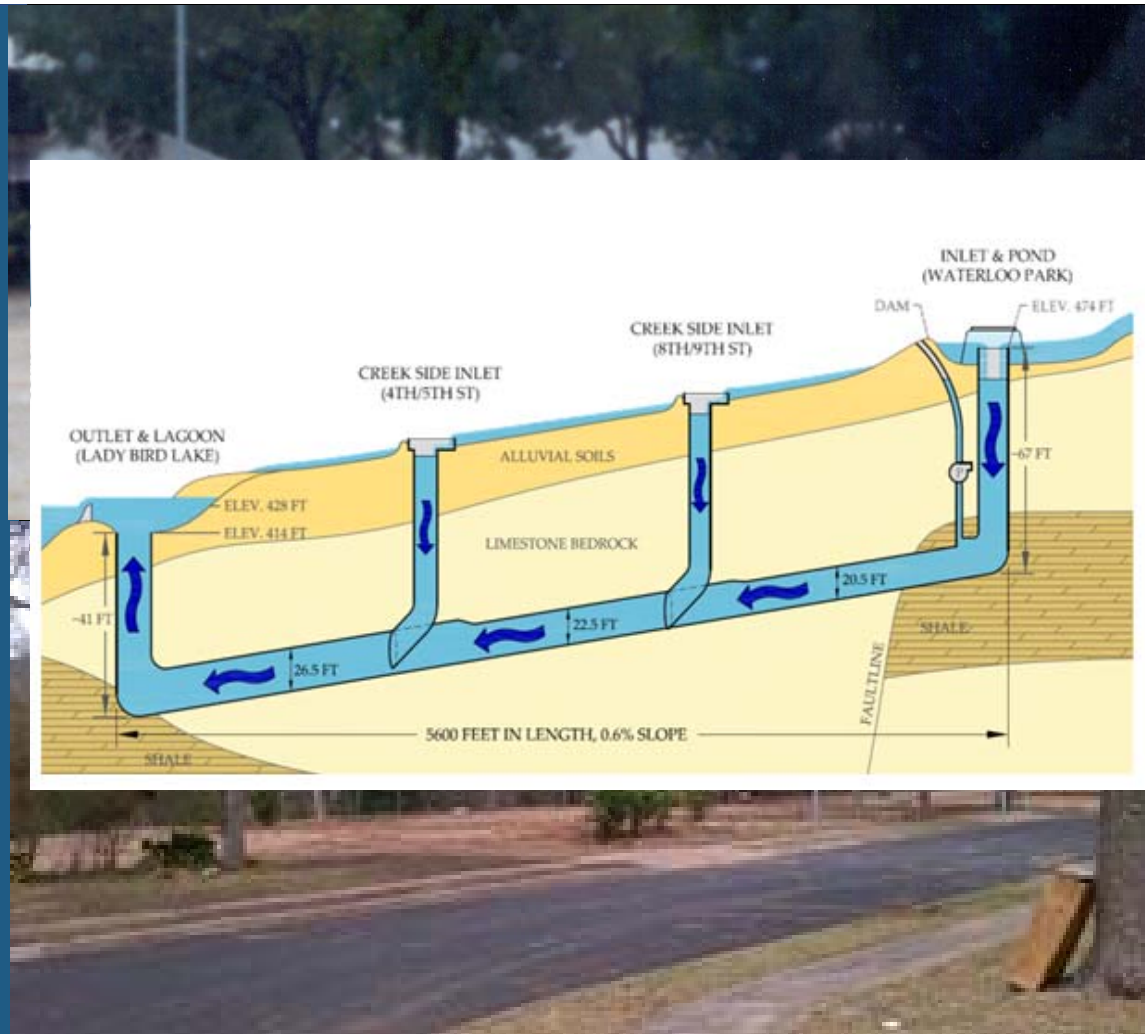
- Flood risk reduction projects (capital improvement projects)



Flood risk reduction via

Capital Solutions

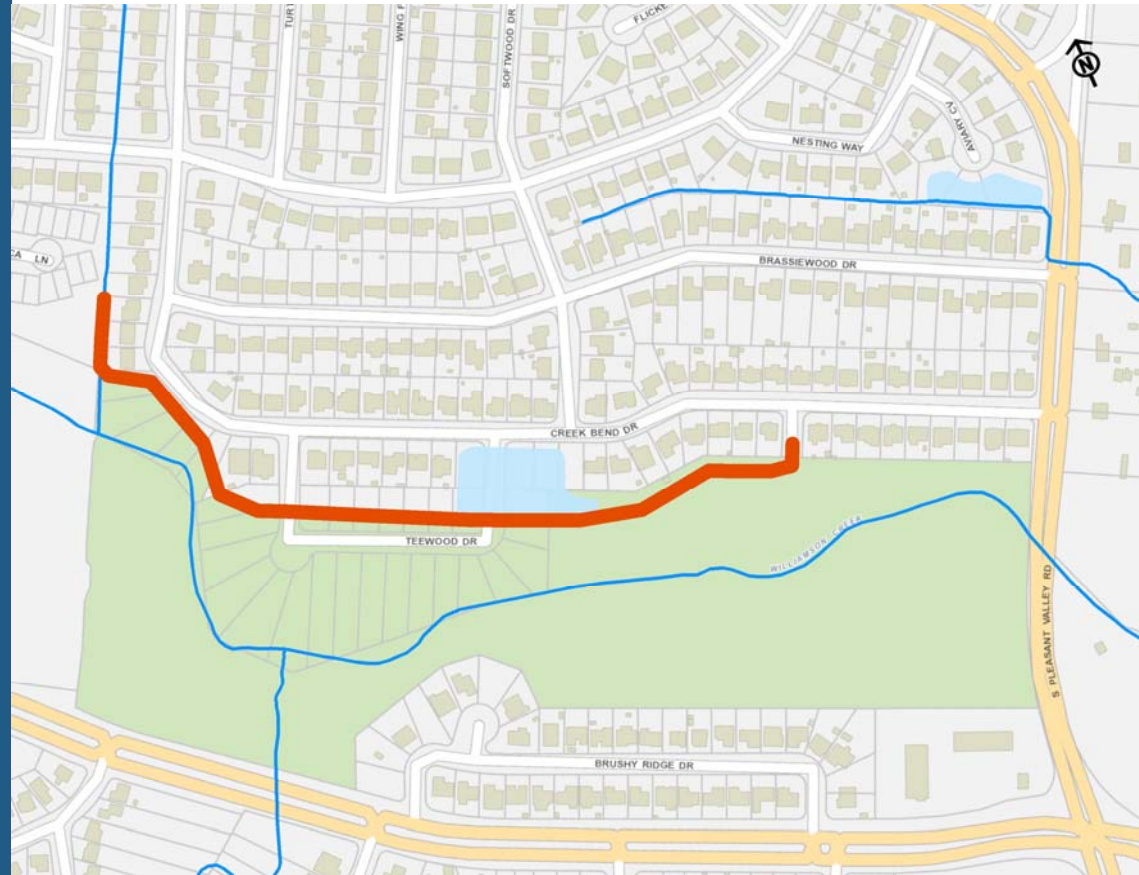
- Low-water crossing upgrades
- Detention ponds
- Buyouts
- Diversions - Tunnels
- Barriers - Floodwalls



Atlas 14 Impacts to Creek Bend Floodwall

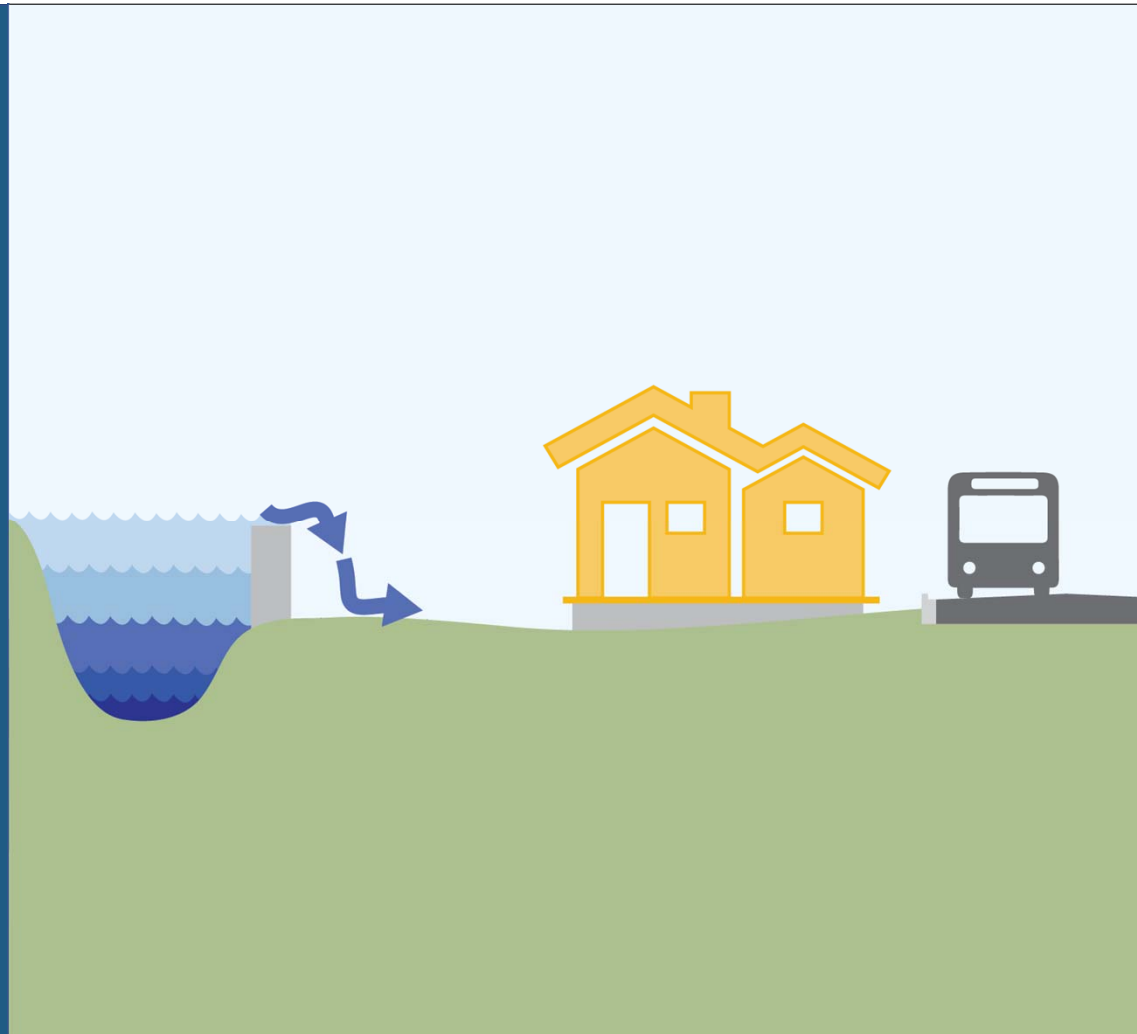
Creek Bend Floodwall Project

- Completed in 2005
- Before Project: ~180 houses at risk of flooding
- Floodwall
- Detention pond
- Channel modifications
- Stormdrain improvements
- S Pleasant Valley Rd bridge improvements



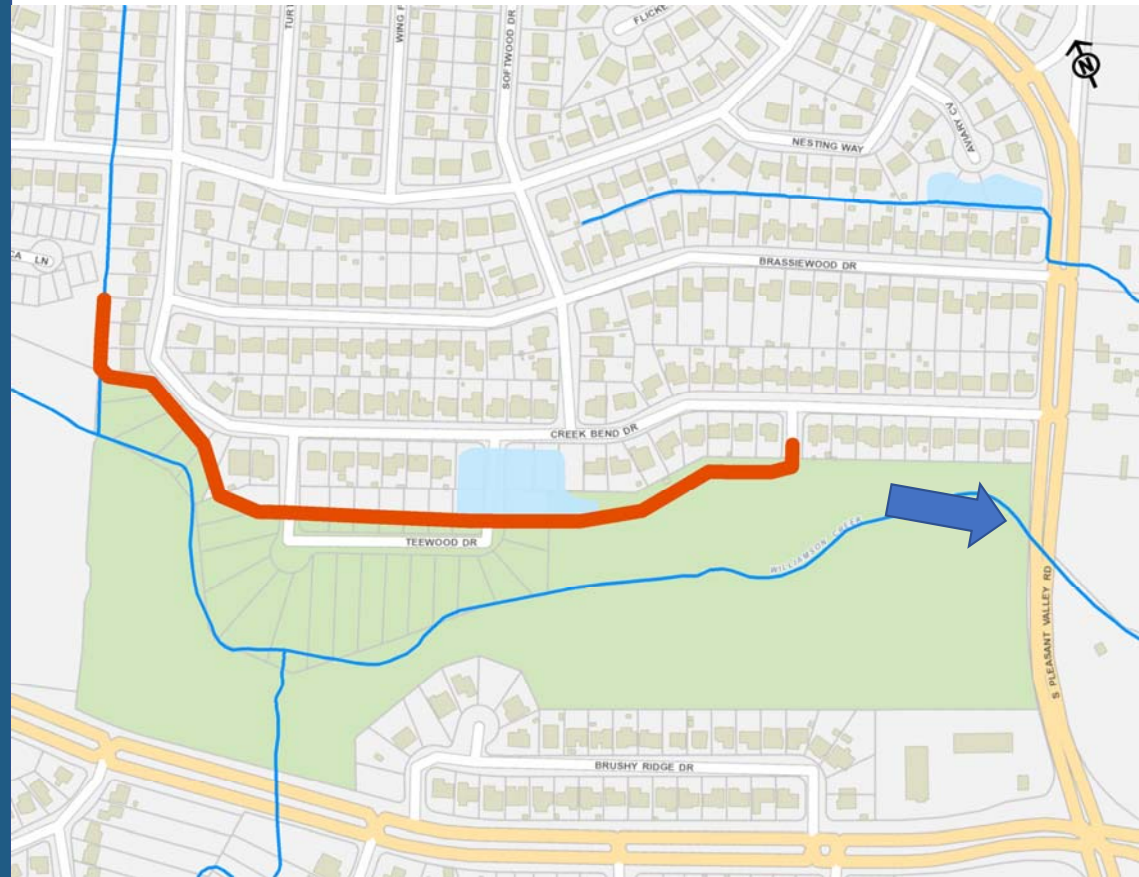
Atlas 14 Impacts on Creek Bend Floodwall

- Continued protection in most storm events
- Wall designed to have 3 feet of free-board above water level resulting from 10.2 inches of rain (current 100-year storm)
- Wall may overtop in Atlas 14 100-year storm



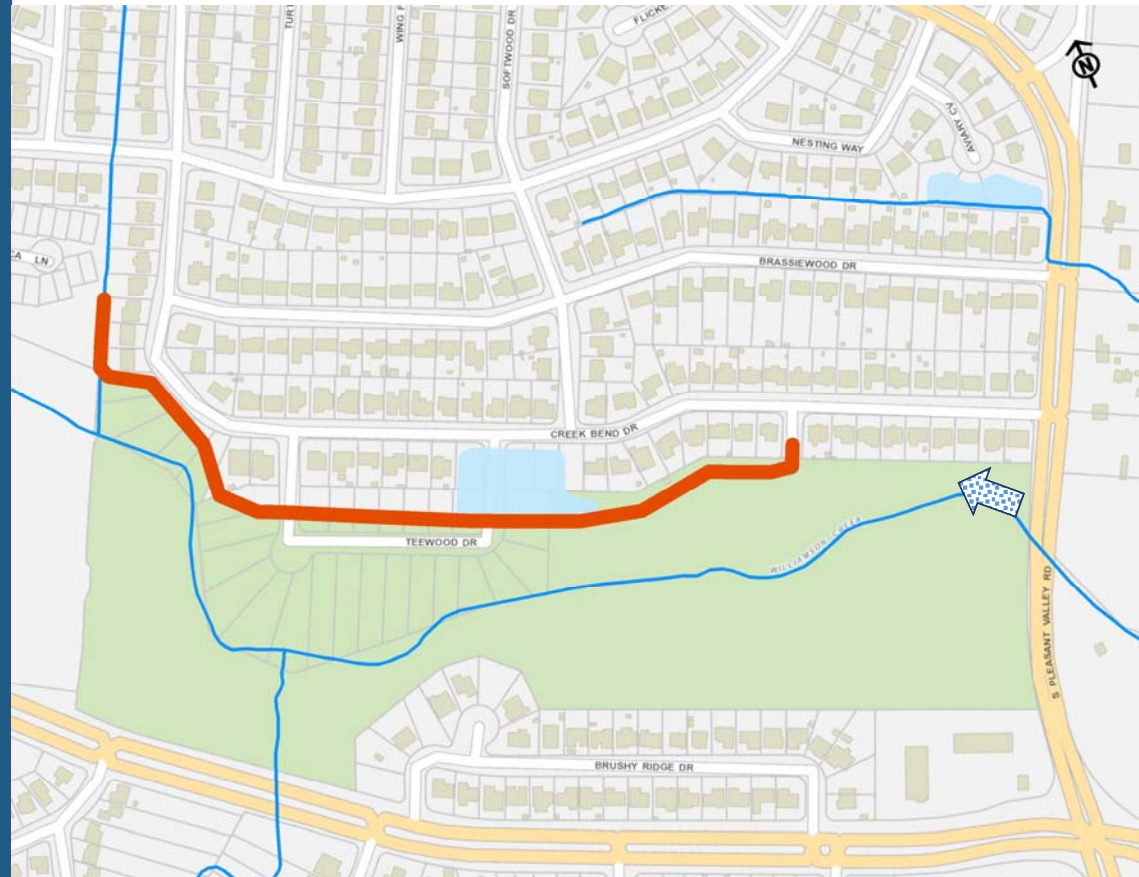
Atlas 14 Impacts on S Pleasant Valley

- S Pleasant Valley Rd expanded to accommodate 100-year flows



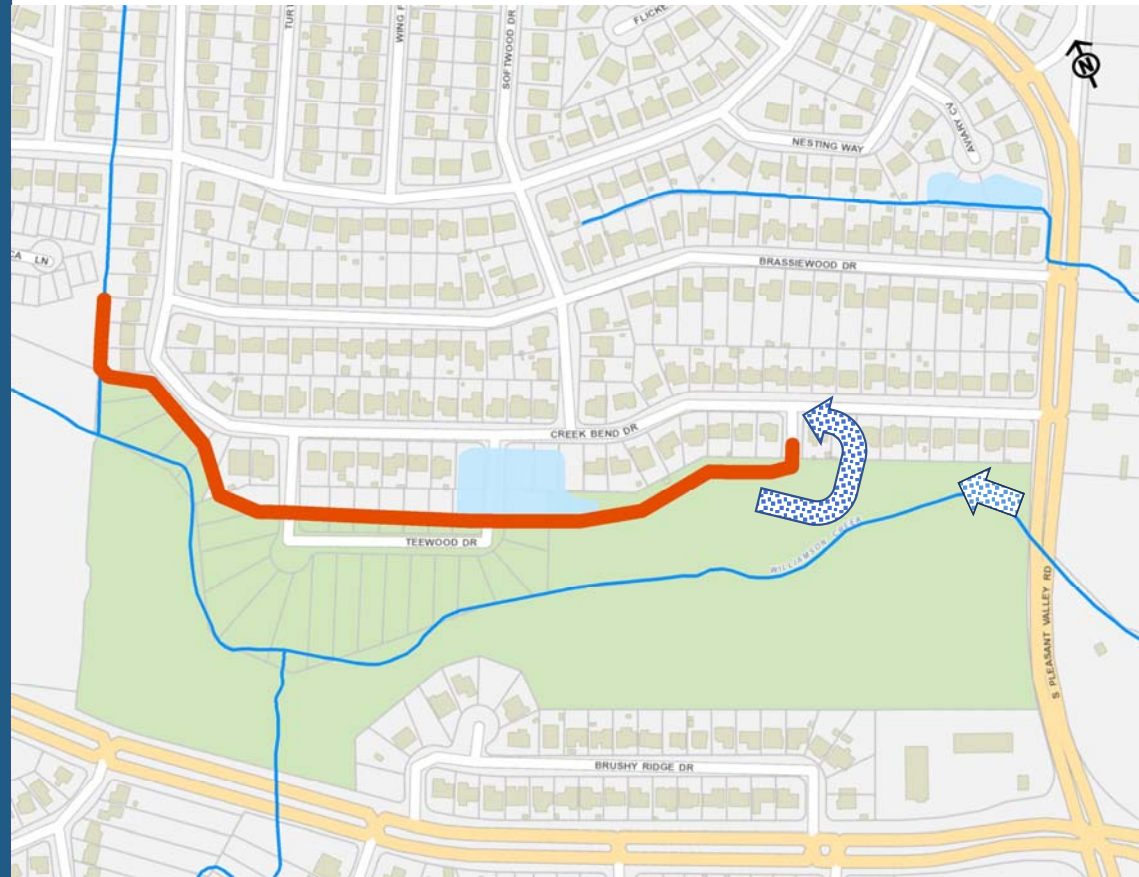
Atlas 14 Impacts on S Pleasant Valley

- S Pleasant Valley Rd expanded to accommodate 100-year flows
- Flows from larger events may back up behind roadway and overtop roadway



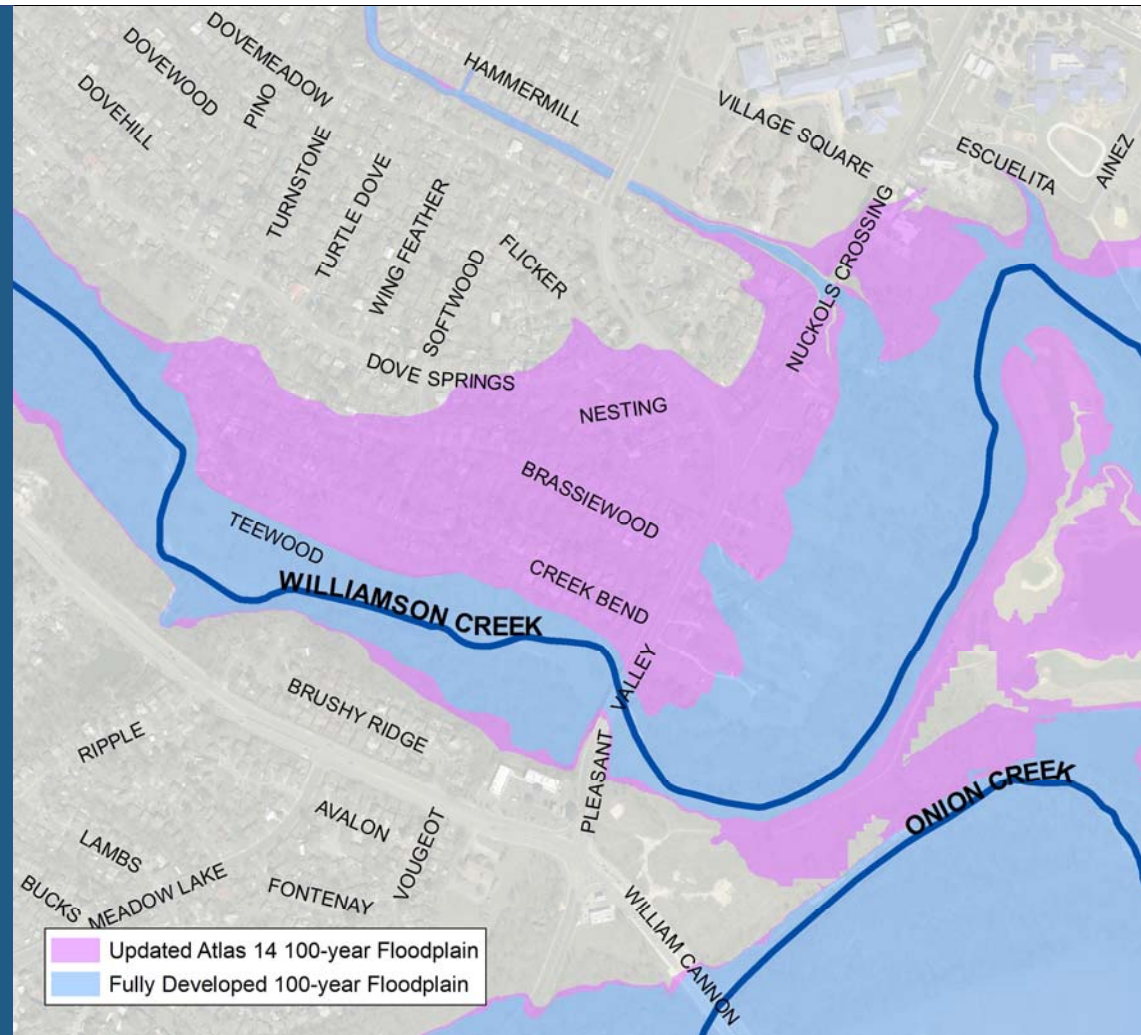
Atlas 14 Impacts on S Pleasant Valley

- S Pleasant Valley Rd expanded to accommodate 100-year flows
- Flows from larger events may back up behind roadway and overtop roadway
- May lead to water wrapping around end of floodwall in new 100-year storm



Atlas 14 Impacts on Creek Bend Area

- Update floodplain study over the next 2-3 years
- New study will be sent to FEMA
- Mortgage lenders will begin requiring flood insurance
- Options for remodeling or new construction will be affected





What is the

Impact to Flood Insurance?

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

Floodplain Regulations

Overview of

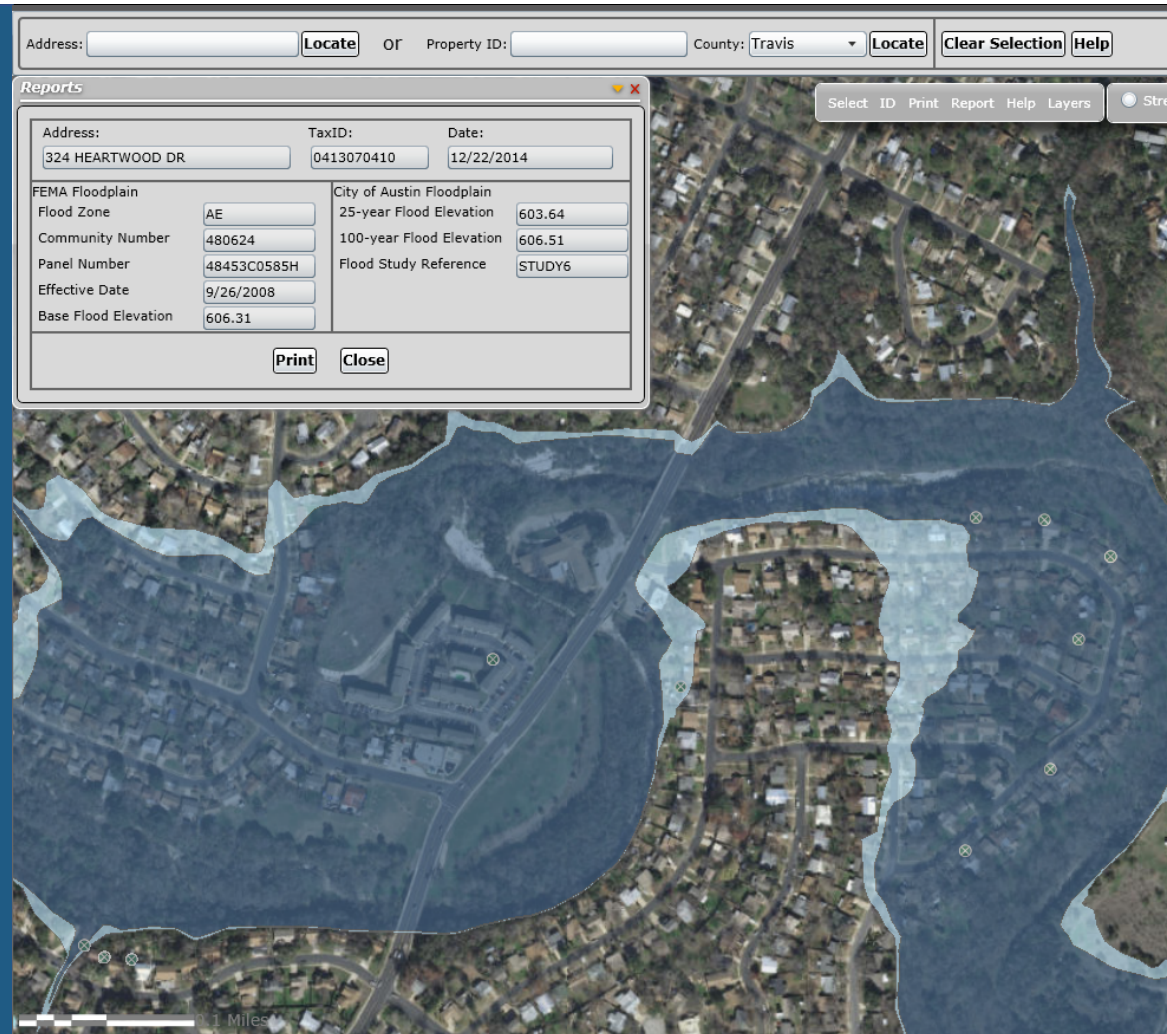
Flood Prevention Strategies

How do we ensure that new development minimizes its flood risk and the risk to others?

- Floodplain regulations
- Drainage regulations and criteria

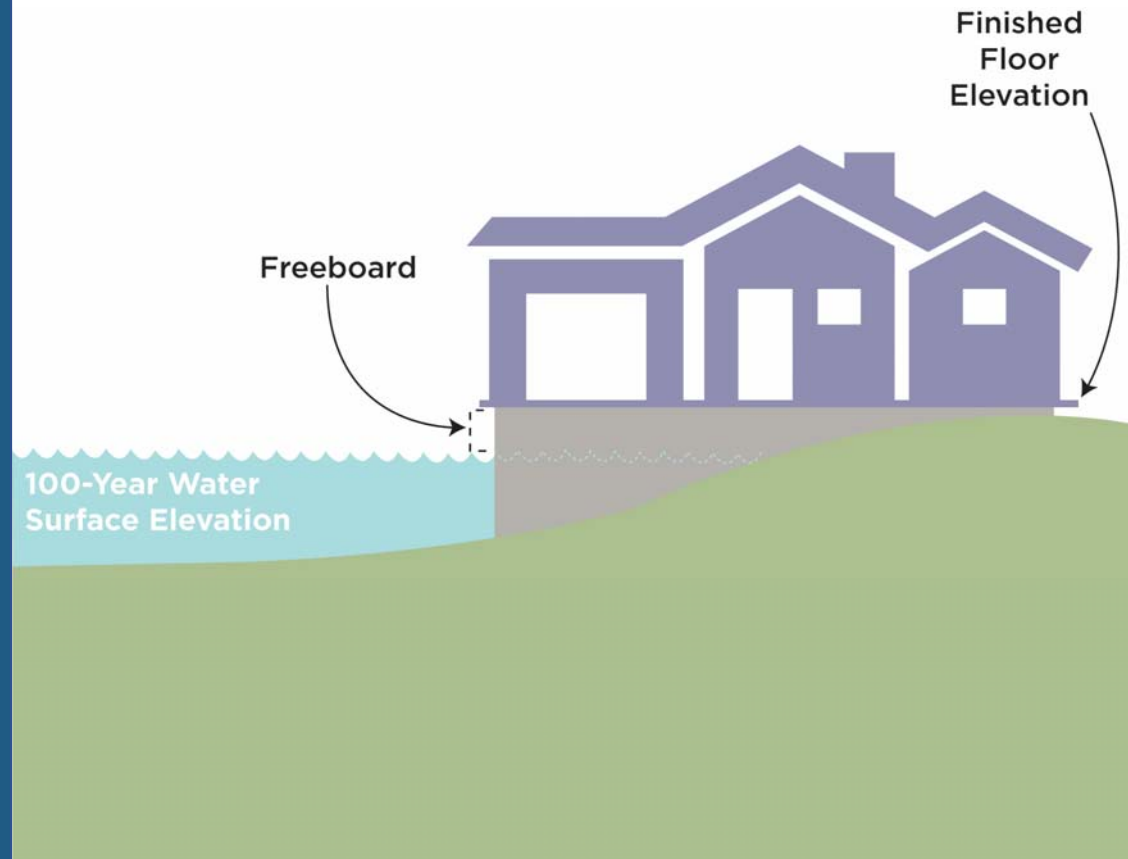
Atlas 14 Code Amendments

- 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 Land Development Code Amendments

- Revise floodplain definitions
- Revise floodplain management rules:
 - Redevelopment exception
 - Freeboard



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)
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Redevelopment Exception

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

- Replaces an existing building
- Is above new 100-year floodplain by 2 feet
- Does not increase number of dwelling units
- Does not cause an adverse flooding impact

If these conditions are met, the 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 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



Next Steps

Next Steps

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

ATX

FLOOD SAFETY

Follow our progress

AustinTexas.gov/atlas14

Contact us

Atlas14@AustinTexas.gov

Floodplain Hotline 512-974-2843

View floodplains

ATXfloodpro.com