



Guadalupe Street Storm Drain Improvements Project

City of Austin Watershed Protection Department
Hyde Park Neighborhood | November 5, 2018



WELCOME Personnel:

Reem Zoun, PE – Supervising Engineer, WPD
Rebeka McKay, PE – Project Sponsor, WPD
Chad Cormack, PE – K Friese & Associates



Avenue A (May 2015)



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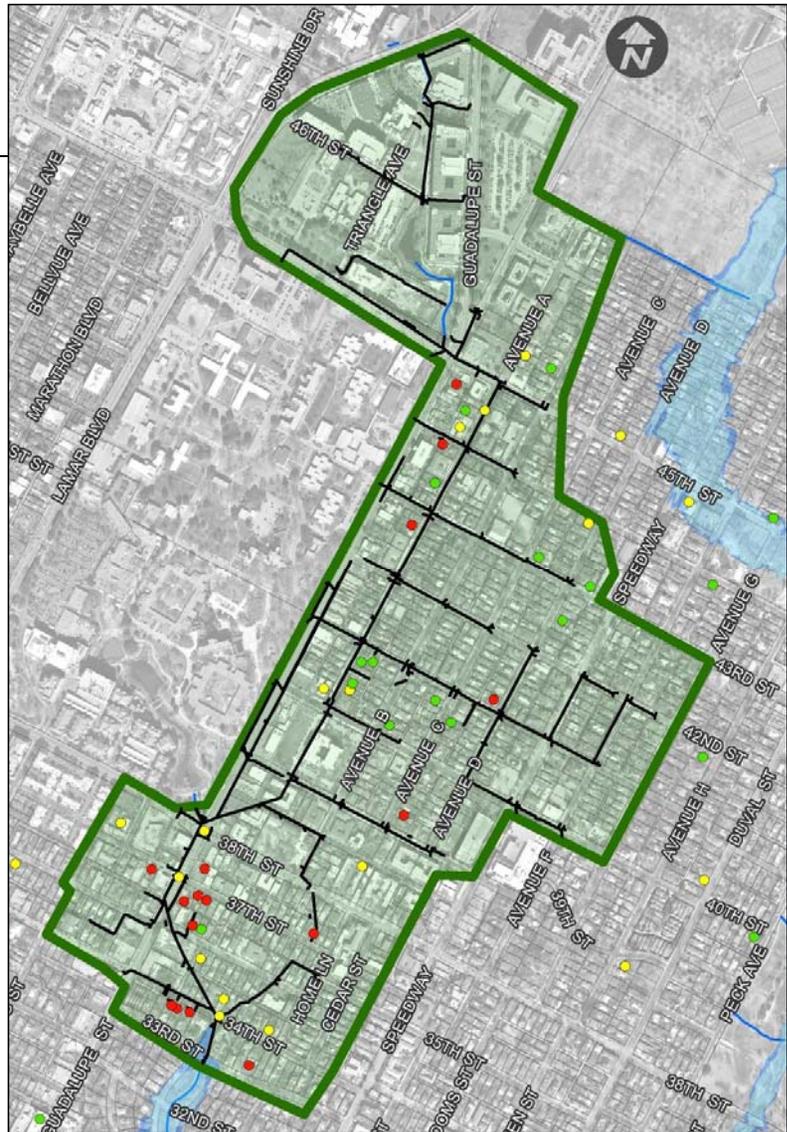


Avenue A (May 2015)



Guadalupe Street Storm Drain Improvements Project

- Background
 - High priority local flood risk reduction area
 - Flooding Complaints
 - 16 Buildings
 - 14 Yards
 - 13 Streets
- Recent Rainfall Events
 - July 18, 2014
 - Memorial Day 2015
 - June 17, 2015
 - Halloween 2015
- Purpose of the Meeting



Existing Storm Drain Conduit



← **Localized Flooding**
Occurs away from creeks.

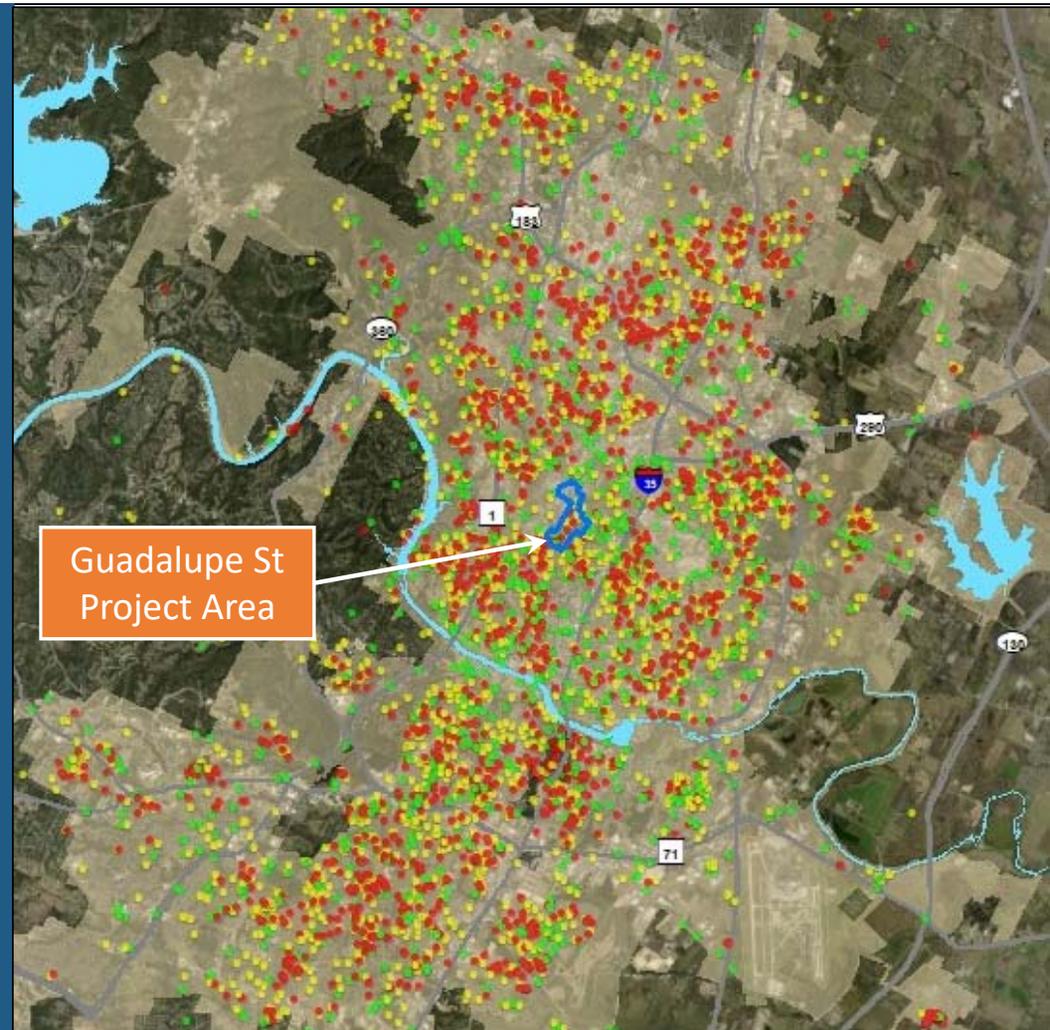
Creek Flooding →

Occurs when a creek rises over its banks.



Localized Flooding Citywide

- 5,884 Total Complaints
 - 1,955 Buildings
 - 2,409 Yards
 - 1,480 Streets
- Neighborhoods built before the 1980s tend to have more drainage problems
- No quick or easy solution





What is a Storm Drain System?

- System of streets, ditches, pipes and culverts
- Drains rainfall from streets to nearby creek
- Inlets are placed along curb to catch rainfall
- Streets should drain in most storms.

Components of a Storm Drain System

1. Inlets and curbs capture rain water.



2. Underground pipes carry the water.

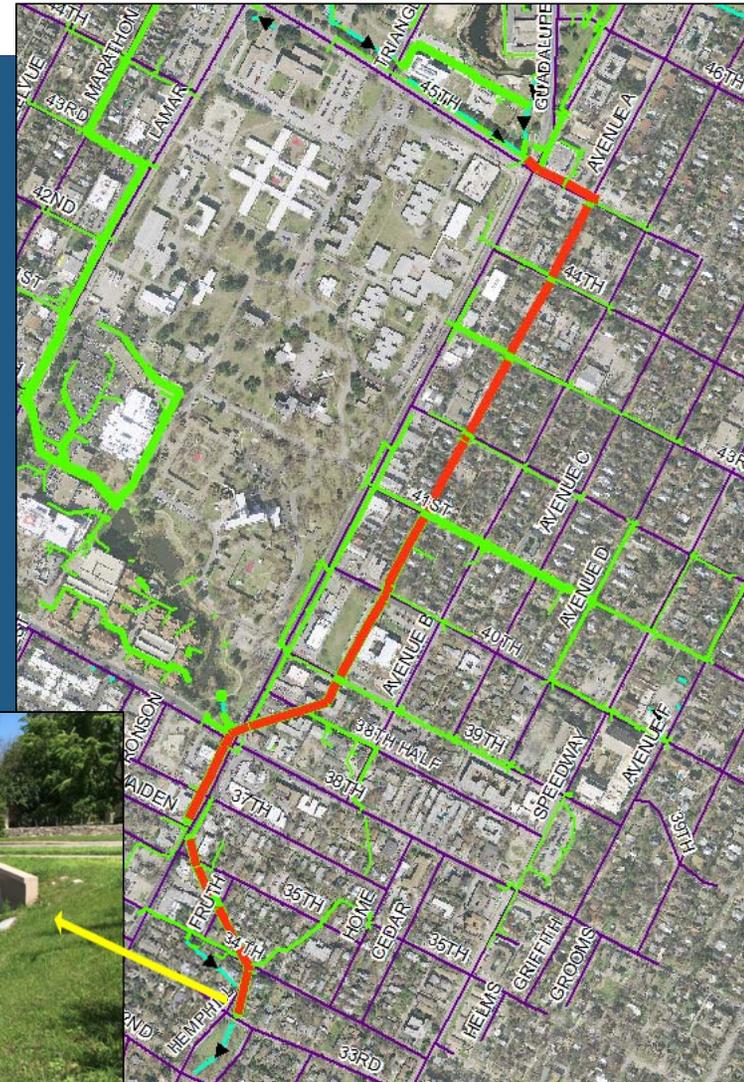


3. Rain water is released into a creek at the outfall. Sometimes it goes to a water quality or detention pond first.

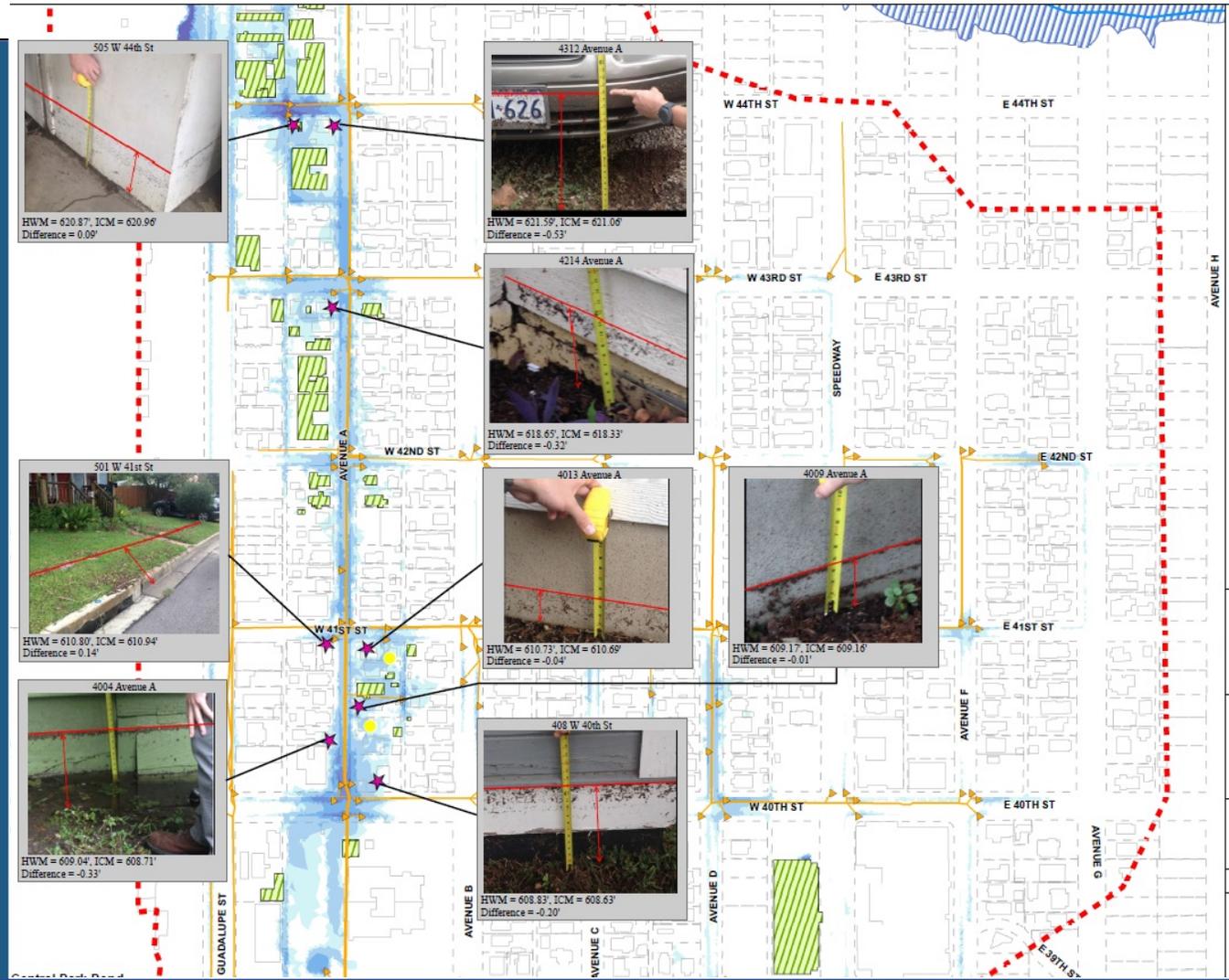


Existing Storm Drain

- Main storm system built in 1928
- Generally follows Avenue A to Hemphill Branch (W 33rd St)
- Size varies from 42 inch pipe to 9-ft x 5.5-ft box
- Central Park Pond designed in 1993
- Triangle Pond designed in 2004



ATX FLOOD SAFETY



Legend

- + 2D Simulation Area
- ▲ Existing Inlet
- Existing Storm Drain Pipe
- Channel
- ☾ Ponds
- ⊞ FEMA 100-yr Floodplain
- Parcel Boundary
- Existing Structure
- Inundated Structure
- ★ Calibration Point

Reported Flooding

- Building
- Yard
- Street

Localized Flood Depth (ft)

- 0.25' - 0.5'
- >0.5' - 1'
- >1' - 1.5'
- >1.5' - 2'
- > 2'

City of Austin Guadalupe Storm Drain Improvements

Calibration Exhibit
July 2014
Sheet 2 of 3



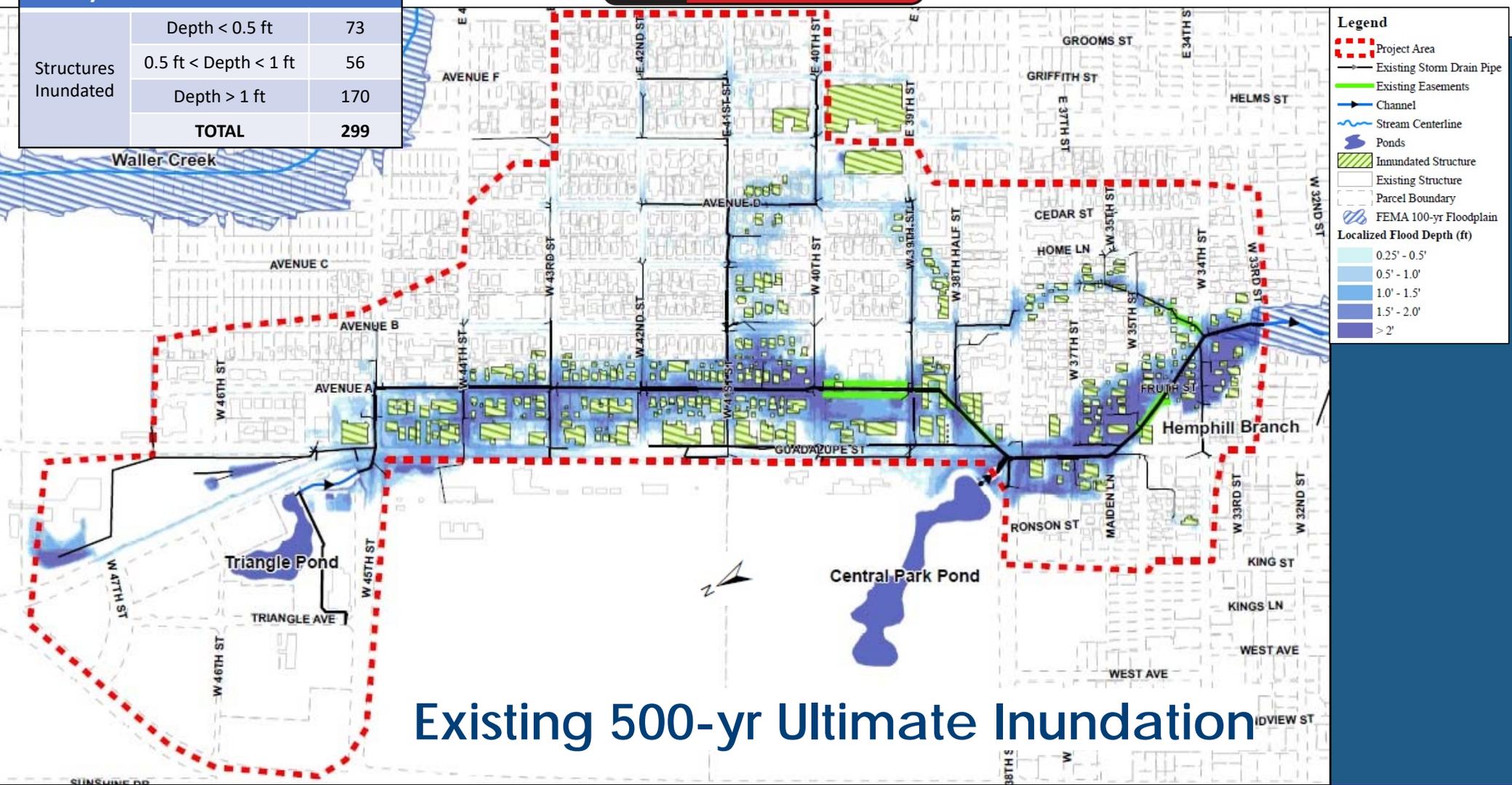
Date: 6/14/2018

**K-FRIESE
+ ASSOCIATES**

PUBLIC PROJECT ENGINEERING
FIRM NO. 6535

ATX FLOOD SAFETY

500-yr		Existing
Structures Inundated	Depth < 0.5 ft	73
	0.5 ft < Depth < 1 ft	56
	Depth > 1 ft	170
	TOTAL	299



Existing 500-yr Ultimate Inundation

Legend

- Project Area
- Existing Storm Drain Pipe
- Existing Easements
- Channel
- Stream Centerline
- Ponds
- Inundated Structure
- Existing Structure
- Parcel Boundary
- FEMA 100-yr Floodplain

Localized Flood Depth (ft)

- 0.25' - 0.5'
- 0.5' - 1.0'
- 1.0' - 1.5'
- 1.5' - 2.0'
- > 2'

Options Considered

- Numerous alignments considered
- Utility locations identified
- Different levels of service evaluated
- Enlargement of existing ponds evaluated
- Downstream channel modifications considered
- Elevating structures considered

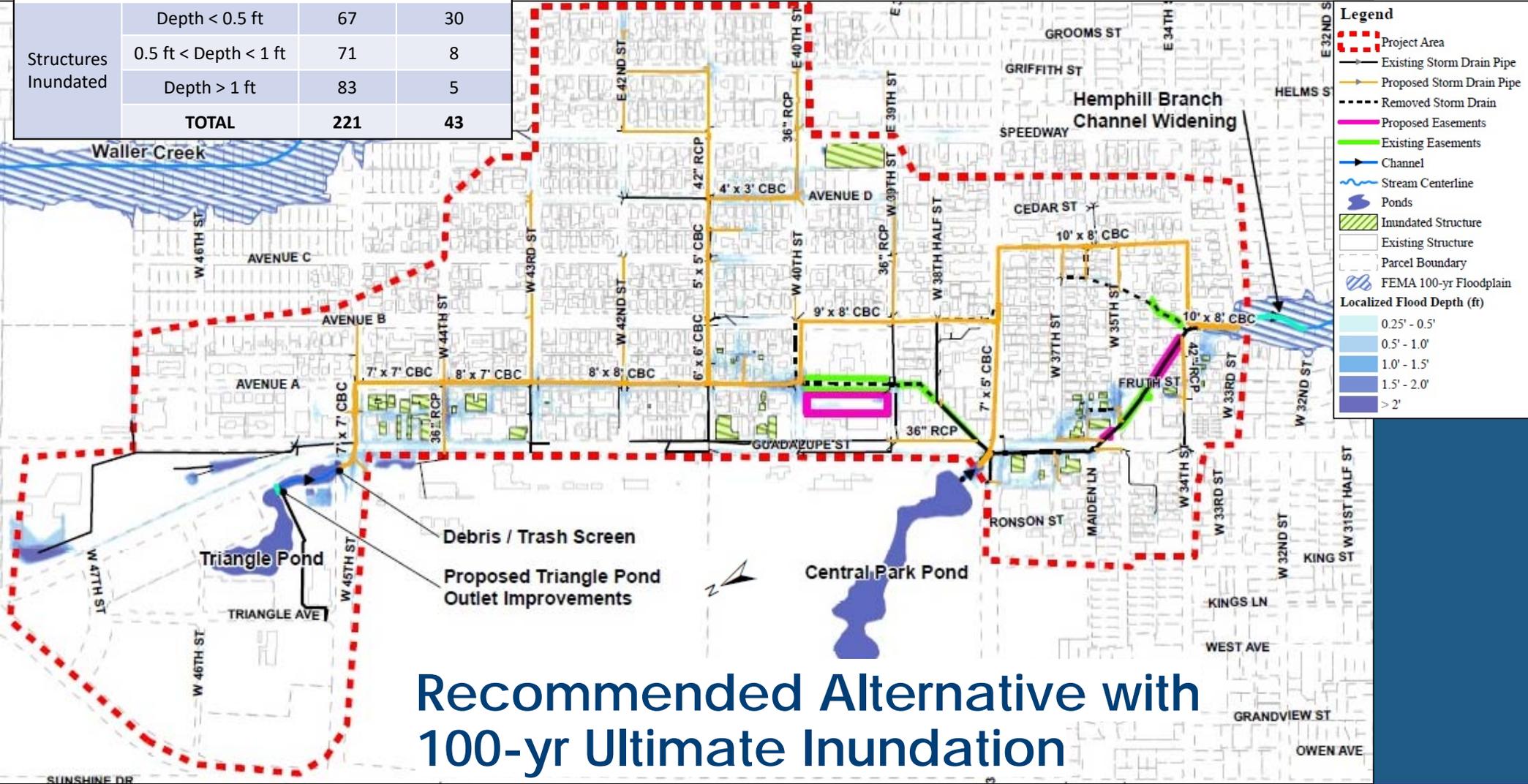


Recommended Alternative

- Total Estimated Cost \$39.2 M
- Flood Risk Reduction Benefit
 - 178 structures removed from 100-yr, additional **43** receive benefit
- Main Components (~20,000 ft storm drains)
 - Upgrade trunk lines, laterals, and inlets, fill in abandoned pipes
 - Optimize Triangle Pond outfall & 2 main headwalls into system
 - Add Debris Blockers at start of storm drain system
 - Widen Hemphill Branch outfall channel
 - Easement acquisition and utility relocations
- Mitigation
 - Baker Center Detention
 - Underground Detention in Right of Way
 - Adams Hemphill Park Detention Pond
 - Relocation of Gas Line to E 26½th Street Bridge
 - Potential culvert improvements at 32nd and Wheeler St

100-yr		Existing	Proposed
Structures Inundated	Depth < 0.5 ft	67	30
	0.5 ft < Depth < 1 ft	71	8
	Depth > 1 ft	83	5
	TOTAL	221	43

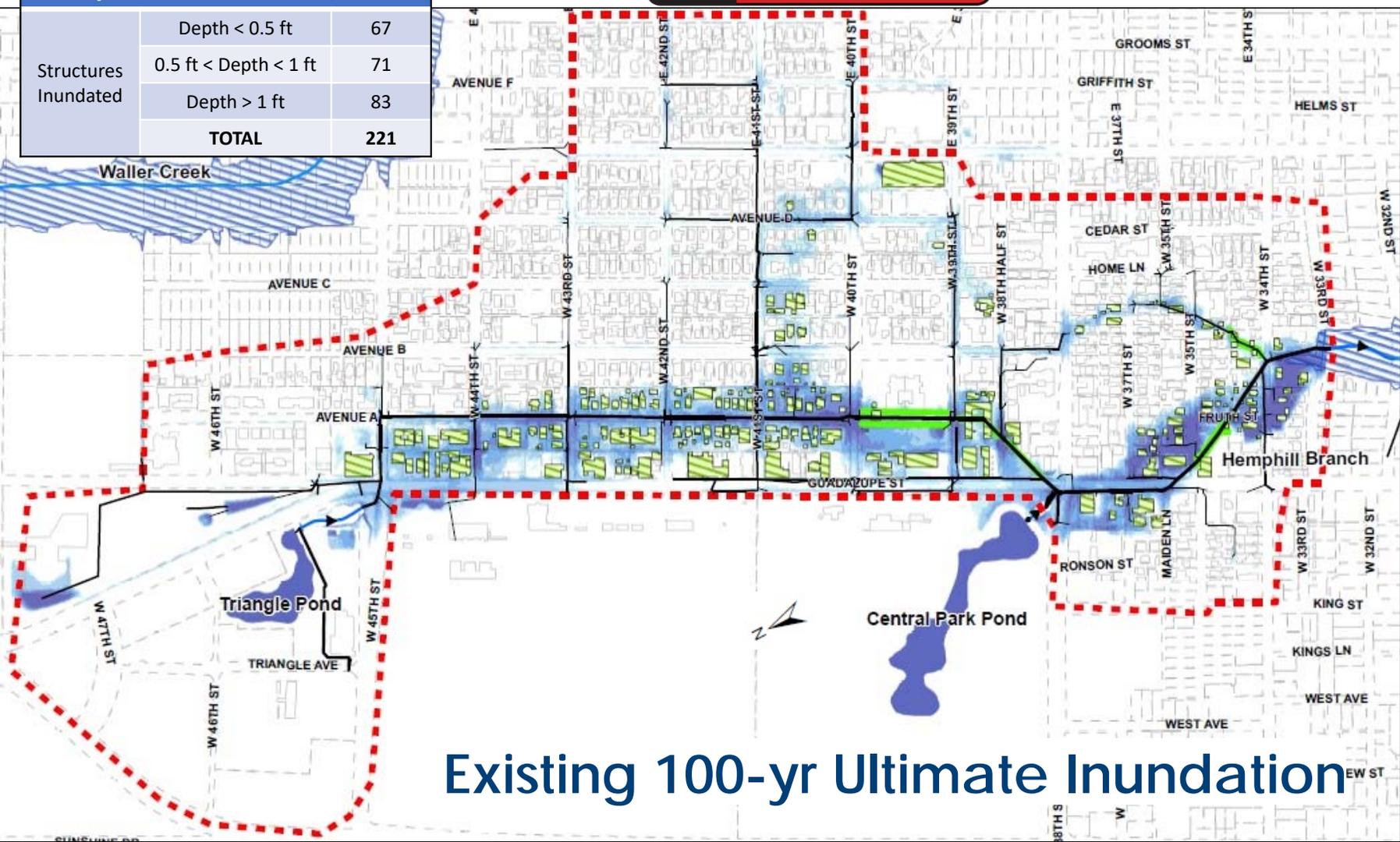
ATX FLOOD SAFETY



Recommended Alternative with 100-yr Ultimate Inundation

ATX FLOOD SAFETY

100-yr		Existing
Structures Inundated	Depth < 0.5 ft	67
	0.5 ft < Depth < 1 ft	71
	Depth > 1 ft	83
	TOTAL	221



Legend

- Project Area
- Existing Storm Drain Pipe
- Existing Easements
- Channel
- Stream Centerline
- Ponds
- Inundated Structure
- Existing Structure
- Parcel Boundary
- FEMA 100-yr Floodplain

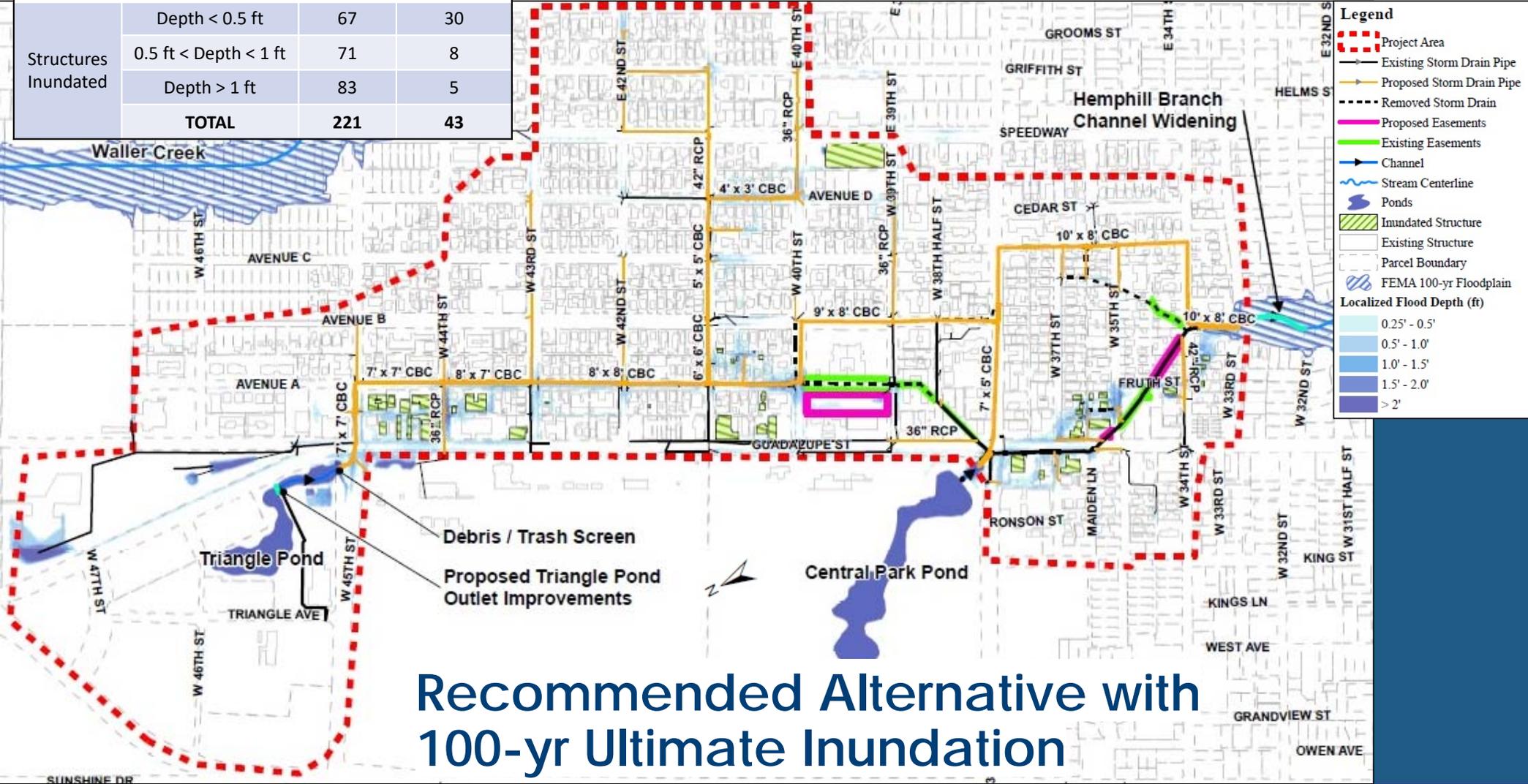
Localized Flood Depth (ft)

- 0.25' - 0.5'
- 0.5' - 1.0'
- 1.0' - 1.5'
- 1.5' - 2.0'
- > 2'

Existing 100-yr Ultimate Inundation

100-yr		Existing	Proposed
Structures Inundated	Depth < 0.5 ft	67	30
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ATX FLOOD SAFETY



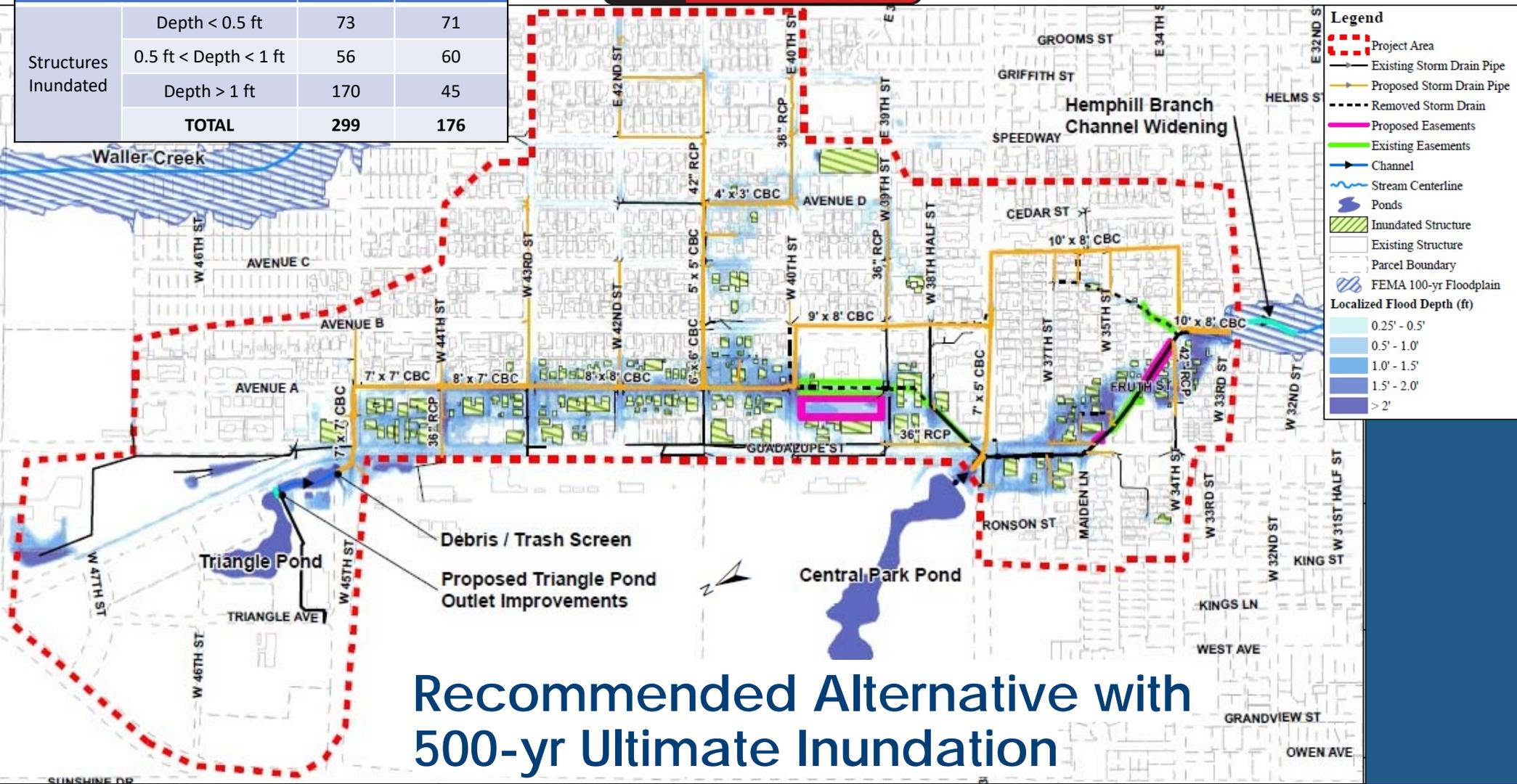
Legend

- Project Area
- Existing Storm Drain Pipe
- Proposed Storm Drain Pipe
- Removed Storm Drain
- Proposed Easements
- Existing Easements
- Channel
- Stream Centerline
- Ponds
- Inundated Structure
- Existing Structure
- Parcel Boundary
- FEMA 100-yr Floodplain
- Localized Flood Depth (ft)
 - 0.25' - 0.5'
 - 0.5' - 1.0'
 - 1.0' - 1.5'
 - 1.5' - 2.0'
 - > 2'

Recommended Alternative with 100-yr Ultimate Inundation

500-yr		Existing	Proposed
Structures Inundated	Depth < 0.5 ft	73	71
	0.5 ft < Depth < 1 ft	56	60
	Depth > 1 ft	170	45
	TOTAL	299	176

ATX FLOOD SAFETY



Recommended Alternative with 500-yr Ultimate Inundation

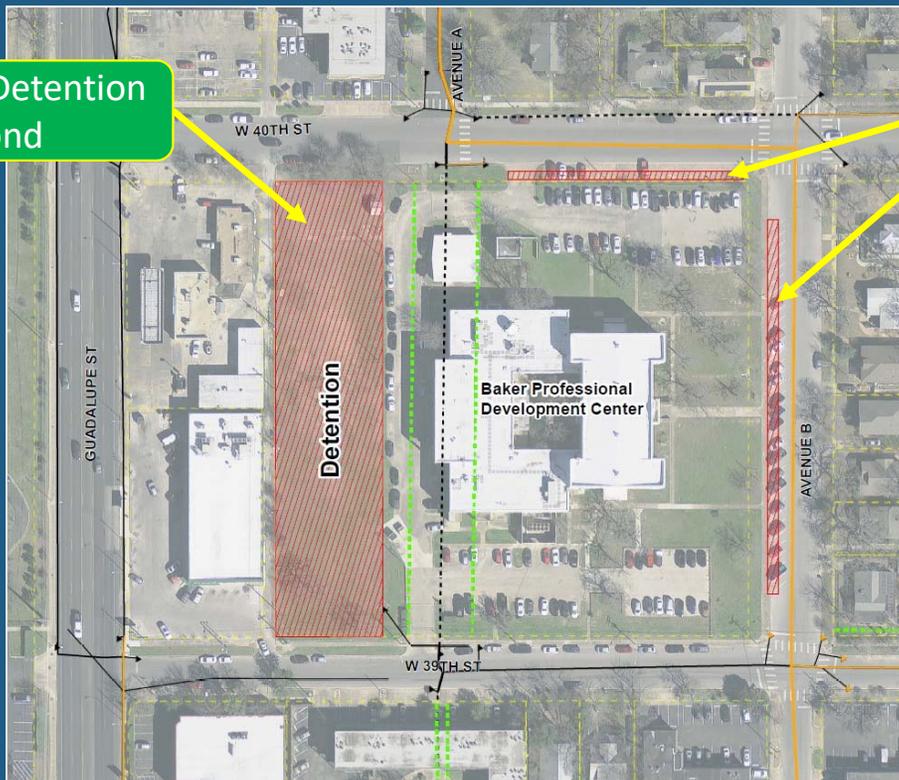
Proposed Mitigation

- Baker Center Detention Pond
- Underground Detention in Right of Way
- Adams Hemphill Park Detention Pond
- Potential culvert improvements at 32nd and Wheeler St
- Relocation of Gas Line to E 26½th Street Bridge



Baker Center Detention

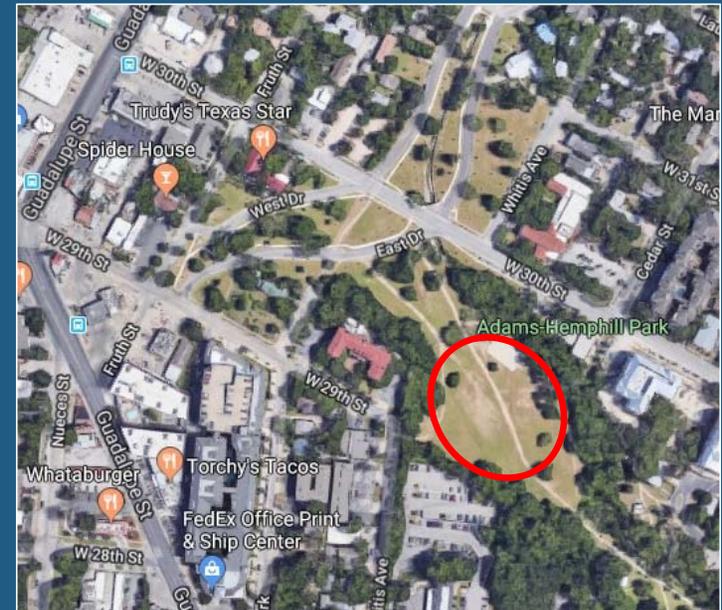
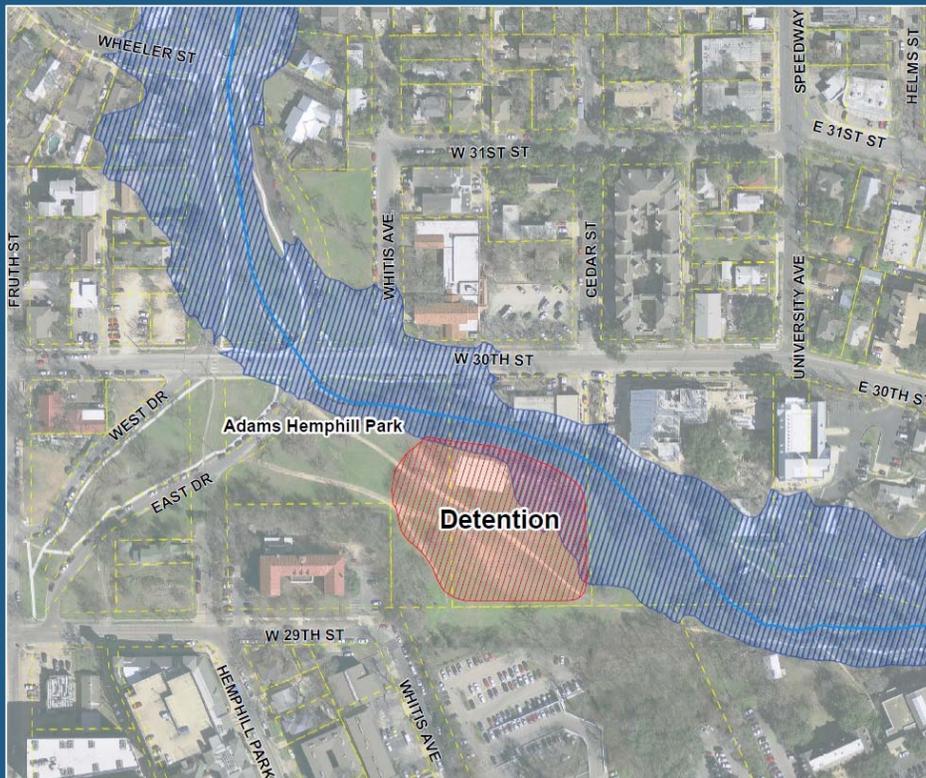
Surface Detention Pond



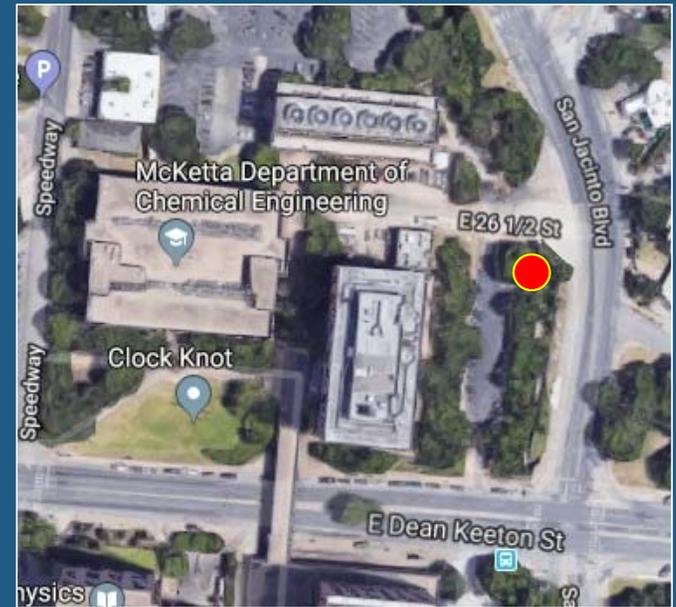
Underground Detention Vault



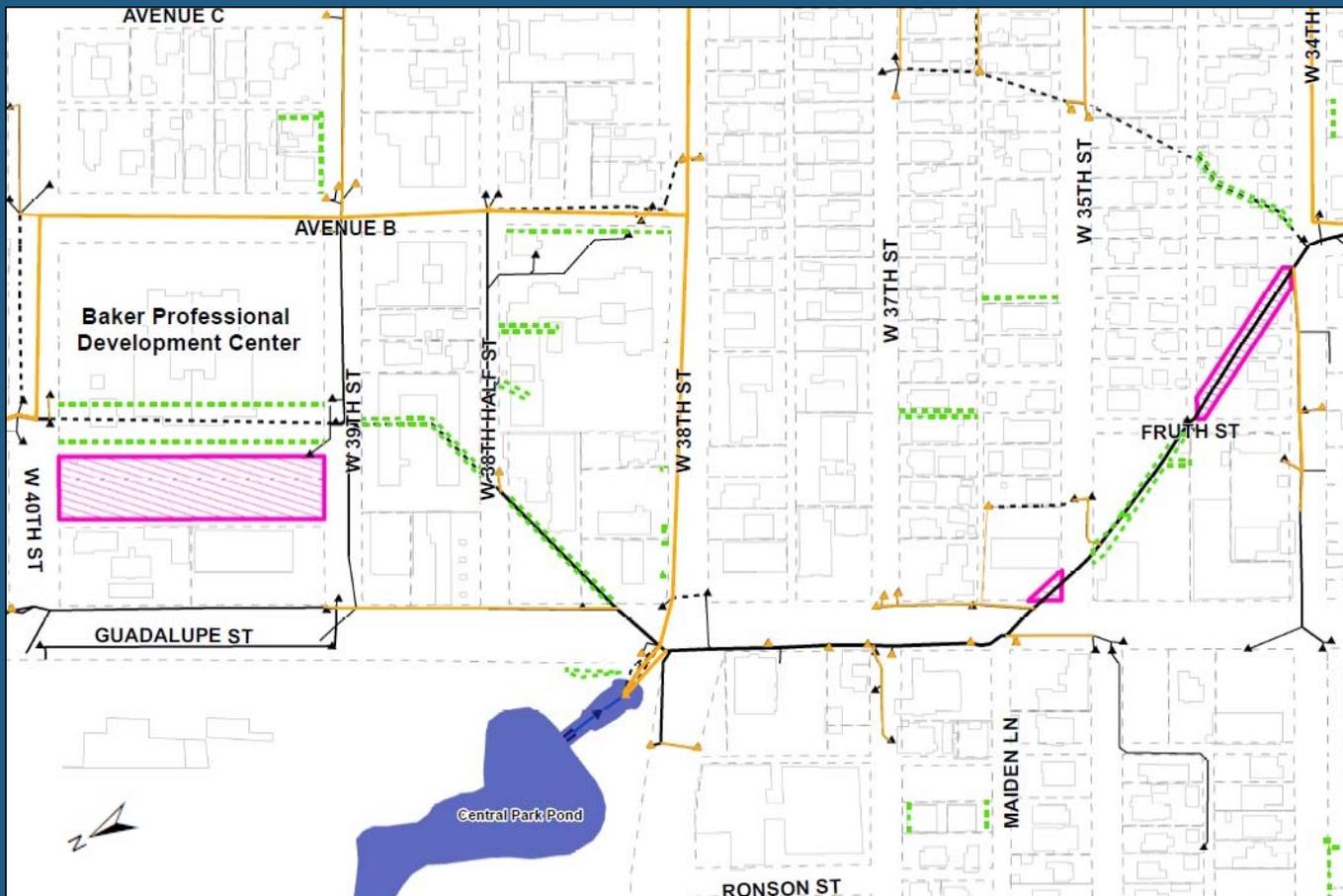
Adams Hemphill Park Detention Pond



Gas Line Relocation to E 26 $\frac{1}{2}$ th Street Bridge



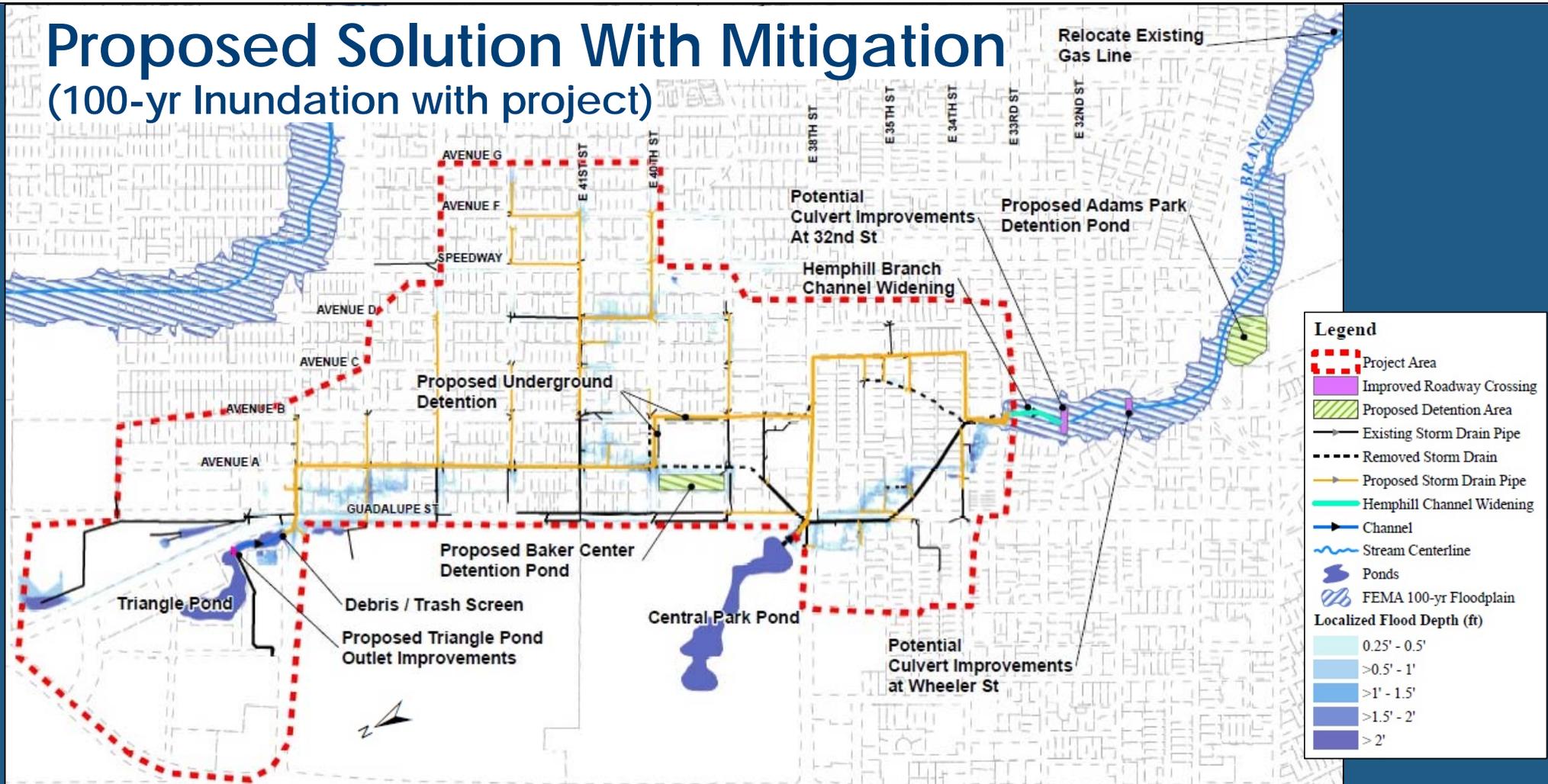
Proposed Drainage Easements



Legend

- Existing Storm Drain Pipe
- Abandoned Storm Drain
- Proposed Storm Drain Pipe
- Existing Easements
- Proposed Easements
- Parcel Boundary

Proposed Solution With Mitigation (100-yr Inundation with project)



Recommended Solution

- Total Estimated Cost \$39.2 M
- Flood Risk Reduction Benefit
 - 178 structures removed from 100-yr, additional 43 receive benefit
- Main Components (~20,000 ft storm drains)
- Mitigation

Guadalupe Street Flood Risk Red

www.austintexas.gov/department/guadalupe-street-storm-drain-improvements

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Watershed Protection Department

GUADALUPE STREET FLOOD RISK REDUCTION

We are studying flooding near Avenue A in the Hyde Park neighborhood. The study will result in a preliminary engineering report that evaluates ways to reduce flooding due to an undersized storm drain system in the project area.

Overview

The type of flooding that is occurring in the project area is known as local flooding. It generally occurs away from creeks in areas where the manmade drainage system of pipes and ditches are overwhelmed by heavy rainfall. In this case, when the neighborhood was developed, we suspect that an entire creek or small tributary was diverted into the storm drain system and roads and possibly structures were built where the water once flowed.

Please see the project map below. Click on the map to download a larger PDF.

Call 311 To Report Flooding

Local Flooding

TOP CONTENT

- Grow Green
- Flood Safety
- Floodplain Management and Regulations
- Scop the Poop
- Rain Gardens Keeping Water on the Land

UPCOMING EVENTS

Presentation about Guadalupe Street Flood Risk Reduction Project Nov. 05, 2018

MORE EVENTS

CONTACT INFO

Key Contact: Rebeka McKay
Position: Engineer C
Phone Number: 512-974-3353
Email

FloodSmart.gov

Considering flood insurance? Call your insurance agent to sign up or click on "FloodSmart.gov" above to find out more about risks and costs.

ATXfloods

Road Closures due to Flooding

Warn Central Texas

Sign up for Flood Alerts

ATX Hydromet

Rainfall and Creek Level Data

ATX FLOOD SAFETY

Schedule

- Currently in Design
- Public Meetings
 - October 26th, 2017
 - November 5th, 2018
- Design and Permitting
 - Oct 2018-2021
- Easement Acquisition
 - Fall 2019 ~ 2021
- Construction Begins
 - ~ 2022

AustinTexas.gov/stormdrains

Guadalupe Street Storm Drain Improvements

Available Resources

- Consider purchasing flood insurance
- Report flooding and drainage concerns to 3-1-1
- Avoid building in drainage easements
- Email floodpro@austintexas.gov for information about flood-proofing
- Check ATXfloodsafety.com for additional resources

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Questions?

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“ Texas is a land of perennial drought,
broken by the occasional
devastating flood”

State Meteorologist, National Weather Service, 1927