Green Infrastructure Working Group: **Stormwater Options for Redevelopment & Infill**

May 15, 2015

Flooding at S. Lamar Blvd & Bluebonnet Ln

Agenda

Arrivals & Introductions	2:00
Staff presentation	2:15
Introduction to problem	
Current code	
National models	
Case studies	
Small group discussion	3:15
Large group summary & recap	4:15

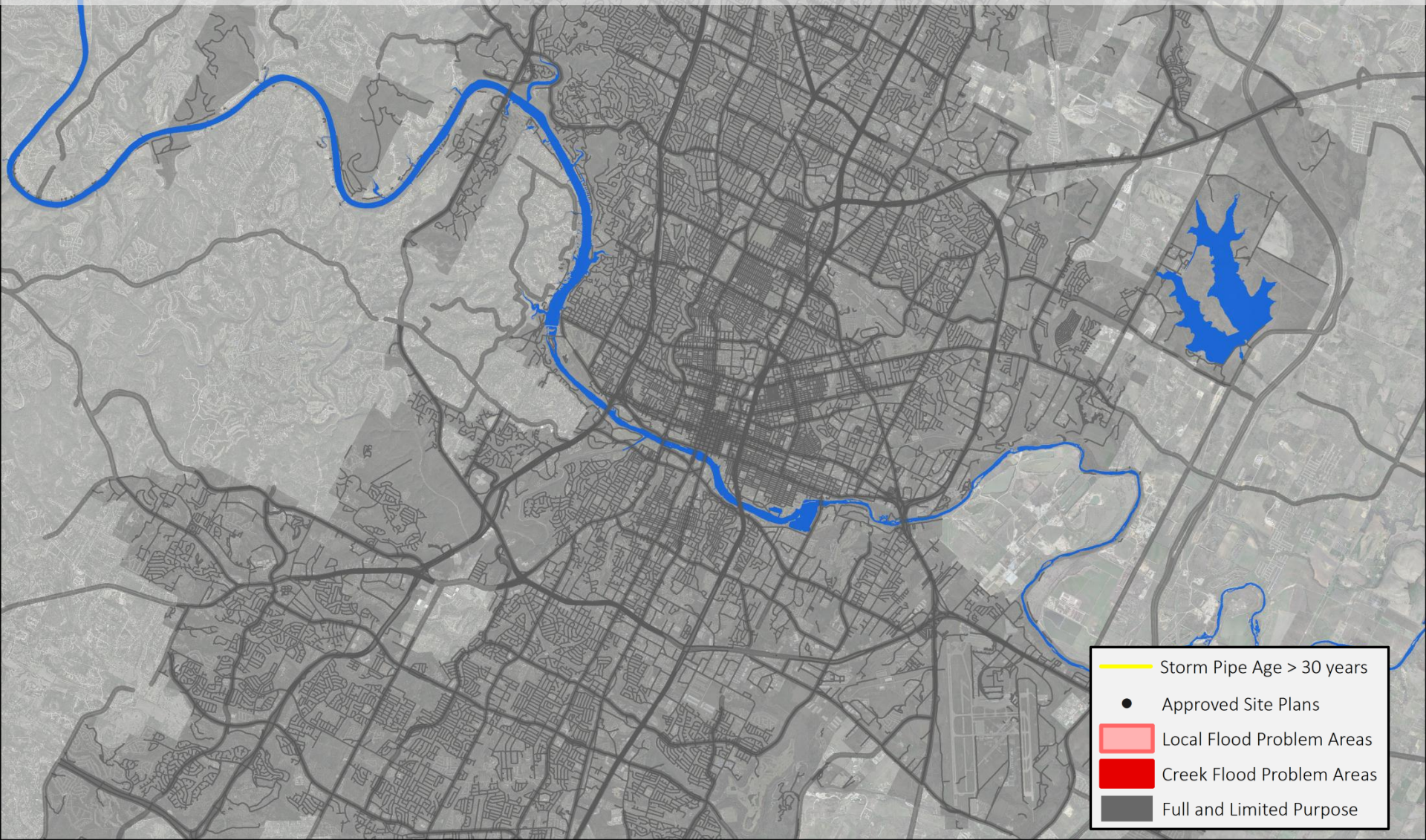
Note: There will be short breaks both before and after the small group discussion

The Problem

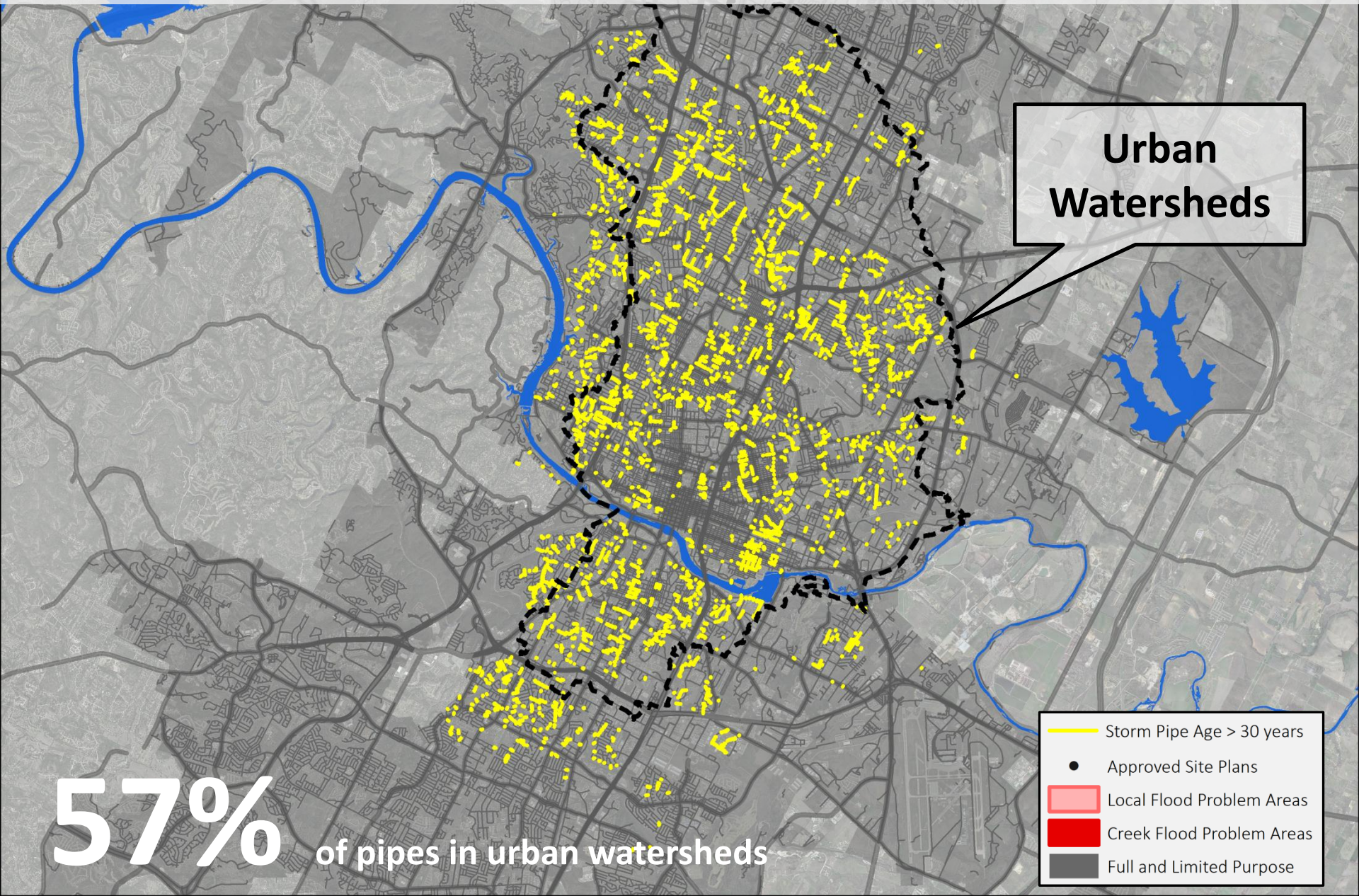
- Many localized and creek flooding problems in Austin's central core
- Very high price tag to fix: $100s of millions
- Don't want sprawl either
  - Compact and connected
  - 750,000 new residents expected by 2040
  - Affordability concerns

➢ What are our options?

Challenges to infill in the urban core

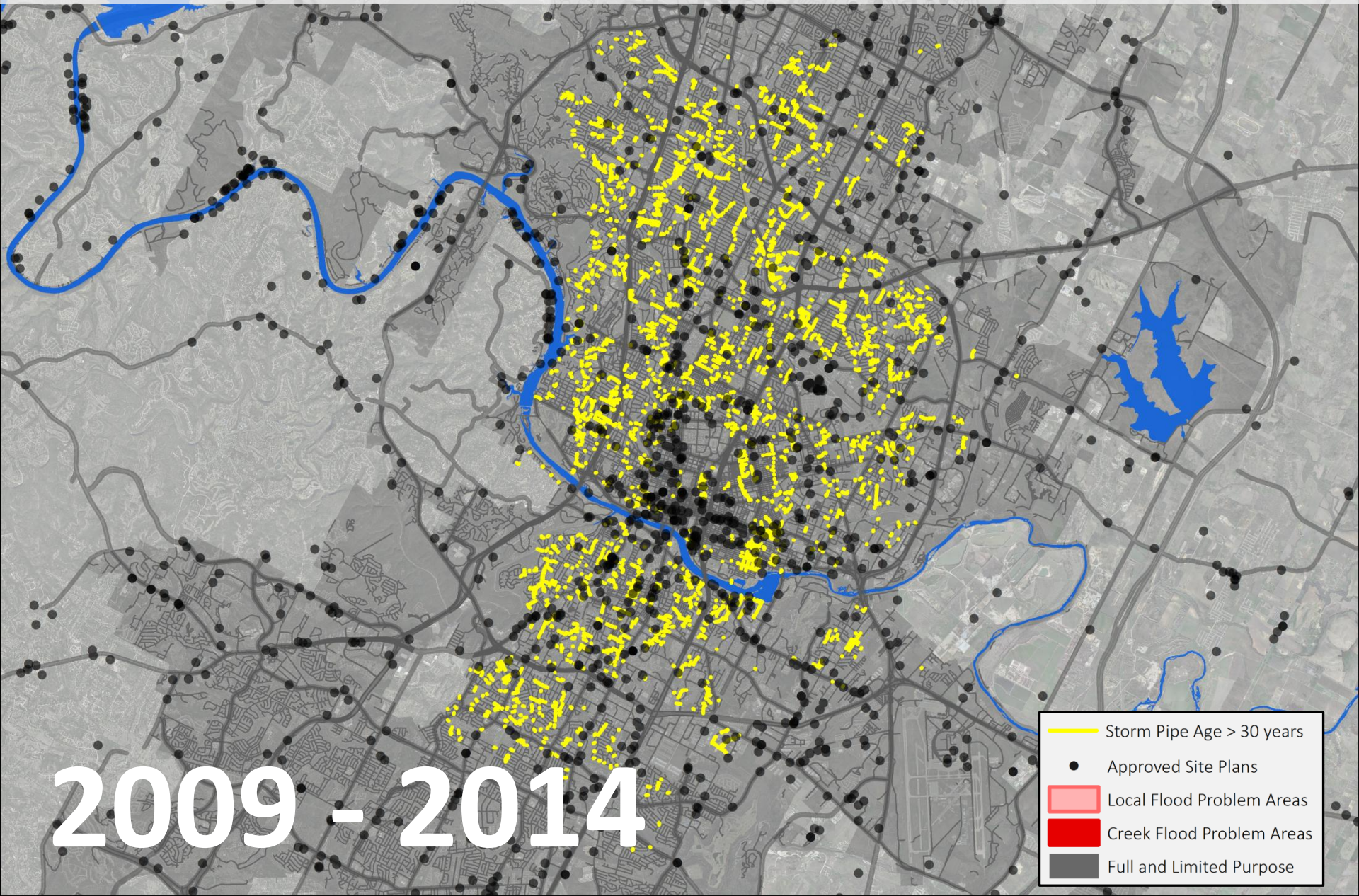


Storm Pipes > 30 Years Old

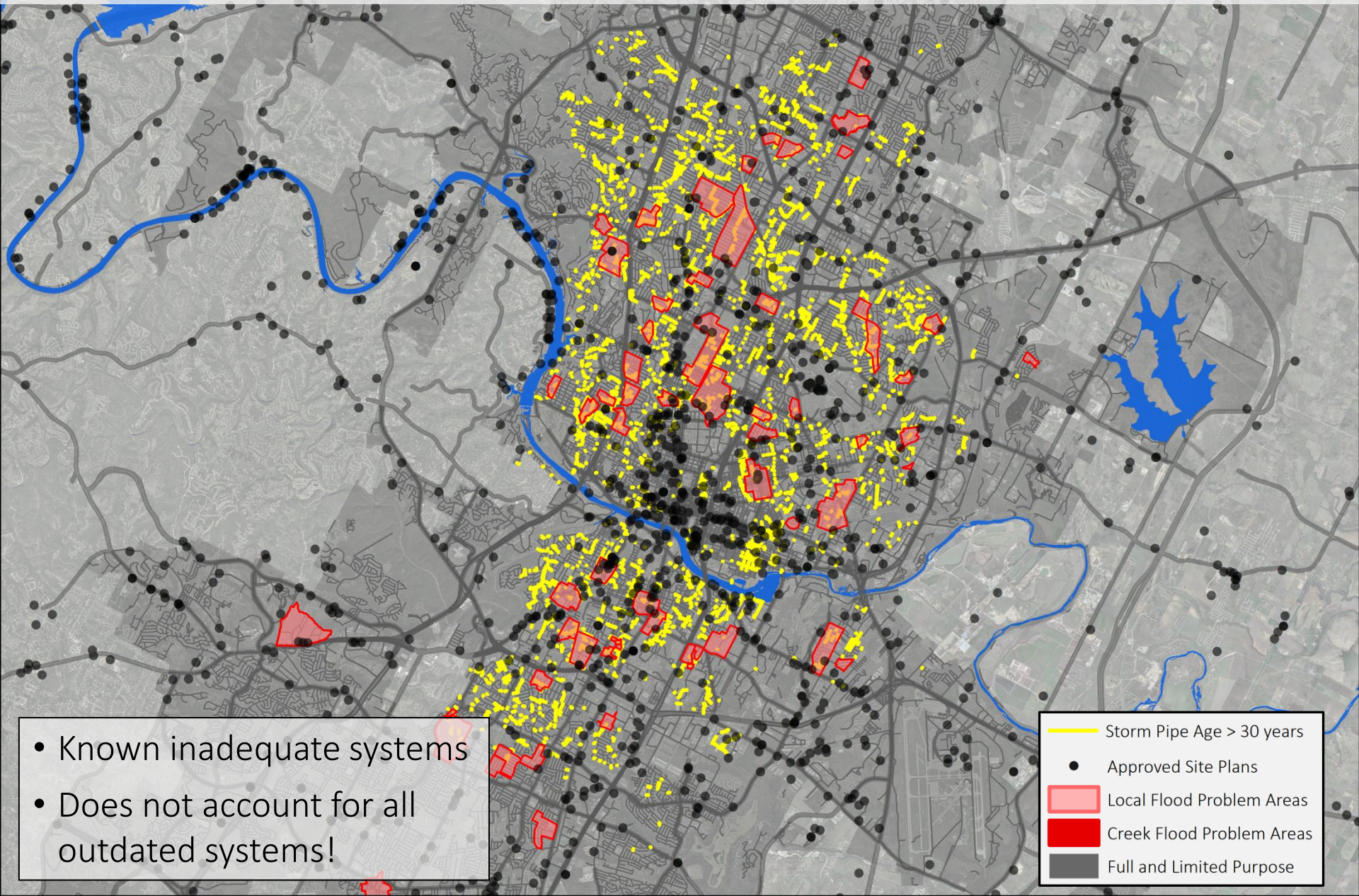


57% of pipes in urban watersheds

Approved Site Plans

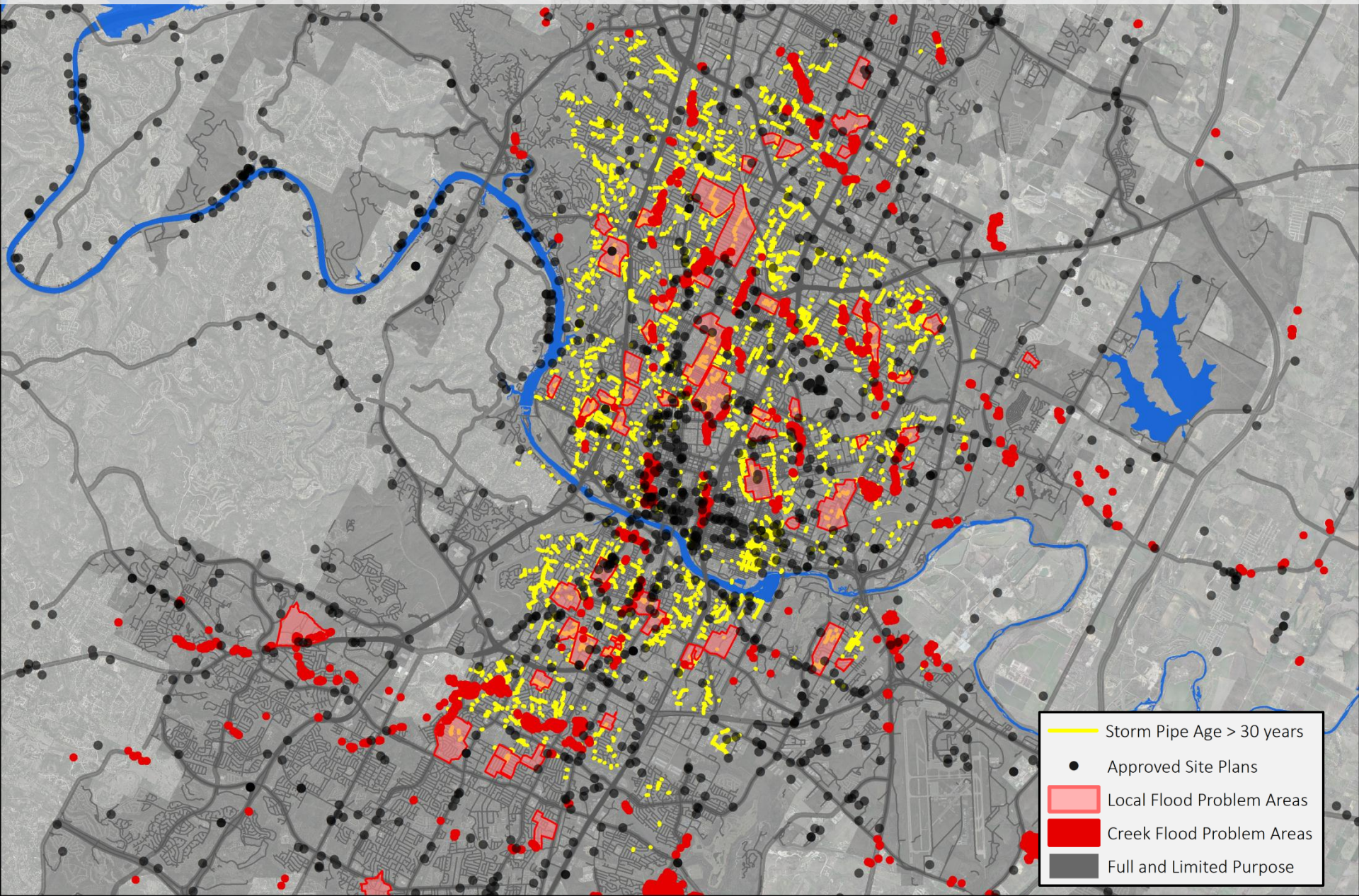


Identified Local Flood Problem Areas



- Known inadequate systems
- Does not account for all outdated systems!

Identified Creek Flood Structure Problem Areas



Council Resolution: South Lamar

(Resolution no. 20140501-042)

- City Manager directed to develop a Mitigation Plan to address flooding in S. Lamar Neighborhood
- Will explore opportunities within CodeNEXT to:
  - protect a neighborhood's character, infrastructure, and safety
  - develop mitigation requirements to better manage density and its associated impacts

Link to resolution

S. Lamar Blvd & Bluebonnet Ln

Del Curto Rd & Village Oak Ct

Current Flood Mitigation Code

Flood detention not required for redevelopment if impervious cover is not increased and drainage patterns are not changed.

§ 25-7-61(5a) - Criteria for Approval of Development Applications:

"A development application may not be approved unless [it] will not result in **additional** adverse flooding impact on another property"

Current Water Quality Code

- Similar pattern of water quality controls: lacking in urban core
- Water quality controls required for all redevelopment (> 8,000 ft^2 impervious cover)
- Payment-in-lieu option (at City's discretion) for small sites in Urban watersheds
- Potential future subject of discussion

Potential Solutions: National Models

- Maryland (State Code)
- Virginia (State Code)
- Others? Staff will continue to research

National Models: Applicability

- When to apply? National criteria vary

Examples:

- Development exceeding a certain square footage on a lot that contains existing buildings
  - e.g. > 5,000 ft^2 (Maryland)
- If downstream localized flooding exists (Virginia & Maryland)

Note: Austin requires structural water quality controls on projects > 8,000 ft^2

Maryland Requirements

- Must mitigate 2-yr and 10-yr storm where:
  - Flooding problems exist
  - Downstream conveyance is inadequate
- Exemptions for detached single-family residential
- Waivers possible for infill projects in a Priority Funding Area that satisfy certain requirements

Code of Maryland 26.17.02.05

Virginia Requirements

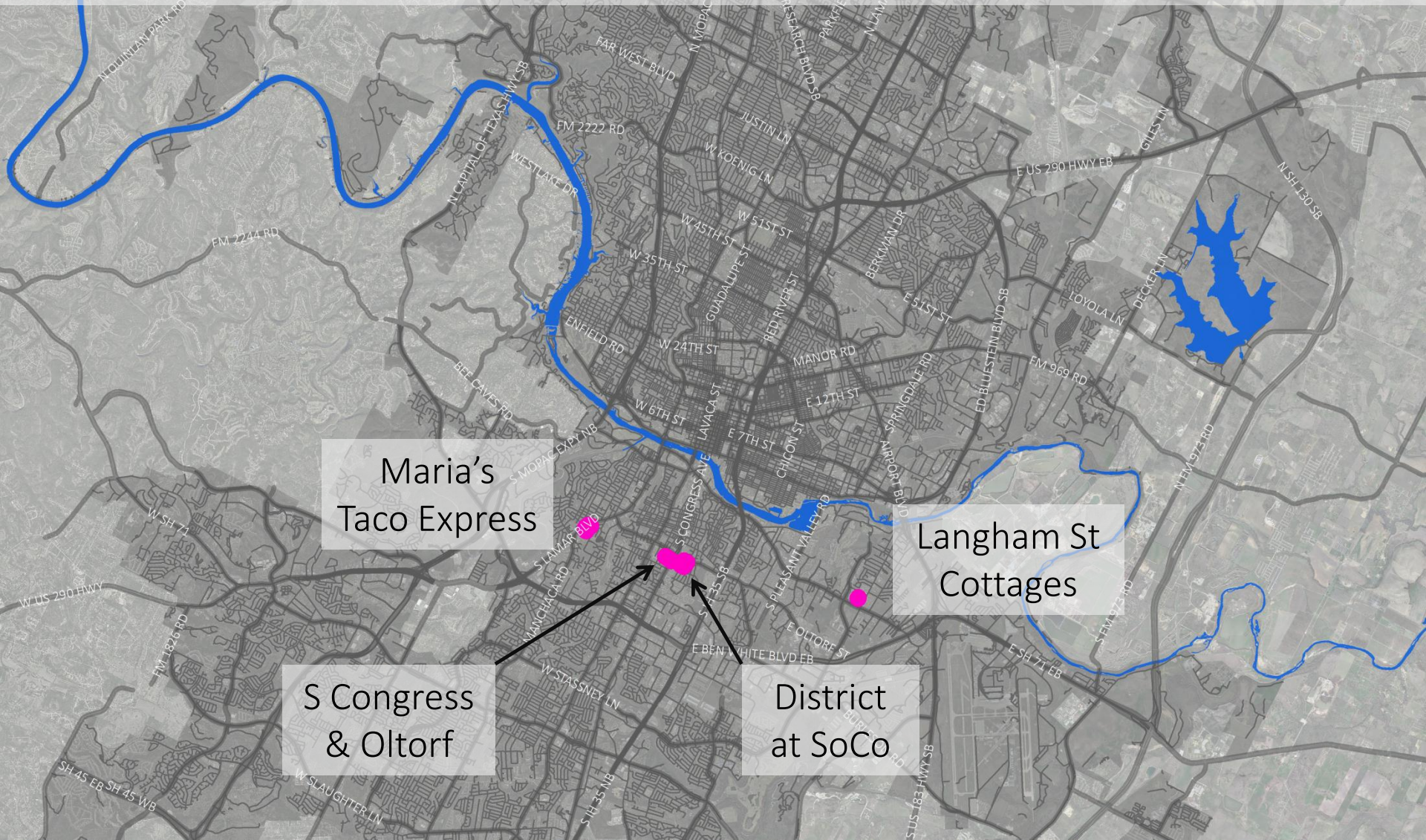
- If erosion or localized flooding exists, site is required to mitigate a share of runoff impacts
- Reduce peak flow rate from 1.5-yr, 2-yr, and 10-yr storms to less-than-or-equal-to peak flow rate from pre-developed conditions (assumes “good forested condition”)
- 1% “rule of thumb” to determine extent of downstream impacts for study
  - Example presented later

Code of Virginia 62.1-44.15:28 & 62.1-44.15:33

Austin Case Studies

- Maria's Taco Express + Walgreens
- District at SoCo
- South Congress & Oltorf
- East Riverside Street Cottages

Case Study Locations



Maria's Taco Express & Walgreens

2003: Original Site

Local Flood complaint points

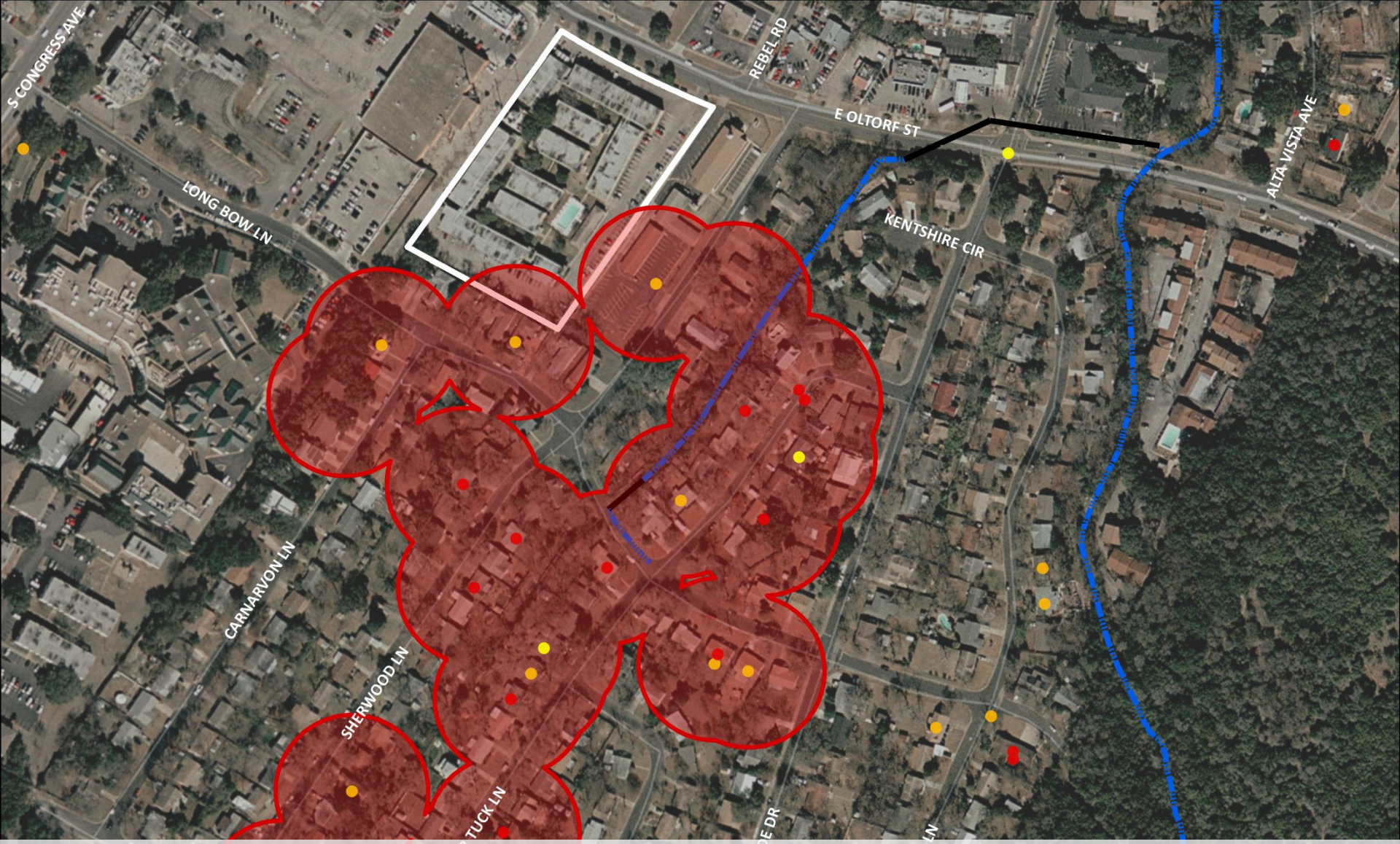
2007: Redeveloped Site

Water quality controls (required by Code)

2007: Redeveloped Site

- PUD rezoning spurred negotiation with neighborhood, who requested detention of 100-yr → 10-yr storm
- Added flood detention vault under parking lot


District at SoCo



2008: Original Site

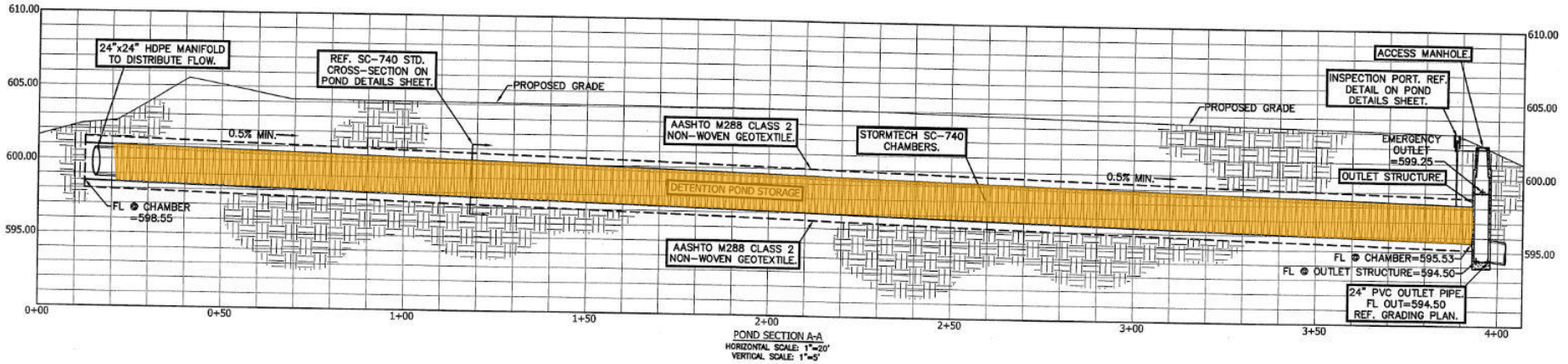
Local Flood complaint points

2009: Construction

Originally designed to drain straight into Oltorf St

2012: Redeveloped Site

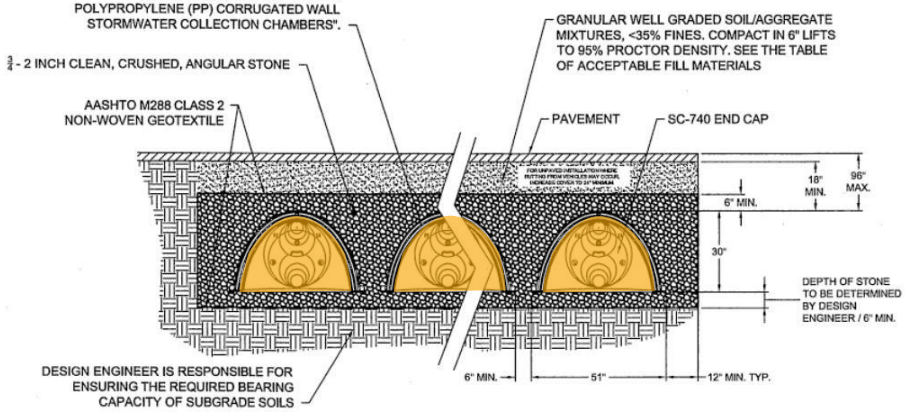
Flood detention (added after discussion with neighbors)



POND SECTION A-A
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=5'

THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS, WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCE.

SC-740 CHAMBER
CHAMBERS SHALL MEET ASTM F 2418-05 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".



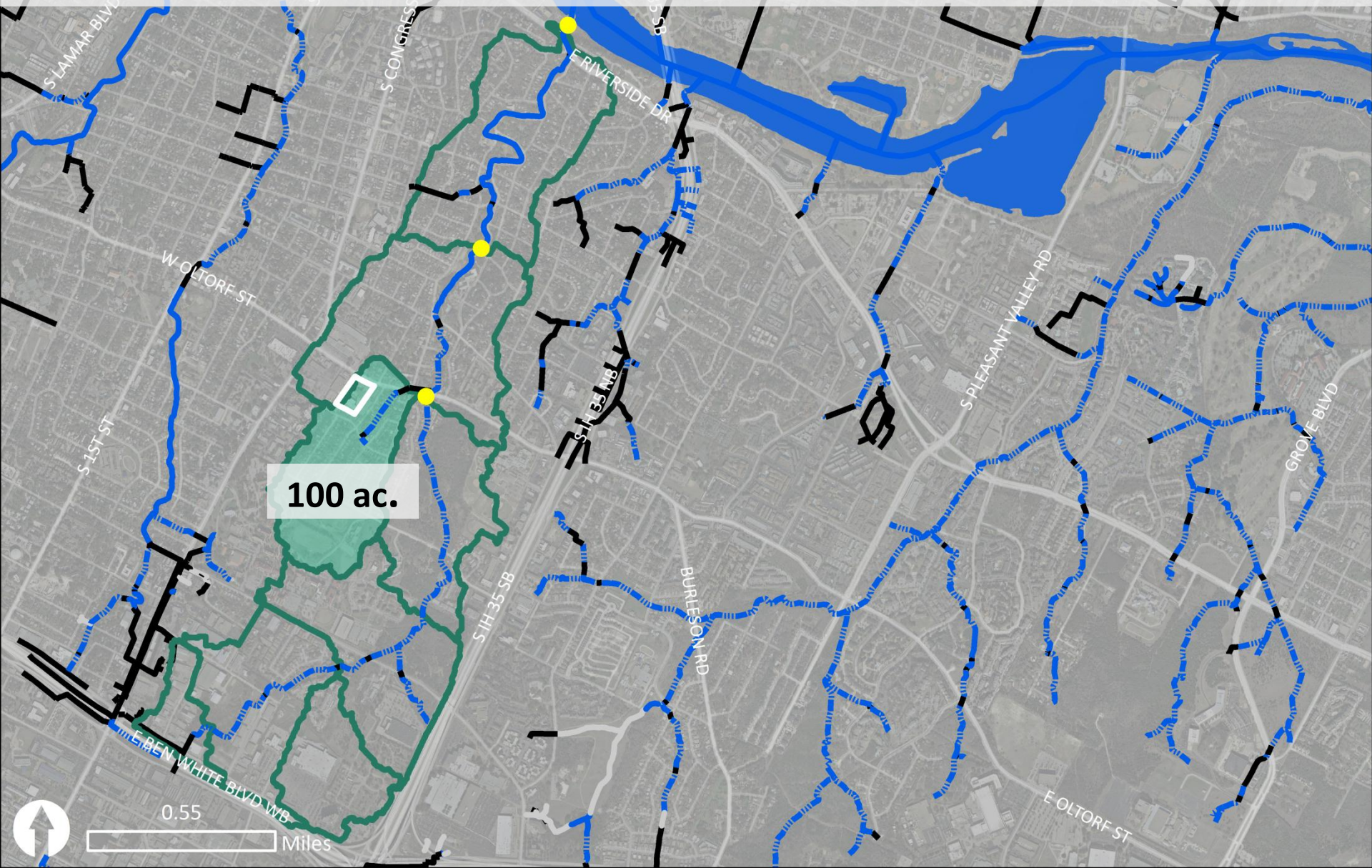
THIS CROSS SECTION DETAILS THE REQUIREMENTS NECESSARY TO SATISFY THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS USING STORMTECH CHAMBERS

Virginia Evaluation Protocol

- “1% rule of thumb” mechanism for implementing VA’s detention requirement
- Must conduct analysis for adverse flood impacts for a drainage area ≥ 100x the site’s area
- HEC-HMS basins and nodes form basis of analysis
- Gives logical ending point for analysis

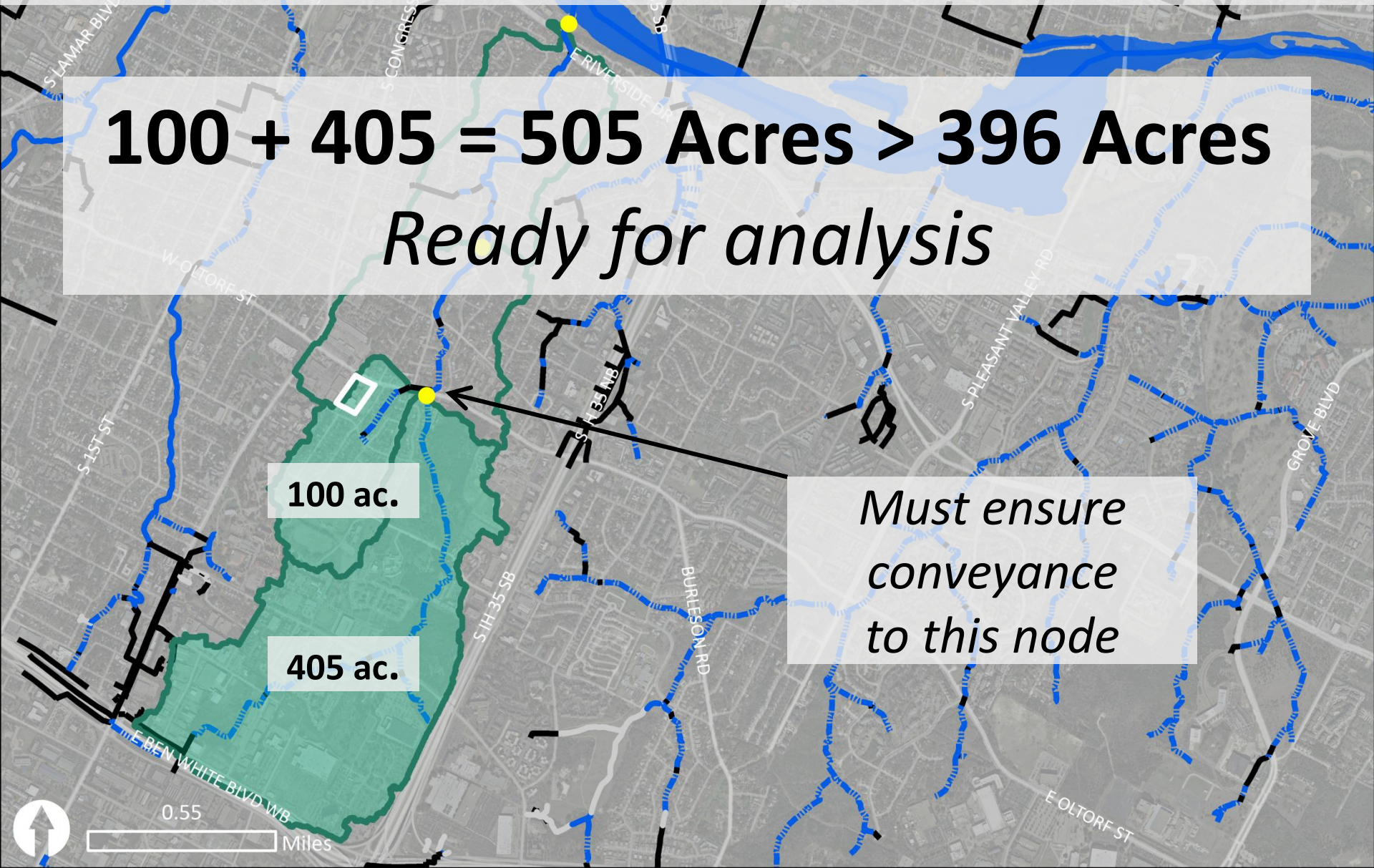
Virginia Evaluation Protocol

3.96 acre site x 100 = 396 acres (min. area evaluated)



Virginia Evaluation Protocol

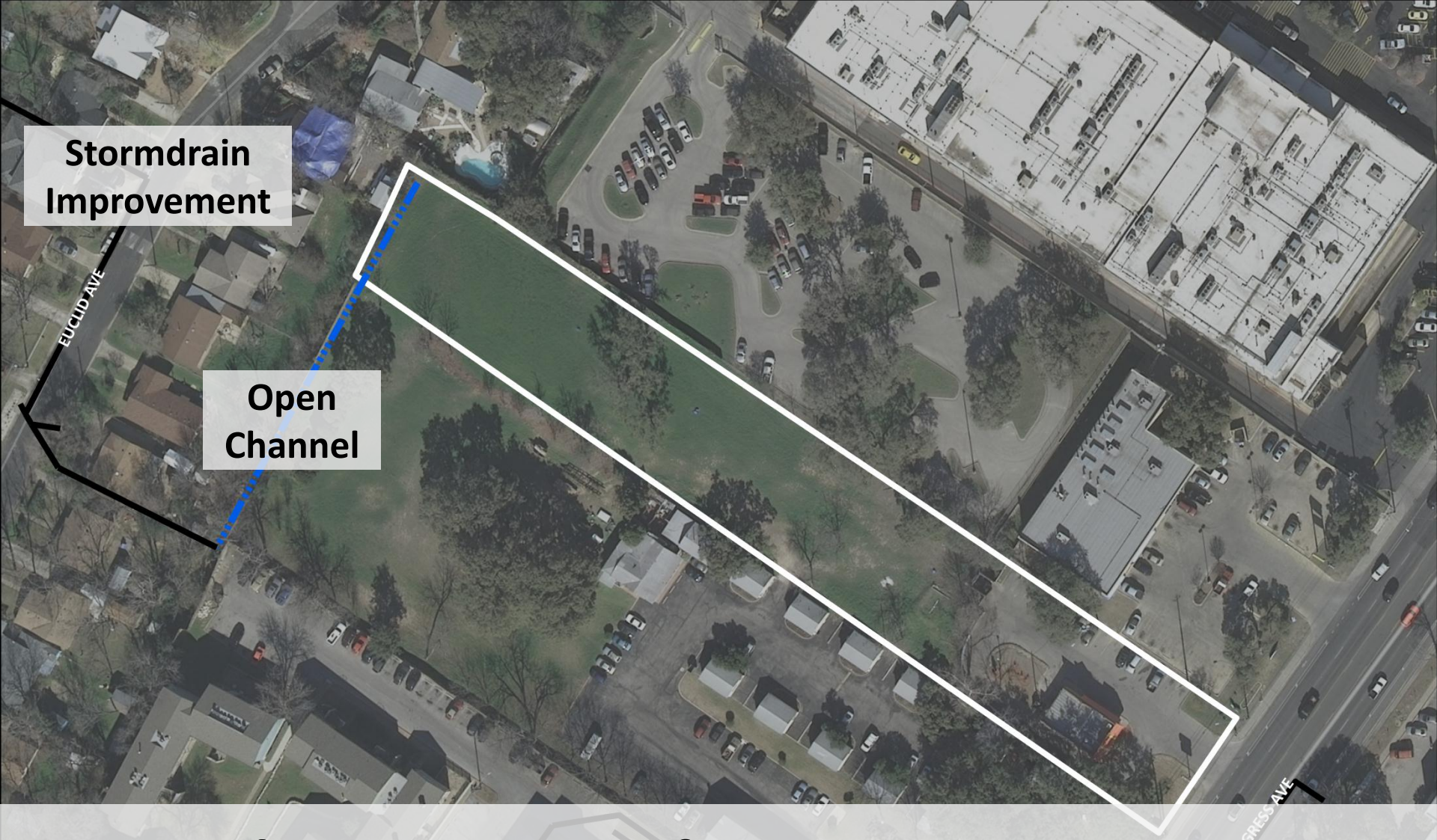
3.96 acre site x 100 = 396 acres (min. area evaluated)




South Congress & Oltorf

Existing Restaurant

1.5 Acres - Not yet redeveloped



November 2014: City of Austin WPD storm drain upgrades add downstream capacity

Property now eligible for RSMP Participation

East Riverside Cottages (Langham & Brassie)

Subdivision into 3 lots

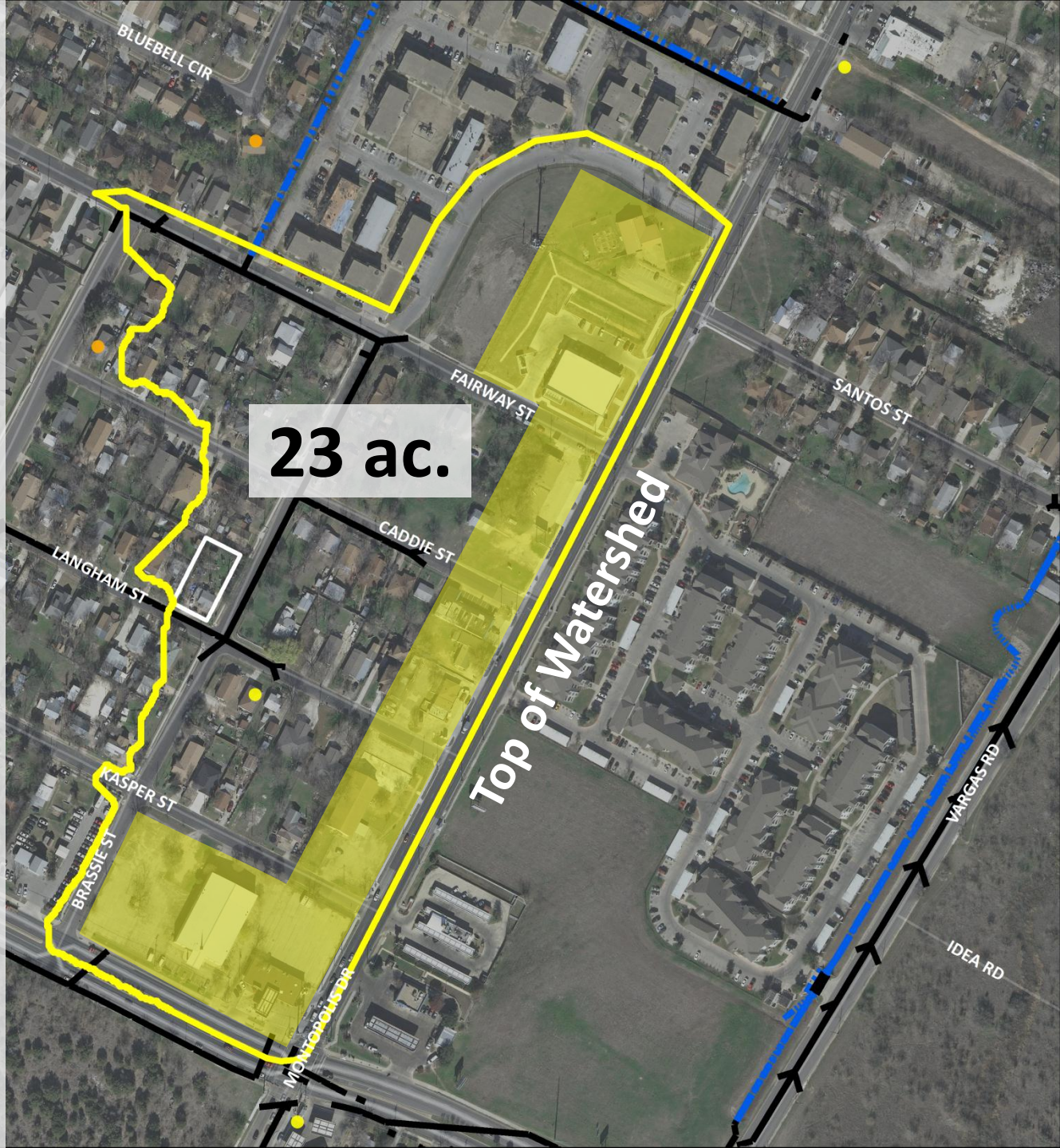
0.23 acres

Site is at the bottom of a subarea:

improved conveyance; payment-in-lieu

Properties at the top of a subarea:

detain on-site



Small Group Discussion

- How might we achieve flood mitigation for redevelopment?
- If so, under what conditions?
  - Only in areas with existing downstream problems?
  - Only apply to larger projects? How large?
  - Mitigation to pre-development conditions? Other?
- What are the public & private cost implications?
- Other considerations?

Green Infrastructure Working Group Schedule

Kickoff	Jan. 30
Land Cover & Natural Function	Feb. 20
Integrate Nature into the City	Mar. 13
Beneficial Use of Stormwater	Apr. 10
Stormwater Options for Redevelopment & Infill	**May 15**
Integration of Green Elements	**June 5**

Contact Information

Matt Hollon

Watershed Protection Department
City of Austin

(512) 974-2212

matt.hollon@austintexas.gov

Erin Wood

Watershed Protection Department
City of Austin

(512) 974-2809

erin.wood@austintexas.gov

Green Infrastructure Working Group:

http://www.austintexas.gov/page/green-infrastructure-working-group