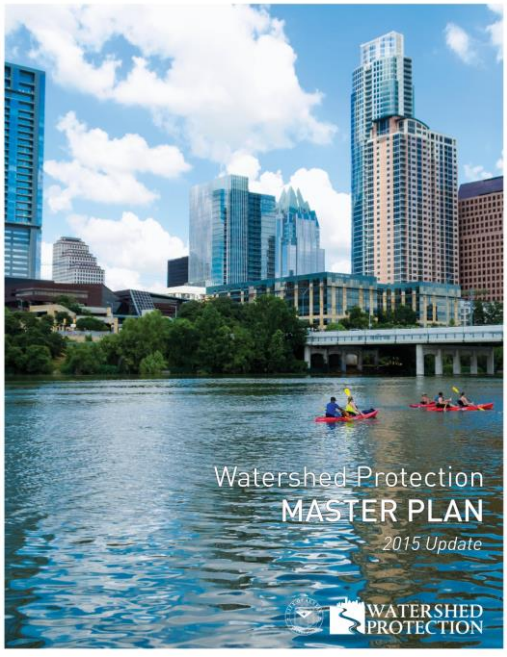


Watershed Protection Master Plan: *2015 Update*

Flood Mitigation Task Force

November 3, 2015

City of Austin WATERSHED PROTECTION

Watershed Protection Mission:

Protect the lives, property, and environment of our community by reducing the impact of flooding, erosion, and water pollution.

Flooding	Erosion	Water Quality Degradation
		
Public Safety	Property Protection	Environmental Protection

Master Plan Process

Assessment → **Solution Development** → **Implementation**

Public Involvement

2

Master Plan: Primary Mission Goals

1. **Flood Mitigation:** Protect lives and property by reducing the impact of flood events.
2. **Erosion Control:** Protect channel integrity and prevent property damage resulting from erosion.
3. **Water Quality Protection:** Protect and improve Austin's waterways and aquifers for citizen use and the support of aquatic life.

3

Master Plan Common Goals

- **Public Use & Natural Character:** Improve the urban environment by fostering additional beneficial uses of waterways and drainage facilities.
- **Regulatory Compliance:** Meet or exceed all local, state & federal permit and regulatory requirements
- **Assets Maintenance:** Maintain the integrity and function of Utility Assets
- **Optimization/Mission Integration:** Optimize City resources by integrating flood, erosion, and water quality control measures.

4

Master Plan
Flood Mitigation Objectives

1. Reduce the depth and frequency of flooding for all 100-year floodplain structures.
2. Reduce the depth and frequency of flooding on all roads in the 100-year floodplain.
3. Reduce the danger at road crossings subject to any flooding by the 100-year flood.
4. Provide mitigation for flood damage.
5. Prevent the creation of future flood hazards to human life and property.

(Continued next slide) 5

Master Plan
Flood Mitigation Objectives

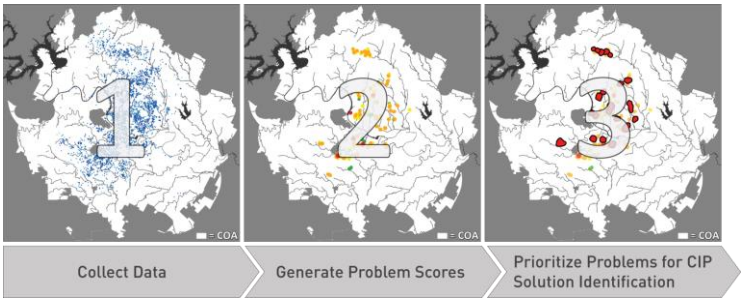
(Continued from previous)

6. Reduce the depth and frequency of local flooding for buildings.
7. Reduce the depth and frequency of local flooding for yards.
8. Reduce the danger of street flooding created by substandard storm drains.
9. Reduce standing water in public rights-of-way and drainage easements outside the 100-year floodplain.

6

Watershed Problem Scores

- Collect Data
- Generate Problem Scores
- Assess & Prioritize Problem Areas
- Address Worst Problems First



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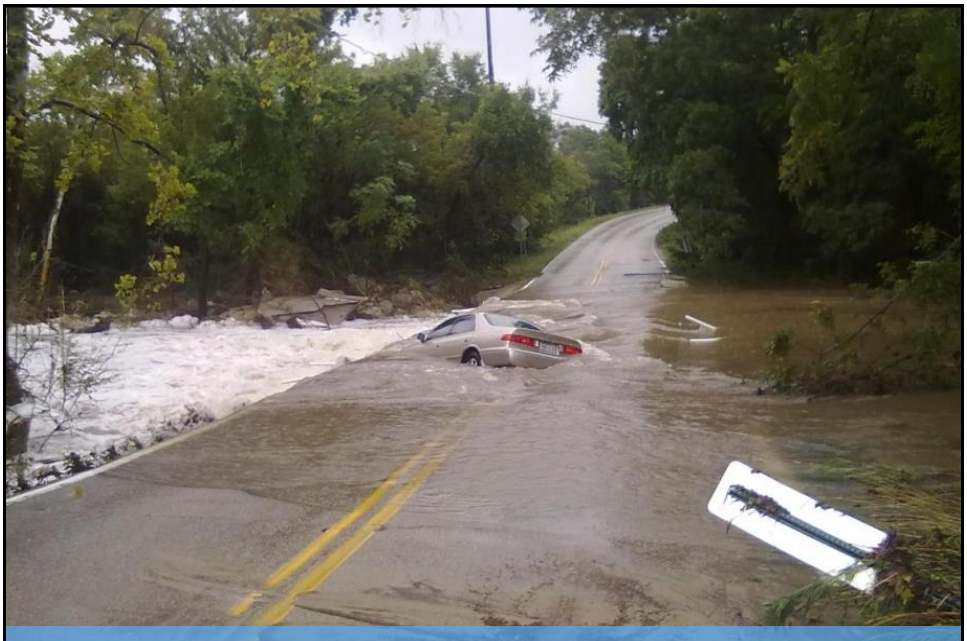


Creek Flood – Structures & Roadway Crossings

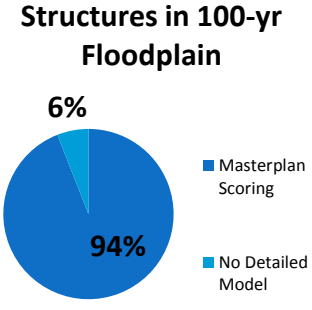
8

Evolution of Creek Flood Scoring

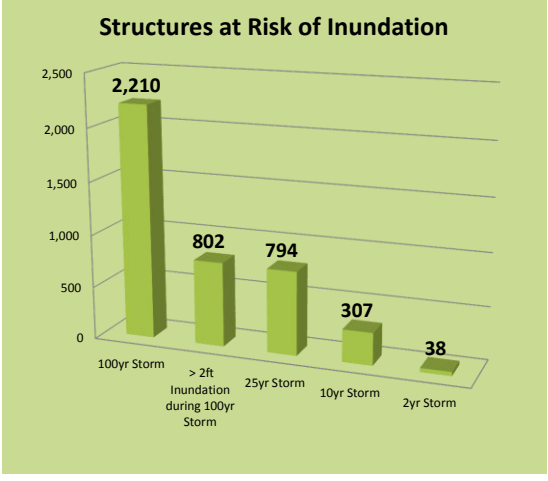
- Master Plan scoring for 15 Phase 1 watersheds in 2001
- Revised and new scoring of 23 watersheds in 2011
- Revised and new scoring of 6 watersheds in 2013
- New scoring of 1 watershed in 2015
- Current scoring is available for 27 watersheds

9

Structures at Risk of Flooding



Total ~ 5,100 Buildings in COA Full Purpose 100-year Floodplain



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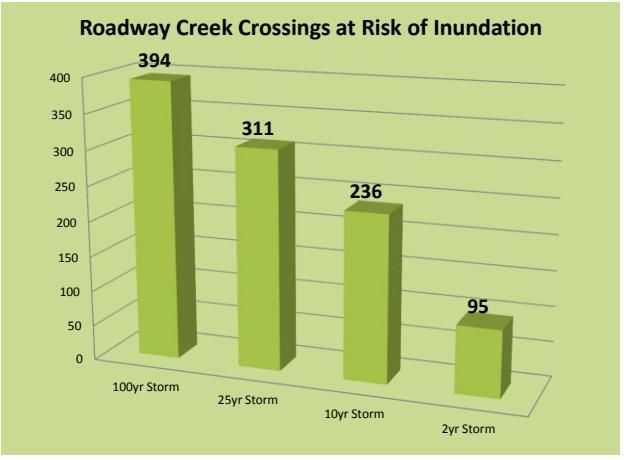
Roadway Crossings at Risk of Flooding



Total ~ 400 Creek Crossings At Risk in COA Full Purpose 100-year Floodplain

11

Creek Flood Score Methodology

Structures

$$FT_{property} = RV * (\frac{1}{2} D_2 + \frac{1}{10} D_{10} + \frac{1}{25} D_{25} + \frac{1}{100} D_{100})$$

Street Crossings

$$FT_{crossing} = RV * (\frac{1}{2} D_2 * V_2 + \frac{1}{10} D_{10} * V_{10} + \frac{1}{25} D_{25} * V_{25} + \frac{1}{100} D_{100} * V_{100})$$

Where:
RV = Resource Value, indicates type of structure or street crossing
D_2 = flood inundation depth for the COA 2 - year storm event
V_2 = channel velocity for the COA 2 – year storm event

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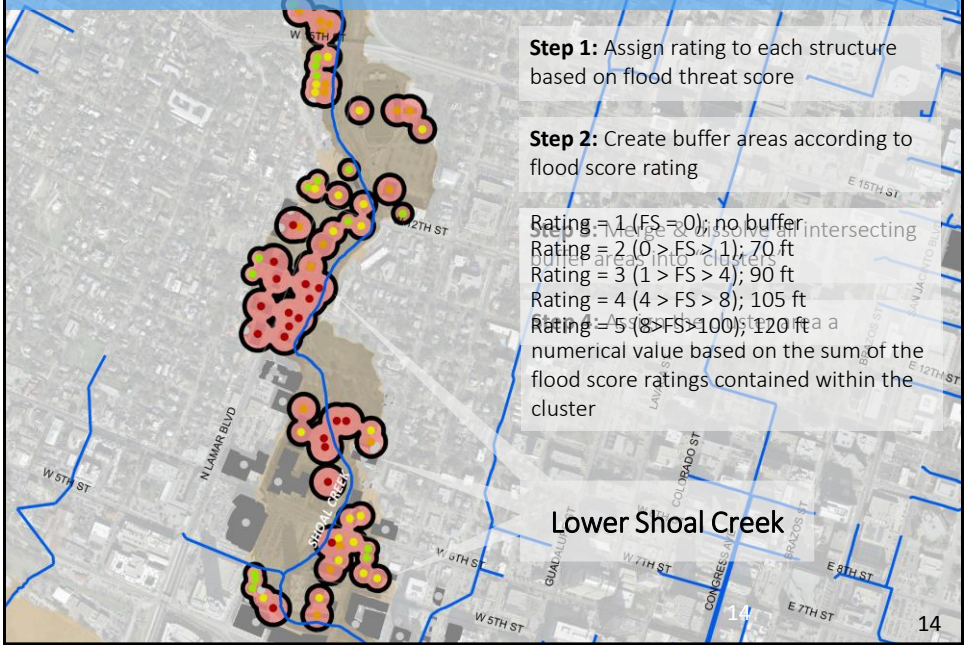
Creek Flood Score Methodology

Flood Control Resource Values			
Structures		Street Crossings	
Public Care Facilities	100	Highway	100
Residential: Multi-Family	80	Arterial Road	95
Mixed Use	80	Single Access Road	90
Residential: Single Family	60	Collector Road	85
Non-Residential	60	Local Road	80
Parking Garage	40		

Resource values for current Williamson scoring is based on 2006 land use data publicly available in COA GIS DataMart

13

Creek Flood – Current Prioritization Methodology



Step 1: Assign rating to each structure based on flood threat score

Step 2: Create buffer areas according to flood score rating

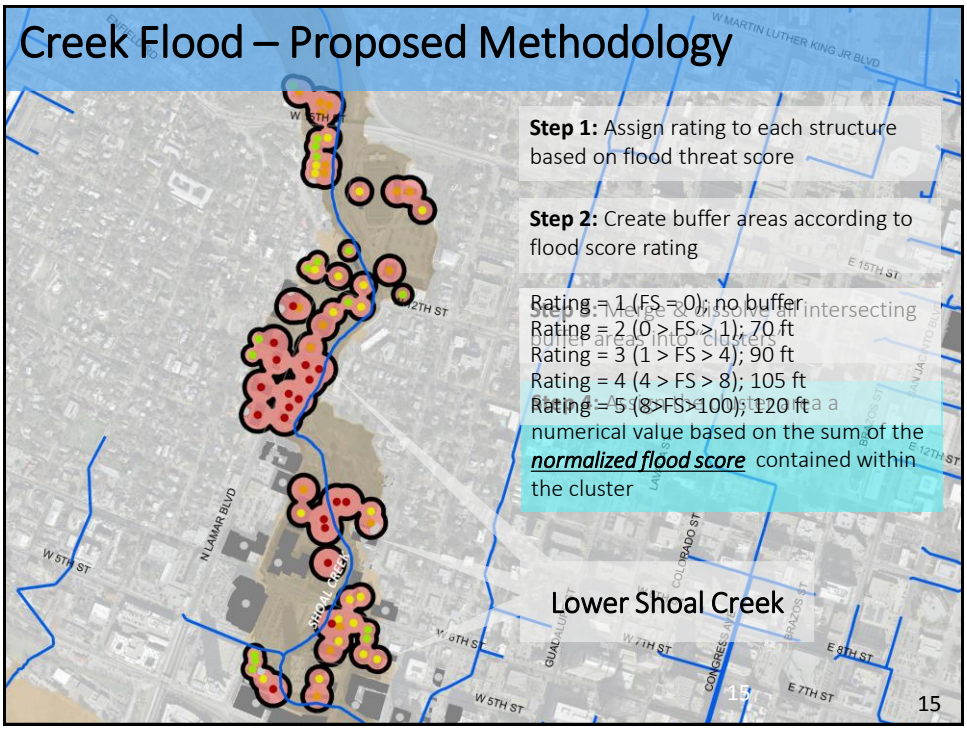
Rating = 1 (FS = 0); no buffer
Rating = 2 (0 > FS > 1); 70 ft
Rating = 3 (1 > FS > 4); 90 ft
Rating = 4 (4 > FS > 8); 105 ft
Rating = 5 (8>FS>100); 120 ft

Step 3: Merge & dissolve all intersecting buffer areas into "clusters"

Step 4: Assign flood score to a a numerical value based on the sum of the flood score ratings contained within the cluster

14

14



Top 20 Based on Old Clustering

Flood Score Rank	Flood Rating Rank	Name	Structure Count	Sum of Normalized Flood Score	Sum of Ratings Score	Watershed Name
1	1	Lower Onion Creek Buyouts **	602	987.09	1570	Onion
3	2	Williamson Creek at Cherry Creek to Congress	282	431.03	704	Williamson
5	3	Onion - Pinehurst Drive Subdivision & Wild Dunes	187	101.79	382	Onion
2	4	Lower Shoal Creek	66	455.51	230	Shoal
8	5	Shoal Creek at Hancock Tributary	80	55.37	181	Shoal
12	6	Little Walnut - Metric to Rutland	79	34.32	169	Little Walnut
	7	Tannehill Bubble/ Springdale to Prock	75	5.02	150	Tannehill
	8	Upper Shoal Creek at Steck	38	9.69	77	Shoal
13	9	Boggy - 38 1/2 to MLK	32	31.23	74	Boggy
19	10	Carson - Thompson Lane Mobile Homes	41	13.49	73	Carson
6	11	Waller Creek Tunnel (12th St to Lady Bird Lake)	26	83.64	71	Waller
14	11	Upper Little Walnut @ Quail Cove	31	27.93	71	Little Walnut
15	13	Fort Branch Betwen Berkman and Waterbrook	29	27.73	66	Fort Branch
22	13	Upper Waller - Koenig Ln to 51st Street	31	12.25	66	Waller
17	15	Speedway & 45th St (from 47th to 44th St)	26	17.54	58	Waller
23	15	WMS South Brook Dr at Scenic Brook Trib	27	12.00	58	Williamson
	15	Williamson Creek at Westgate along Cherry Creek	29	2.95	58	Williamson
	18	Williamson Creek at Kincheon Branch	25	5.87	51	Williamson
	19	Upper Tannehill - Koenig Ln to 53rd 1/2 Street	24	5.63	50	Tannehill
7	20	Carson - Bastrop Hwy and Patton Ave	14	73.86	47	Carson

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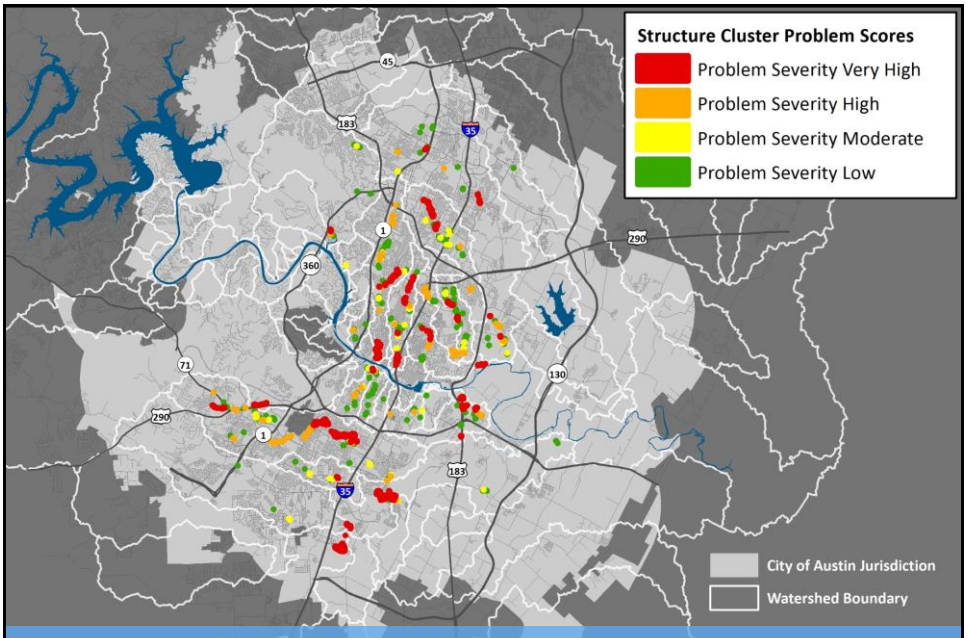
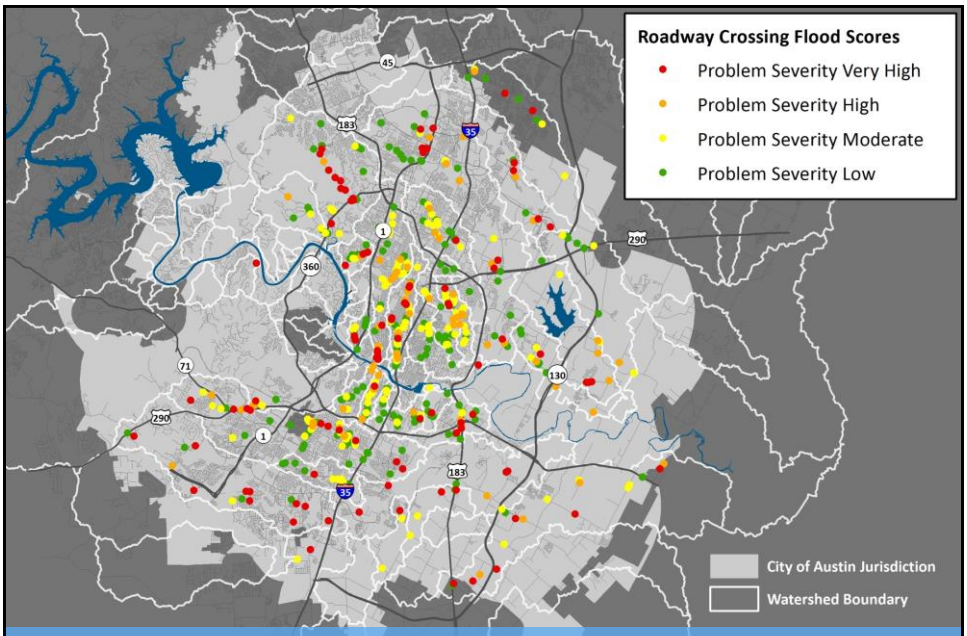
Top 20 Based on New Clustering

Flood Score Rank	Flood Rating Rank	Name	Structure Count	Sum of Normalized Flood Score	Sum of Ratings Score	Watershed Name
1	1	Lower Onion Creek Buyouts **	602	987.09	1570	Onion
2	4	Lower Shoal Creek	66	455.51	230	Shoal
3	2	Williamson Creek at Cherry Creek to Congress	282	431.03	704	Williamson
4		Carson - Metropolis Drive at US 183	6	231.45	24	Carson
5	3	Onion - Pinehurst Drive Subdivision & Wild Dunes	187	101.79	382	Onion
6	11	Waller Creek Tunnel (12th St to Lady Bird Lake)	26	83.64	71	Waller
7	20	Carson - Bastrop Hwy and Patton Ave	14	73.86	47	Carson
8	5	Shoal Creek at Hancock Tributary	80	55.37	181	Shoal
9		Carson Creek at Dalton Lane	9	43.61	26	Carson
10	21	Walnut Creek - February Drive and River Oaks Trail	16	38.63	41	Walnut
11		Boggy - Shelton Road at Delwau Lane	9	38.03	30	Boggy
12	6	Little Walnut - Metric to Rutland	79	34.32	169	Little Walnut
13		West Bouldin - Barton Springs Rd at WBO	4	33.79	17	W Bouldin
14		Walnut at FM969 - Commercial	2	33.67	10	Walnut
15	9	Boggy - 38 1/2 to MLK	32	31.23	74	Boggy
16	11	Upper Little Walnut @ Quail Cove	31	27.93	71	Little Walnut
17	13	Fort Branch Betwen Berkman and Waterbrook	29	27.73	66	Fort
		Walnut at US183 - Commercial (Austin Rugby Club)	2	27.54	10	Walnut
		Walnut at Waters Park Rd - Commercial	1	24.07	5	Walnut
18		Shoal Creek at Shoal Creek Blvd and 49th St	7	17.57	19	Shoal
19	15	Speedway & 45th St (from 47th to 44th St)	26	17.54	58	Waller
		University of Texas at Austin	5	15.22	15	Waller
		Walnut at Waters Park Road (Trailer/ shed; no improvements in TCAD)	1	14.56	5	Walnut
20	10	Carson - Thompson Lane Mobile Homes	41	13.49	73	Carson

17



Creek Flood – Structure Cluster Problem Scores

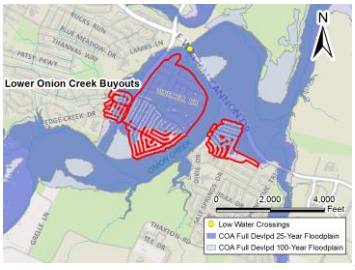


Creek Flood – Roadway Crossing Problem Scores

Lower Onion Creek Buyouts

Priority #1 (new) #1 (old)

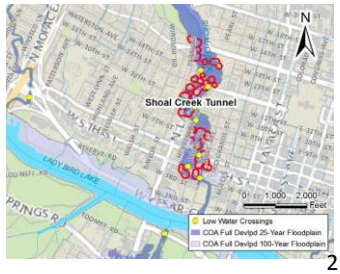
- 854 properties at risk
- Buyout determined to be most effective mitigation option
- 499 acquired since 1999 (as of May 2015)
- Funding in place for remaining acquisitions



20

Lower Shoal Creek
Priority #2 (new) #4 (old)

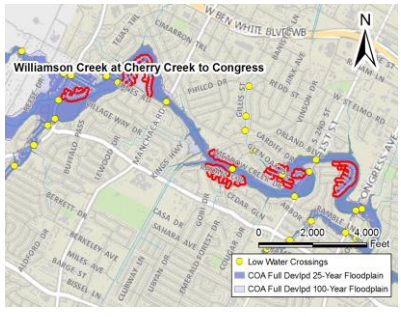
- 66 structures at risk
  - Over 40 > 3ft
- 6 low water crossings
- 1991 USACE report suggested a tunnel
- WPD re-evaluated in 2014
- Funding requested in FY17 to begin new PER/design



21

Middle Williamson
Priority #3 (new) #2 (old)

- ~282 properties at risk
  - ~78 > 3ft
- Phase 1 – Buyouts of structures at risk in 25-year floodplain
  - Funding in place to begin acquisitions
  - 3 properties acquired in FY14
- Phase 2: Reevaluation of feasible solutions to provide protection in 100-year floodplain (including West Gate to Manchaca)



22

Local Flood

23

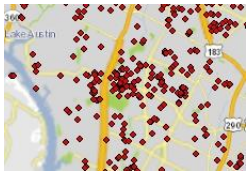
Complaint Investigation

austin 3·1·1 SM
Your All Day, Any Day, Info Center SM

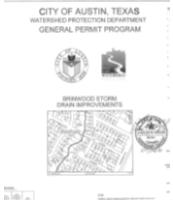
3-1-1 Call

Investigate

- Maintenance?
- Field Engineering?
- CIP?



Prioritize



Planning/Design

Construction

24

Prioritization

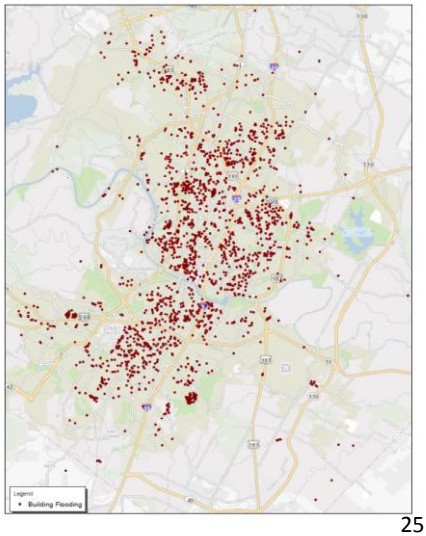
- How does WPD choose where to go?
- Classify all complaints
- Too many complaints

  2,109 Building

  2,611 Yard

  1,445 Street

  6,165 TOTAL



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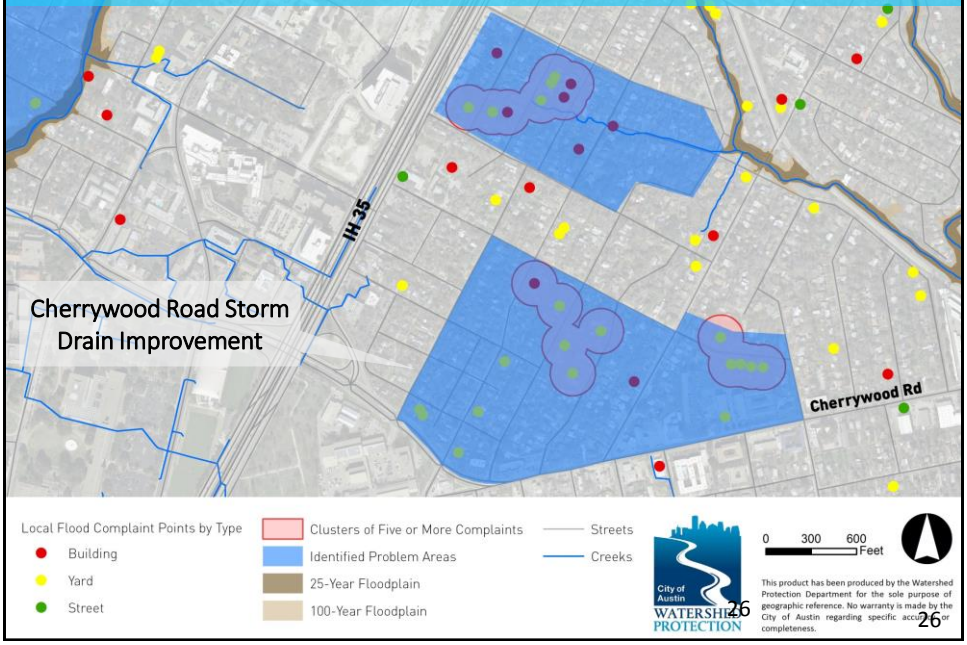
Local Flood – Current Prioritization Methodology



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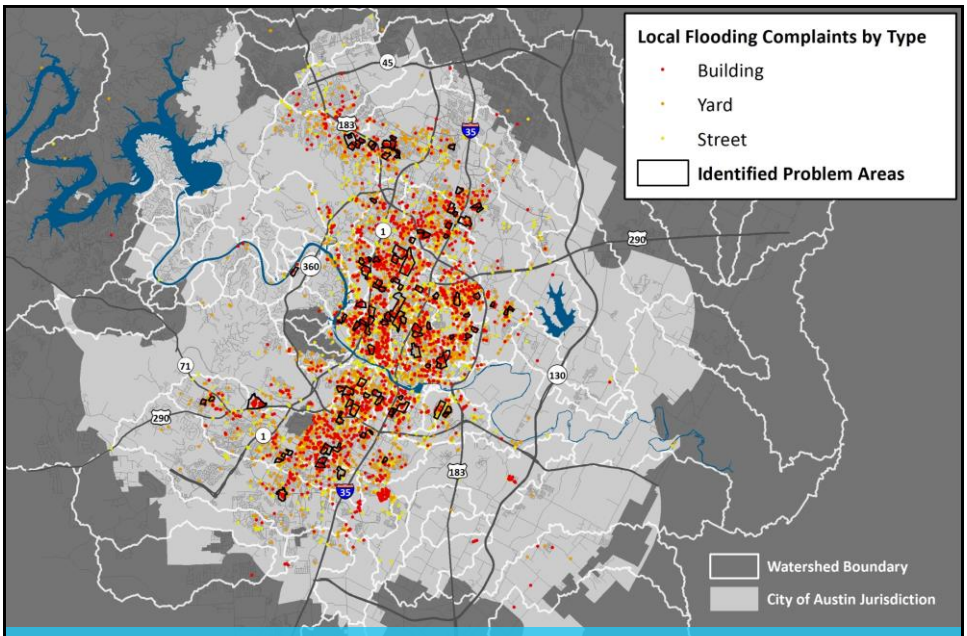
26



Local Flood – Complaints & Problem Areas

Challenges

- Inadequate funding to address needs
- Aging storm drain infrastructure
- Prioritization based on complaints
- Rain intensity variations
- Rapid infill development
- City Land Development Code does not trigger storm infrastructure upgrades

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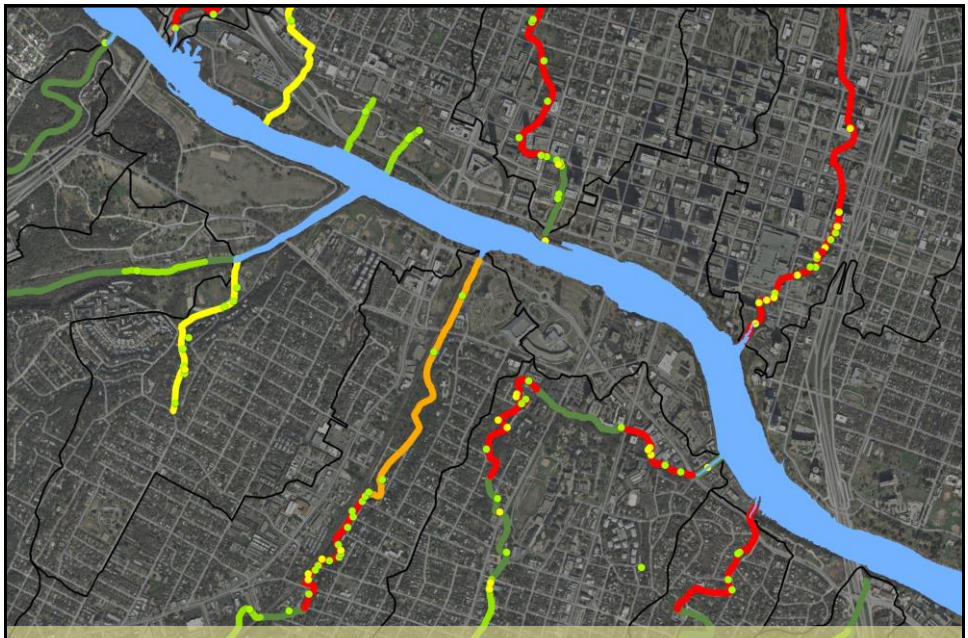
Erosion

29

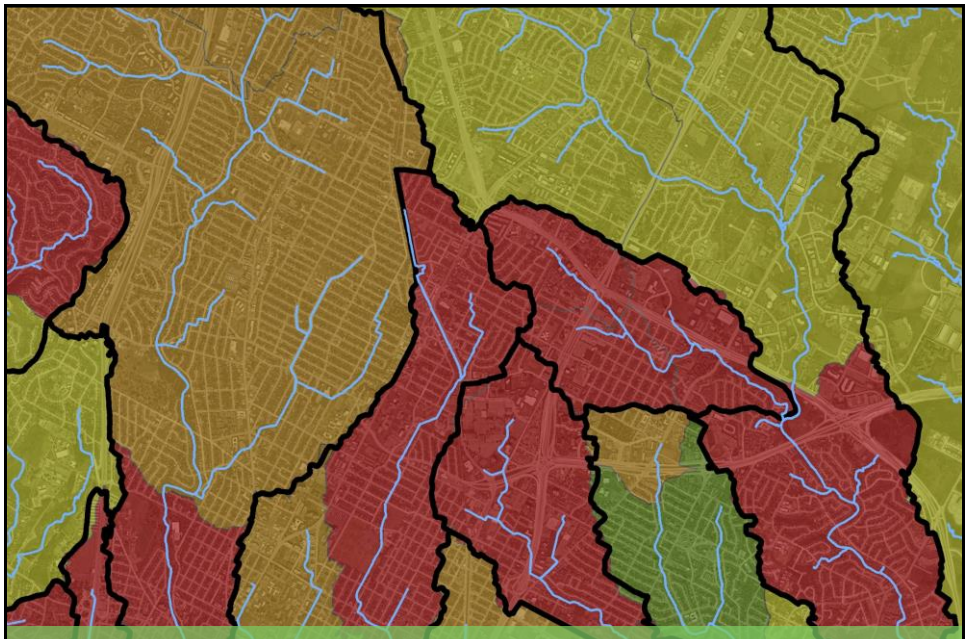


Erosion Data – Erosion Assessments

30

Water Quality

31



Water Quality Data – Environmental Integrity Index

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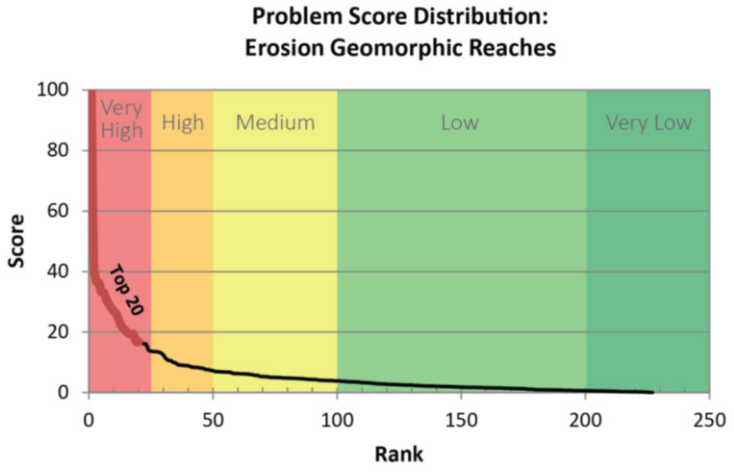
Problem Score Distribution



Example scoring distribution

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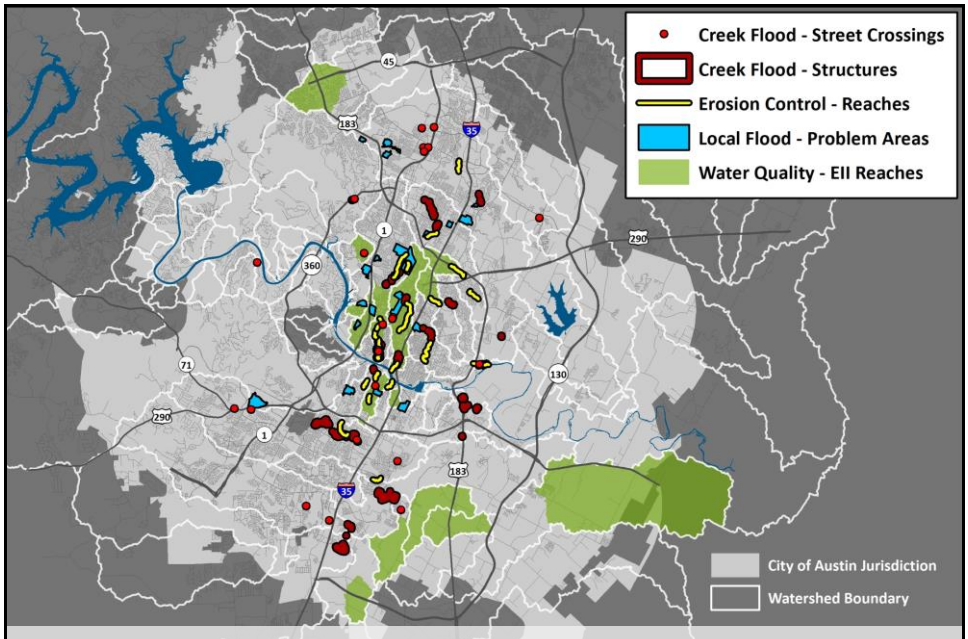
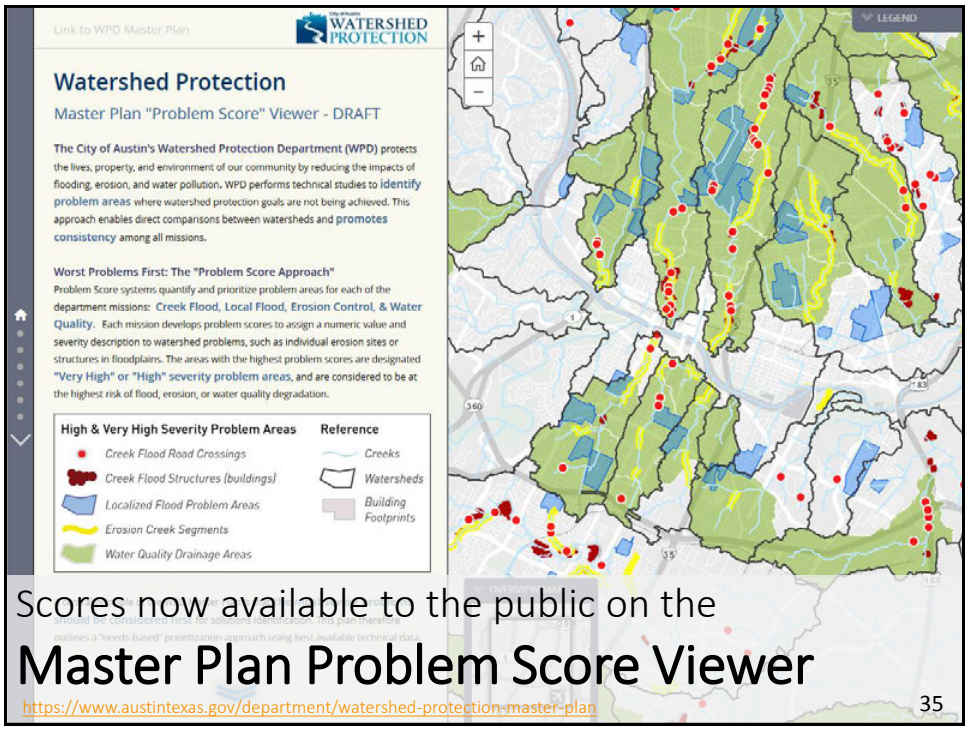


All Missions – Top 20 Priority Problem Areas

34



Scores now available to the public on the

Master Plan Problem Score Viewer

https://www.austintexas.gov/department/watershed-protection-master-plan

35

Evaluate Data

- What causes the problem?
- What is the most effective solution?
  - **Capital** (primarily structural solutions)
  - **Programmatic** (wide range, including educational, maintenance, permitting, planning and design)
  - **Regulatory** (most effective as a preventative)
- What missions are impacted?
- Do partnership opportunities exist?

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How We Use Our Problem Scores

- Prioritize and Inform our Annual Budget Process
  - ➢ Program level of service needs
  - ➢ Capital project identification
- Input to Capital Planning Office Annual Strategic Plan

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Solution Identification

Master Plan = framework for WPD to address existing problems and prepare for future challenges.

55 Capital solution types included in inventory

38 Programmatic solutions types included in inventory

58 Regulatory solutions types included in inventory

38

Projected Capital Project Cost

- 2015 updated cost estimates
  - Primary Drainage System: $1.1-1.4 B
  - Storm Drain System: $700-800 M
  - Includes 30 watersheds
  - **Estimated $1.8 - 2.2 Billion**
- Cost does not include Asset Management needs

39

WPD Unmet Needs

- Top 20 ranked problem areas with significant unfunded need beyond the funding capacity of the five-year CIP appropriation plan.

Mission	Subproject Type	Estimated Total Cost
Flood Mitigation	Structural and nonstructural creek flood mitigation solutions	$378,300,000
	Storm drain improvements	$327,400,000
Water Quality Protection	Structural water quality controls, restoration projects	$46,700,000
	Land Acquisition	$50,600,000
Erosion Control	Creek bank stabilization projects	$24,500,000
	Total	$827,500,000

- Does not include Asset Management needs
- Does not include problems areas below Top 20 ranking or unidentified problems

40

Creek Flood Hazard Mitigation Needs

- Funding for flood mitigation/ recovery buyouts after storm events (February Drive homes in Walnut)
- Funding for flood mitigation for homes along creeks that are not in a floodplain (Temple drive homes, Craybrough Circle at Johnny Morris Road)
- Funding and resources for maintenance requirements that our field operations group cannot handle (Shoal creek blowout)

41

February Drive Homes (Walnut Creek)

- Five homes flooded during the 2015 Memorial Day Flood
- Up to 4 feet of interior flooding
- 11509, 11601, 11603, 11605, and 11607 February Drive
- Constructed in 1970s, annexed in 2005
- Feasibility study complete: buyout is recommended solution
- No mechanism to offer them immediate buyout
- 11603, 11605, and 11607 February Drive vacant since Memorial Day flood

42

Temple Drive at MLK Blvd (Tannehill Branch)

- 3 downstream homes at risk when MLK Boulevard overtops
- 2 houses flooded in 2015 Memorial Day Flood
- FEMA floodplain does not extend downstream of MLK Blvd
  - No development regulation
  - No flood insurance requirements
  - Not on Creek Flood's ranking list
- Possible solutions: floodwall, upstream detention, buyouts

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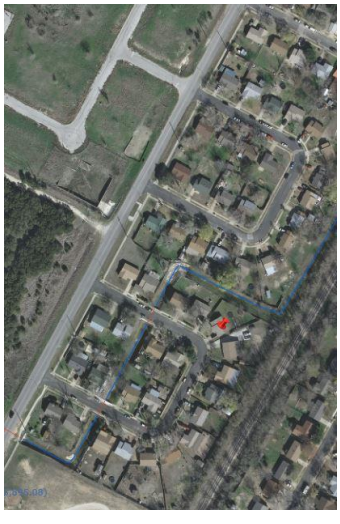
Craybrough Circle at Johnny Morris Rd



- Estimated 5 homes flood when engineered channel overtops
- 1 home flooded in 2015 Memorial Day Flood
- No FEMA floodplain
  - No development regulation
  - No flood insurance requirements
  - Not on Creek Flood's ranking list
- Existing channel has damage to concrete riprap, severe erosion, sedimentation
- Solution complex due to inadequate capacity, culverts at road crossings and channel geometry

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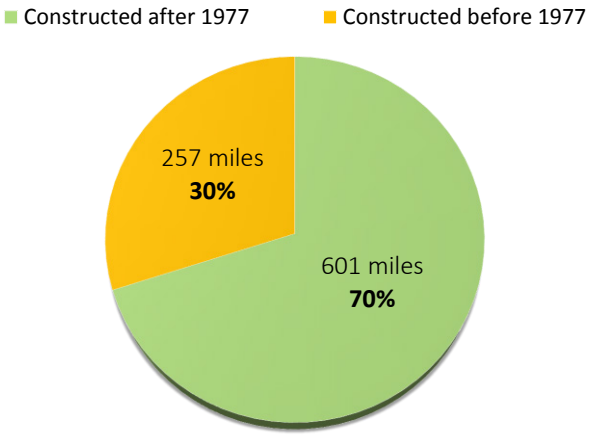
Local Flood Hazard Mitigation Needs

Storm Pipe Inventory



Critical Need by Age	
Pipe Built before 1956	73 miles
No construction date; assume older than 1956	42 miles
Total	**115 miles**

Critical Need by Capacity & Age	
Constructed before 1956	115 miles
Constructed before 1977	142 miles
Total	**257 miles**

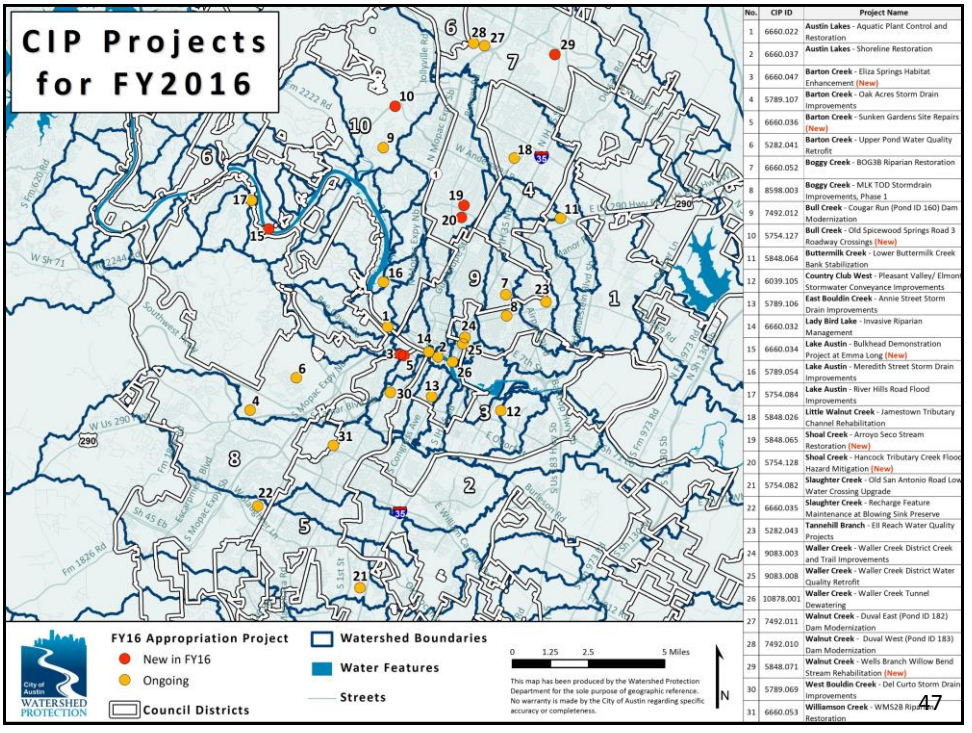
45

Local Flood Hazard Mitigation Needs

Replacement Cost for Critical Need by Age		
To Replace in **5 years**	23.1	miles/year
Assume $1,200/LF (1 mi = $6.3M/mile)		
	$146 M	annually for 5 years
		or
	$731 M	5 YR CIP need
To Replace in **10 years**	12	miles/year
Assume $1,200/LF (1 mi = $6.3M/mile)		
	$73 M	annually for 10 years
		or
	$731 M	10 YR CIP needed

Replacement Cost for Age and Capacity Need		
To Replace in **5 years**	51.4	miles/year
Assume $1,200/LF (1 mi = $6.3M/mile)		
	$326 M	annually for 5 years
		or
	$1.6 B	5 YR CIP needed
To Replace in **10 years**	25.7	miles/year
Assume $1,200/LF (1 mi = $6.3M/mile)		
	$162 M	annually for ten years
		or
	$1.6 B	10 YR CIP needed

46



No.	CIP ID	Project Name
1	6660.022	**Austin Lakes** - Aquatic Plant Control and Restoration
2	6660.037	**Austin Lakes** - Shoreline Restoration
3	6660.047	**Barton Creek** - Eliza Springs Habitat Enhancement (New)
4	5789.107	**Barton Creek** - Oak Acres Storm Drain Improvements
5	6660.036	**Barton Creek** - Sunken Gardens Site Repairs (New)
6	5282.041	**Barton Creek** - Upper Pond Water Quality Retrofit
7	6660.052	**Boggy Creek** - BOG3B Riparian Restoration
8	8598.003	**Boggy Creek** - MLK TOD Stormdrain Improvements, Phase 1
9	7492.012	**Bull Creek** - Cougar Run (Pond ID 160) Dam Modernization
10	5754.127	**Bull Creek** - Old Spicewood Springs Road 3 Roadway Crossings (New)
11	5848.064	**Buttermilk Creek** - Lower Buttermilk Creek Bank Stabilization
12	6039.105	**Country Club West** - Pleasant Valley/ Elmont Stormwater Conveyance Improvements
13	5789.106	**East Bouldin Creek** - Annie Street Storm Drain Improvements
14	6660.032	**Lady Bird Lake** - Invasive Riparian Management
15	6660.034	**Lake Austin** - Bulkhead Demonstration Project at Emma Long (New)
16	5789.054	**Lake Austin** - Meredith Street Storm Drain Improvements
17	5754.084	**Lake Austin** - River Hills Road Flood Improvements
18	5848.026	**Little Walnut Creek** - Jamestown Tributary Channel Rehabilitation
19	5848.065	**Shoal Creek** - Arroyo Seco Stream Restoration (New)
20	5754.128	**Shoal Creek** - Hancock Tributary Creek Flood Hazard Mitigation (New)
21	5754.082	**Slaughter Creek** - Old San Antonio Road Low Water Crossing Upgrade
22	6660.035	**Slaughter Creek** - Recharge Feature Maintenance at Blowing Sink Preserve
23	5282.043	**Tannehill Branch** - Elf Reach Water Quality Projects
24	9083.003	**Waller Creek** - Waller Creek District Creek and Trail Improvements
25	9083.008	**Waller Creek** - Waller Creek District Water Quality Retrofit
26	10878.001	**Waller Creek** - Waller Creek Tunnel Dewatering
27	7492.011	**Walnut Creek** - Duval East (Pond ID 182) Dam Modernization
28	7492.010	**Walnut Creek** - Duval West (Pond ID 183) Dam Modernization
29	5848.071	**Walnut Creek** - Wells Branch Willow Bend Stream Rehabilitation (New)
30	5789.069	**West Bouldin Creek** - Del Curto Storm Drain Improvements
31	6660.053	**Williamson Creek** - WMS28 Riparian Restoration

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Capital Project Appropriation Planning

Mission Integration and Prioritization Team

- Erosion, flood and water quality missions represented, including field operations
- Prioritized mission problem scores used to develop CIP Appropriation Plan and City's long-range needs
- Balance projects with staff workload
- Continual project development through feasibility, preliminary engineering, design, and construction
- Balance funding between missions to meet Master Plan goals
- Dedicate funds for Citywide priorities and emergency contingency

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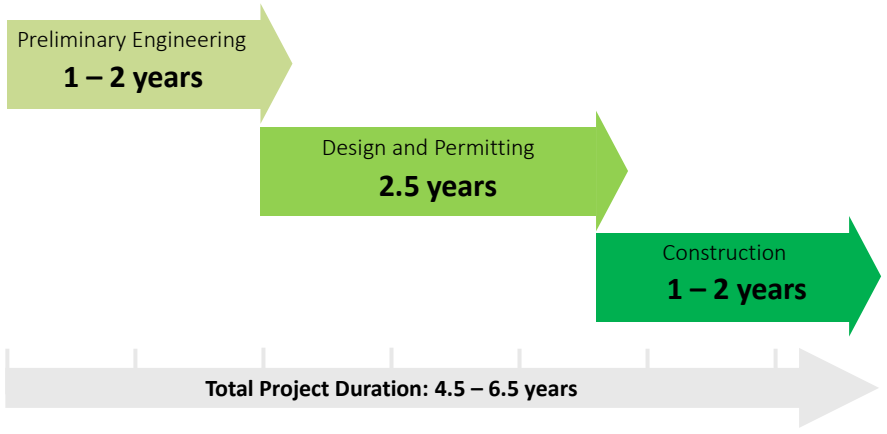
Typical Project Schedule



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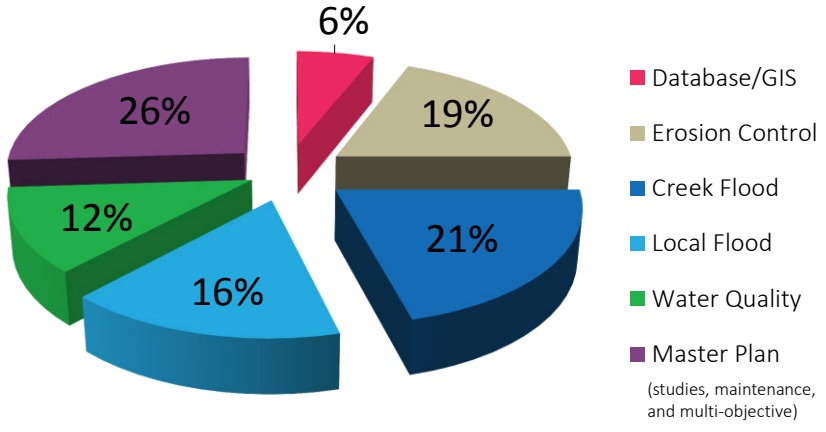
WPD Historical Mission CIP DUF Annual Appropriation Breakout



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Capital Project Implementation

Integration Ensures Cost-Effective Multi-Mission Benefits

- Maximize project benefits
- Minimize/mitigate negative impacts
- Manage project cost
- Coordinate watershed missions
- Coordinate with:
  - Imagine Austin Priority Programs
  - Citywide initiatives
  - Neighborhood Plan Action Items

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Capital Project Accomplishments 2001-2016

Mission	Benefits
Creek Flood	• Over 1,160 total structures with reduced creek flood risk - Over 500 structures with reduced flood risk via a structural solution - Over 600 parcels removed from flood risk with property buyouts • 10 low-water crossings upgraded
Local Flood	• Over 5.7 miles of pipe constructed • Over 350 structures with increased local flood protection
Erosion Control	• Over 4.6 miles of streambank protected • 29 parcels removed from erosion risk with property buyouts
Water Quality Protection	• Over 1.5 million lbs of total suspended solids (TSS) removed per year • Over 7,000 acres land area treated by structural controls

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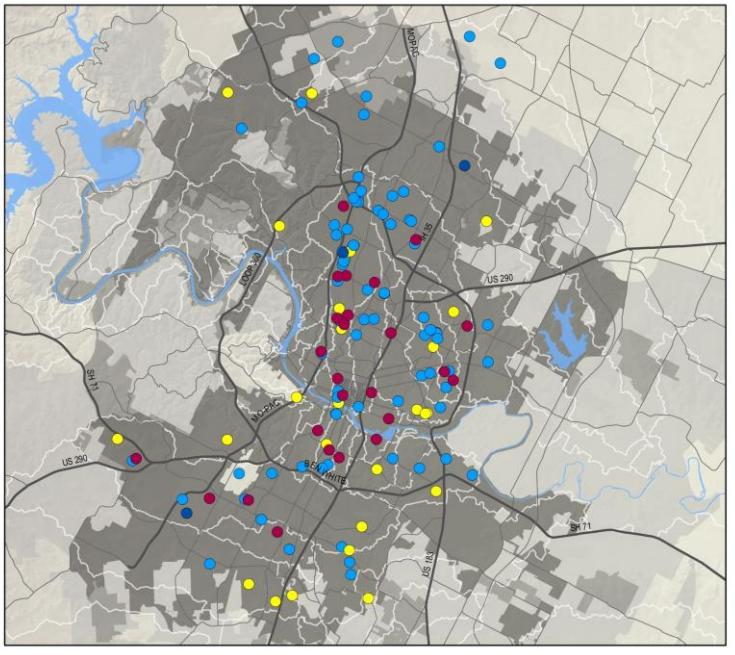
Completed Flood Mitigation Capital Improvement Projects



2001-2015 Capital Project Accomplishments

Crystalbrook Flood Mitigation Project

Completed 2004

- Included a levee and floodwall, a box culvert, a bypass channel, 12,000 linear feet of storm drain, and slope stabilization at a cost of $15M ($85,700 per home)
- Provided 100-year flood protection for 175 homes
- Preserved 3,500 linear feet of the natural stream channel , which scored in the highest categories for Aquatic Life Support and Non-Contact Recreation,
- Preservation of more than 1,000 protected trees > 19-inch in diameter.

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2001-2015 Capital Project Accomplishments

Creek Bend Flood Mitigation Project

Completed 2001

- Included construction of subdivision storm drain improvements, upstream channel modification and flood protection level/wall, enlargement of the Pleasant Valley Road bridge opening to increase channel conveyance capacity, and purchase and demolition of sixteen duplexes located very close to the creek channel.
- Provided 100-year flood protection for 185 homes
- Cost ~$6.5 M

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2001-2015 Capital Project Accomplishments

Onion Creek Buyouts

Ongoing

- 579 flood risk properties acquired to date
- Combination of funding sources including DUF, RSMP, GO Bonds, COs, FEMA funding, and USACE funding
- $88.7M total project cost
- Homes are removed and property is restored, resulting in multi-mission ecosystem benefits

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2001-2015 Capital Project Accomplishments

Hoeke Lane Low Water Crossing

Completed 2013

- Road overtopped in minor storm events and was sole access for a residential neighborhood
- Elevated and widened road at creek crossing
- Installed 14 culverts
- Provided sidewalk
- Installed curb and gutter

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2001-2015 Capital Project Accomplishments

Blarwood Storm Drain Improvement

- Status – substantially completed
- 11,000 linear foot of storm drain pipe construction
- 4,200 linear foot of water line
- Stream bank stabilization
- Mitigate flooding for more than 60 homes (2D evaluation)
- Cost ~ $8.0 M
- Funding Source – 2006 Bond

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2001-2015 Capital Project Accomplishments

Ridglea Storm Drain Improvement

- Status – in construction
- 4,000 linear foot of storm pipe construction
- 5,800 linear foot water line upgrades
- 2,000 linear foot wastewater line upgrades
- Pavement reconstruction
- Shoal Creek stream bank restoration
- Cost - $6.9 M
- Funding Source – 2006 & 2012 Bonds

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2001-2015 Capital Project Accomplishments

Blunn Long Bow Storm Drain Improvements

Completed 2013

- Installed 6,200 linear feet of storm drain
- 25 homes benefitted from reduced flooding
- 6 locations of street flooding alleviated
- Cost - $5.1 M

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2001-2015 Capital Project Accomplishments

Shoal Creek Allandale Storm Drain Improvements

Completed 2013

- Installed 5,900 linear feet of storm drain
- Project addressed 15 building complaints, 2 yard complaints, and 26 street complaints
- Cost - $8.5 M

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2001-2015 Capital Project Accomplishments

Fort Branch Reaches 6 & 7 Channel Restoration

Completed 2014

- Stabilized 1,600 linear feet of stream bank
- New span bridge
- Flood Buyout of 5 homes in 25-year floodplain
- Installed 700 linear feet of storm drain
- Cost - $5.4M

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2001-2015 Capital Project Accomplishments

Williamson Lundelius-McDaniels Water Quality Pond

Completed 2011

- Provides treatment for over 200 acres in Barton Springs Zone
- Removes over 28,000 Lbs Total Suspended Solids annually
- Removes over 128 lbs Nitrogen annually
- Cost - $ 1.3M

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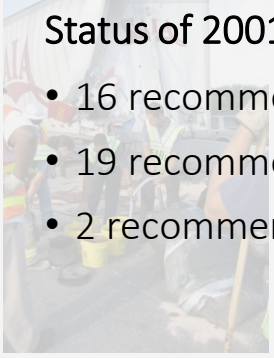
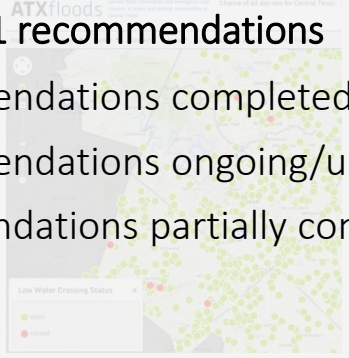
Program Solutions

Status of 2001 recommendations

- 16 recommendations completed
- 19 recommendations ongoing/underway
- 2 recommendations partially completed



Spills Response



ATXfloods

Erosion Repair Crews

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Program Solutions
2015 Recommendations

Additional resources needed.

(11 Proposed recommendations for 9 programs)

- Erosion Repair and Open Waterway Crews
- Local Flood Hazard Mitigation
- Field Engineering Services
- Infrastructure Inspection
- Storm Drain Cleaning and Rehabilitation
- Storm Water Management
- Pond Maintenance
- Green Infrastructure Maintenance

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Regulatory Solutions
Status of 2001 Regulatory recommendations

Regulations

- 27 of 29 recommendations completed
- Watershed Protection Ordinance (WPO) approved by Council on October 17, 2013
- No further action recommended for remaining items

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2015 Master Plan Recommendations: Regulatory

1. Improved integration of landscape and green stormwater infrastructure requirements - CodeNEXT
2. Improved flood mitigation requirements for redevelopment & infill projects - CodeNEXT

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2015 Master Plan Summary Recommendations

Continue to implement current successful policies:

1. Long-range funding strategies
2. Integrate solutions
3. Address worst problems first
4. Partnerships essential
5. Use Master Plan for business and budget planning
6. Involve stakeholders
7. Continue Phase 2 studies
8. Integrate watershed protection into CodeNEXT

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2015 Master Plan Summary Recommendations

New Recommendations:

9. Develop an asset management plan
10. Refine goals
11. Update Master Plan regularly

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Questions?

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