



Meeting Objective

Discuss & evaluate different stream buffer configurations and judge which best achieve watershed protection and development opportunity goals.

Meeting Agenda

1. Introductions (5 min.)
2. Buffer Presentation by Staff (40 min.)
 - a) Defining a Stream Buffer: Considerations
 - b) Suburban Watershed Buffer Scenarios
 - > Gilleland Creek Case Study
 - > Sun Chase Case Study
 - c) "Manning's n" Floodplain Character Analysis
3. Small Group Discussion (55 min.)
4. Full Group Review (20 min.)

Defining a Buffer

- How do we currently define protective buffers for our creeks?
 - Width by Drainage Area Threshold
 - Width Measured from Centerline
- Adjustments for future?
 - Buffer Averaging (Dec. 2)

Buffer Regulations: What We Want

1. Simple
 - Easy to define, review
 - Protect multiple functions with single geometry
 - Fewer, not more, different buffer systems
2. Predictable
 - Easy to estimate developable land for project
 - Well-defined criteria for adjustments (instead of variance)
3. Flexible
 - Allows for limited averaging, modification without jeopardizing function

Buffer Functions: What We Want

1. Water Quality Protection
 - Buffer width (minimum)
 - Buffer extent (drainage area threshold)
2. Erosion Protection
 - Erosion Hazard Zone
3. Floodplain Functionality
 - Floodplain boundary
 - Modification limitations
 - Manning's n coefficient

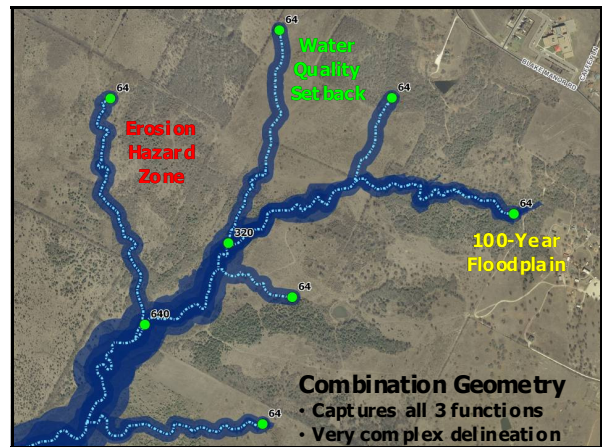
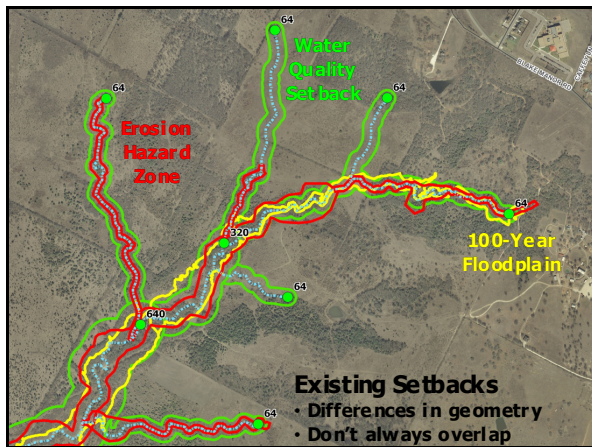
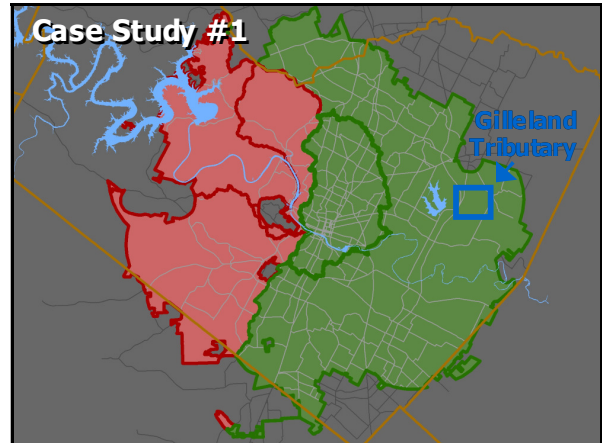
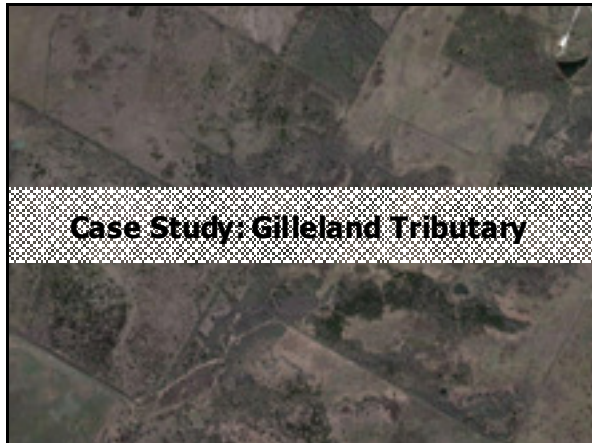
Potential Buffer Scenarios

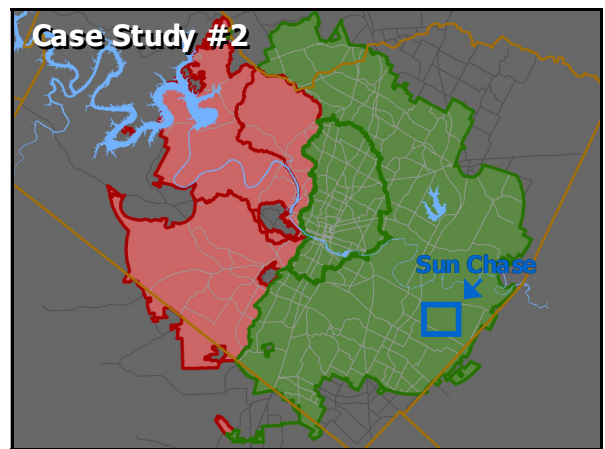
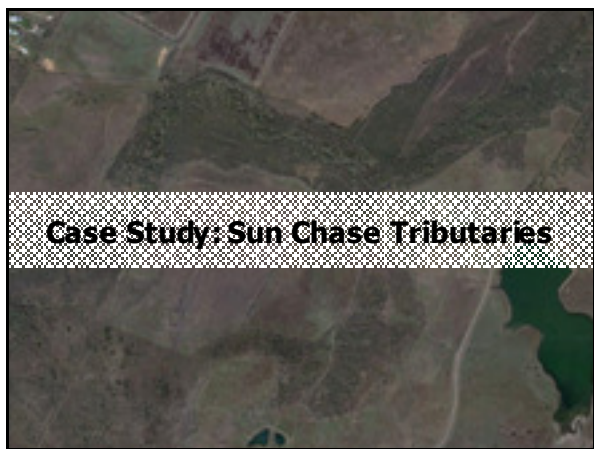
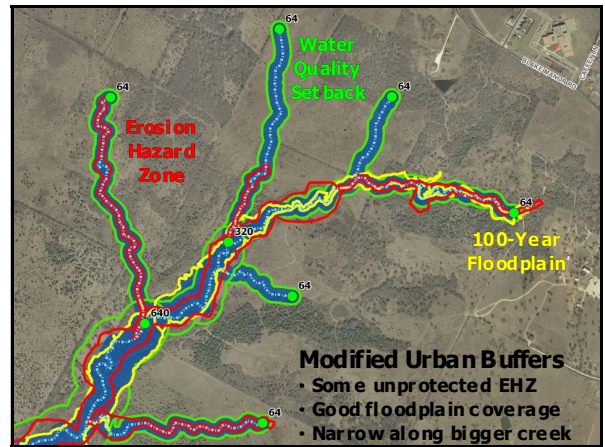
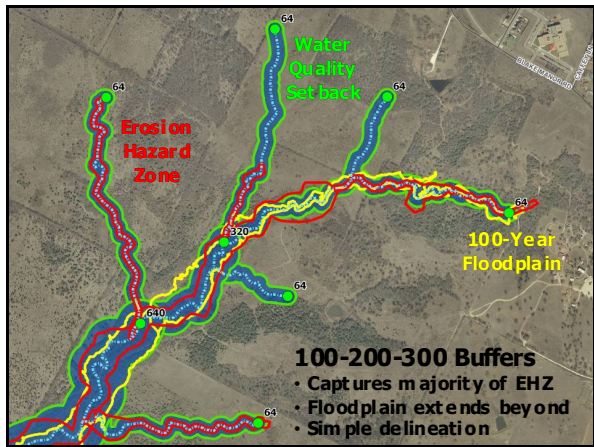
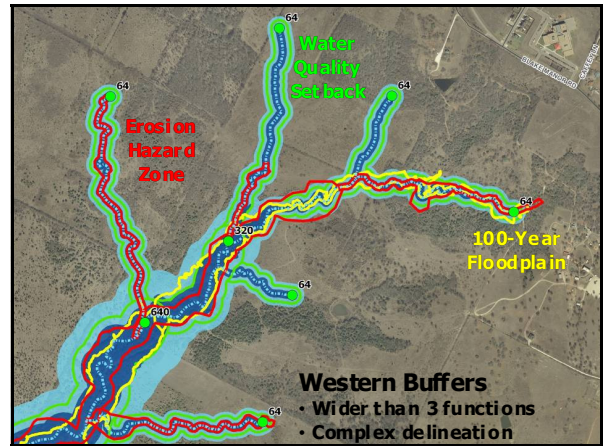
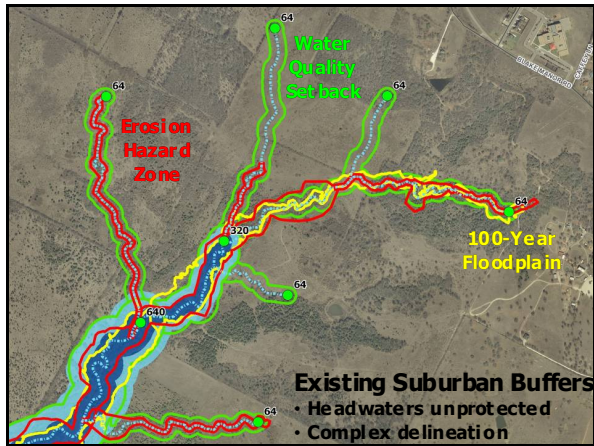
- 1. Existing Suburban Watershed Buffers**
 - Two-tiered system (CWQZ/WQTZ)
 - 320 ac. Minor/640 ac. Intermediate/1280 ac. Major
 - 50 - 100/100 - 200/200 - 400 feet from centerline (based on 100-Year Fully-Developed Floodplain)
- 2. Western Buffers**
 - Water Supply Rural/Some BSZ watersheds
 - Two-tiered system (CWQZ/WQTZ)
 - 64 ac. Minor/320 ac. Intermediate/640 ac. Major
 - 50 - 100/ 100 - 200/200 - 400 feet from centerline (based on 100-Year Fully-Developed Floodplain)

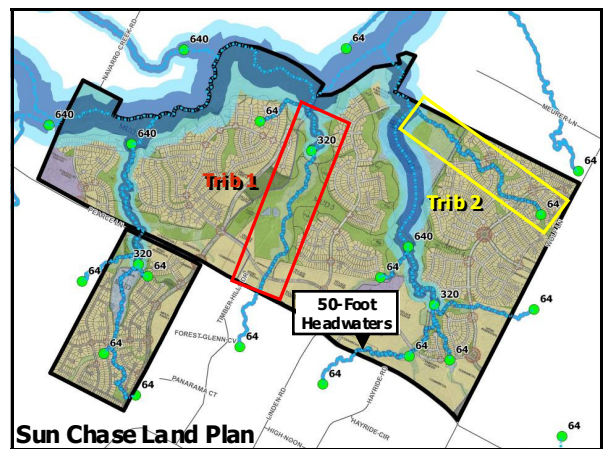
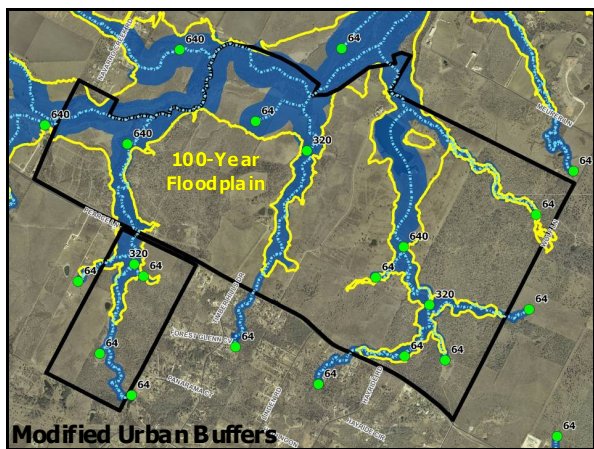
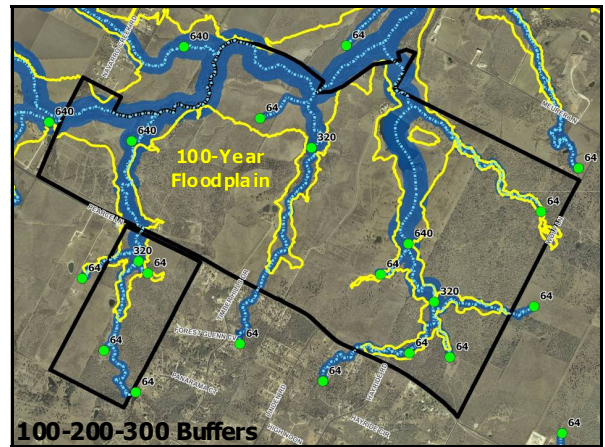
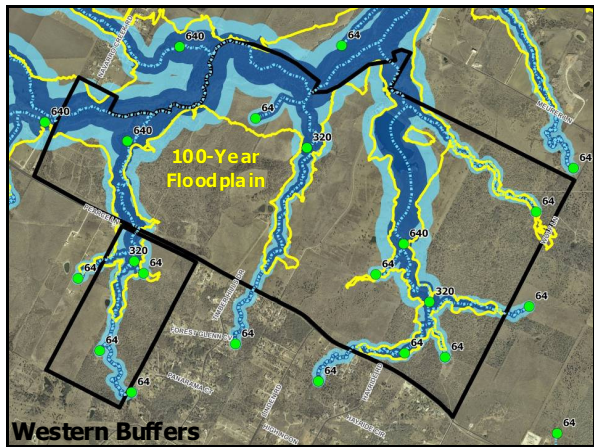
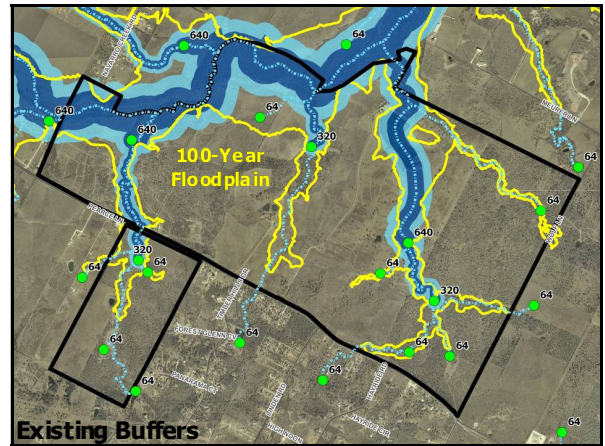
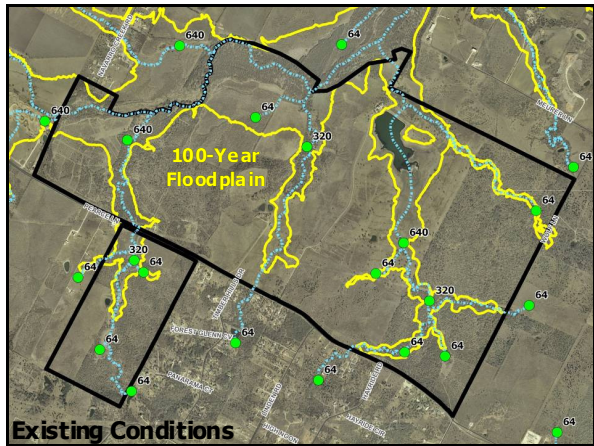
Potential Buffer Scenarios (Cont'd)

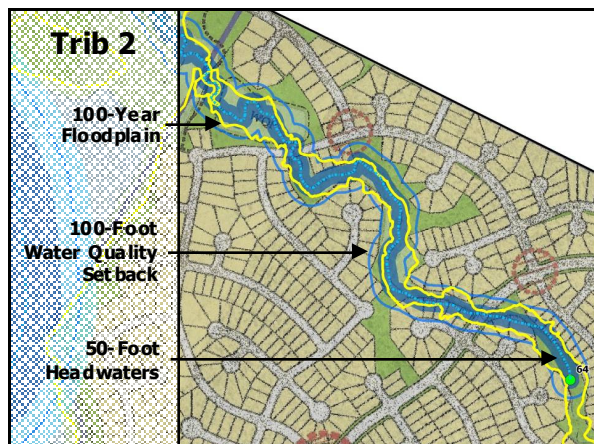
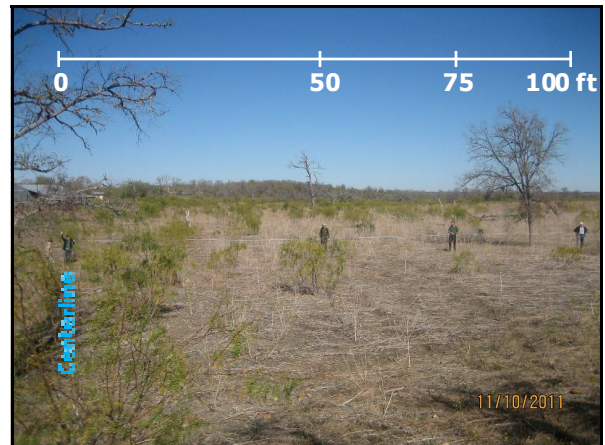
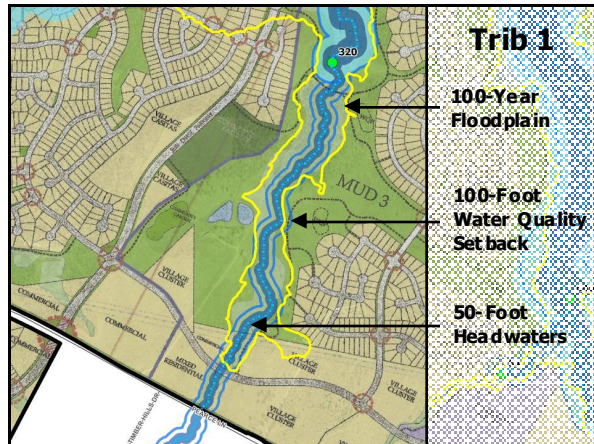
- 3. 100-200-300 Buffers**
 - Single-tiered system (CWQZ only)
 - 64 ac. Minor/320 ac. Intermediate/640 ac. Major
 - 100 feet/200 feet/300 feet from centerline
- 4. Modified Urban Watershed Buffers**
 - Single-tiered system (CWQZ only)
 - 64 ac. threshold – no Minor/Intermediate/Major
 - 100 - 400 feet from centerline (based on 100-Year Fully-Developed Floodplain)*

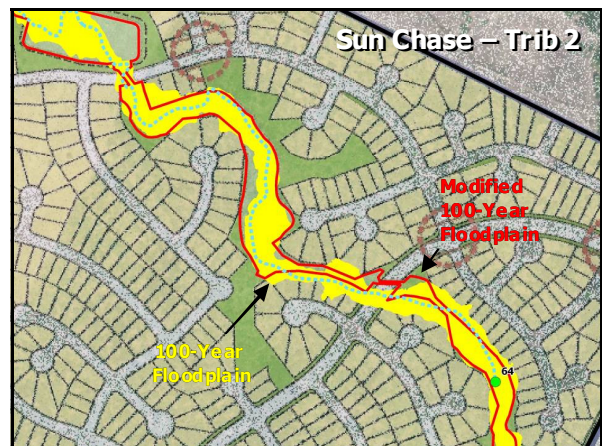
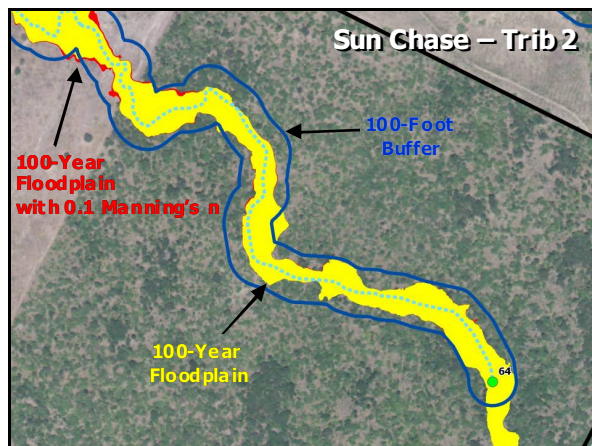
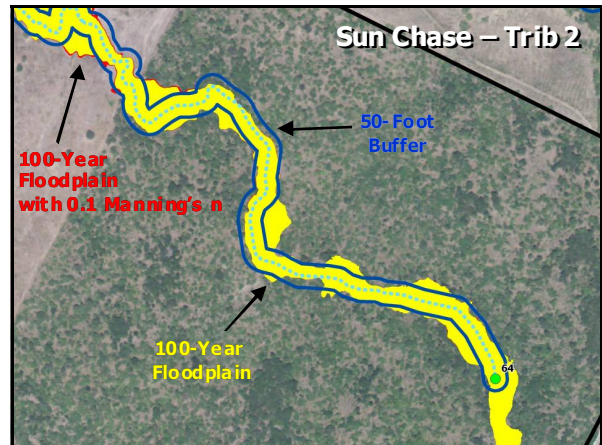
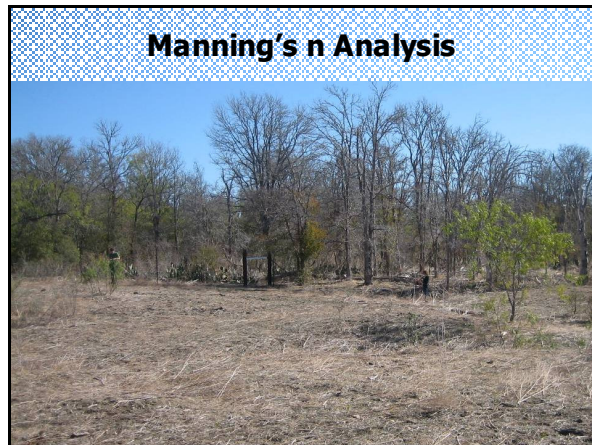
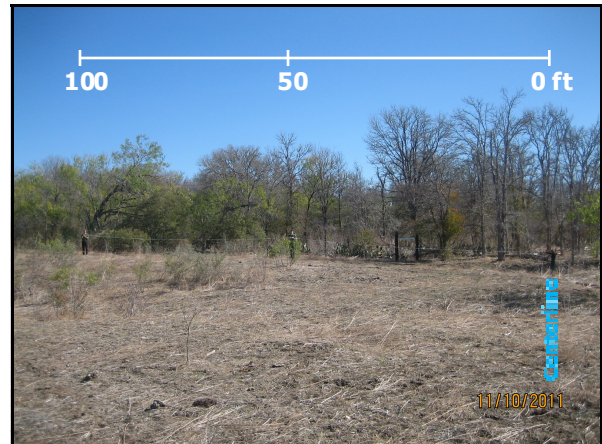
* Urban Watershed Buffers are currently 50 - 400 ft. in width and are based on the FEMA floodplain

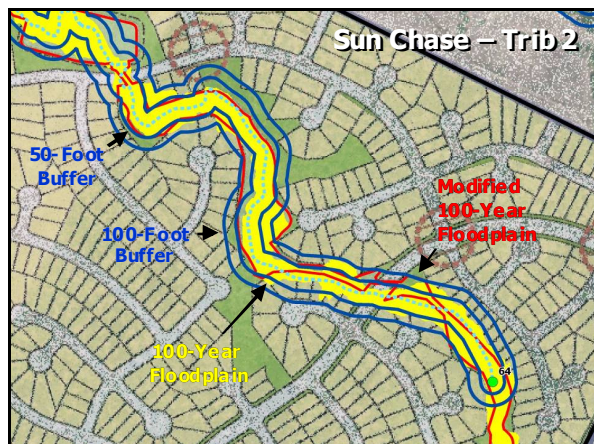












Manning's n Analysis: Results

- Manning's n analysis results
 - Multiple scenarios evaluated in Suburban Watersheds
 - Relatively modest changes in Floodplain Area (0 to 10%) using assumption for mature riparian forest
 - Options available to reduce impacts further using flexible buffer delineation & other potential tools

Manning's n Analysis: Results

Case Study	Average Percent Change in Floodplain Area							
	DA = 64-320		DA = 320-640		DA = 640-1280		DA = 1280+	
	50 ft Buffer	100 ft Buffer	100 ft Buffer	200 ft Buffer	150 ft Buffer	300 ft Buffer	150 ft Buffer /FP	300 ft Buffer /FP
Sun Chase T2	1%	3%						
Sun Chase T1	0%	10%	1%	4%				
Dry East T10	4%	4%	5%	2%				
Gililand T1	-2%	3%	1%	3%	2%	3%		
Dry East	3%	5%	3%	5%	6%	5%	2%	2%

Manning's n Analysis: Results

Case Study	Average Percent Change in Top Width							
	DA = 64-320		DA = 320-640		DA = 640-1280		DA = 1280+	
	100 ft Buffer	50 ft Buffer	200 ft Buffer	100 ft Buffer	300 ft Buffer	150 ft Buffer	300 ft Buffer /FP	150 ft Buffer /FP
Sun Chase T2	3%	1%						
Sun Chase T1	5%	2%	6%	2%				
Dry East T10	3%	3%	2%	9%				
Gililand T1	1%	0%	-1%	-1%	6%	4%		
Dry East	7%	4%	8%	4%	7%	4%	2%	2%

Manning's n Analysis: Results

Case Study	Total # Cross-Sections	Percent of Cross-Sections where Top Width is Completely Contained within Buffer					
		DA = 64-320		DA = 320-640		DA = 640-1280	
		100 ft Buffer	50 ft Buffer	200 ft Buffer	100 ft Buffer	300 ft Buffer	150 ft Buffer
Sun Chase T2	18	67%	11%				
Sun Chase T1	18	28%	0%	75%	0%		
Dry East T10	9	22%	0%	22%	0%		
Gililand T1	19	95%	37%	67%	0%	70%	5%
Dry East	18	72%	6%	70%	0%	6%	0%

Manning's n Analysis: Q&A

- Stakeholder Feedback
 - Do you think the evaluated creeks are representative?
 - Are there cases where the floodplain will be significantly expanded?
 - Other observations?

Breakout Session

Buffer Scenarios

- Existing Suburban Watershed Buffers
- Western Buffers
- 100- 200- 300 Buffers
- Modified Urban Buffers

- 1. Which buffer systems do you like? Why?**
- 2. Which buffer systems do you not like? Why?**
- 3. What are other ways to define the buffer?**
- 4. What other information should we consider?**

Adoption Schedule

Stakeholder Meetings	Sep 2011 – April 2012 <small>(Meetings approx. every two weeks)</small>
1. Creek Protection:	Sep 9, 23, Oct 7
2. Floodplain Protection:	Oct 21, Nov 18, Dec 2
3. Development Patterns & Greenways:	Dec 16, Jan 20 12
4. Improved Stormwater Controls:	Jan
5. Simplify & Clarify Regs/Maintenance Opportunity:	Feb
6. Mitigation Options (Desired Development Zone):	Mar
7. Draft Ordinance:	Apr
Boards & Commissions	May – June 2012
City Council	August 2012
Travis County Commissioner's Court	Fall 2012

Contact Information

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www.austintexas.gov/watershed/ordinances2.htm

The Big Picture

- **Citywide summaries**
 - % Floodplain of land
 - % Floodplain of undeveloped land
 - % Creek length by Drainage Area
 - % Creek buffers of land
 - Etc.