CITY OF AUSTIN'S REGULATORY FRAMEWORK FOR CREEK PROTECTION

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Valuable Resource

Drinking Water Intake on Lake Austin
Why is Austin’s Permitting So Complicated?

• Escarpment to the west (shallow soils, steep terrain, high gradient, narrow floodplains)
• Edwards Aquifer (north and south)
• Barton Springs Zone
• Blackland Prairie to east (highly erodible, slow infiltration, wide floodplains)
• Fastest growing city in country (2.9%)
• Average 157.2 new people/day between 2014-2015
• Highly engaged citizenry
Flash Flood Alley

Photo courtesy of Austin History Center
Drought
Fully-Developed 100-Year-Floodplains

Extra Territorial Jurisdiction

Full Purpose Zoning Jurisdiction
Brief History of Austin’s Watershed Regulations

- 1974: Waterways Ordinance
  - Drainage ditches preferable to storm sewers in urban subdivisions,
  - Defined Waterway: “A stream, creek, branch, drainway or watercourse”
  - Development plans adjacent to a waterway submitted to director of engineering for approval
  - No adverse flooding, take into account future development when considering flooding, stagnant water prohibited
  - Preservation of the “natural and traditional character of the land and waterway to the greatest extent feasible”

- 1978: First Lake Austin Watershed Ordinance
- 1981-1985: Multiple various watershed ordinances
- 1986: Comprehensive Watershed Ordinance (CWO)
- 1991: Urban Watershed Ordinance
- 1992: Save Our Springs Ordinance (Established the Barton Springs Zone non-degradation requirements)
- 2014: Watershed Protection Ordinance (WPO)
- Future: CodeNEXT
Watershed Regulation Areas

- **Urban**
- **Suburban**
- **Water Supply**
- **Rural**
- **Barton Springs Zone**
- **Edwards Aquifer Recharge Zone**
Creek Regulations

• Creek Buffers depending upon drainage area and geographic location (Critical Water Quality Zones and Water Quality Transition Zones)
• Open channels preferred
• Water quality and detention ponds
• Restoration criteria established
• Protection of other environmental features (wetlands, springs, seeps, caves, canyon rimrocks)
• Floodplain Modification Criteria
• Erosion Hazard Zone analysis

http://austintexas.gov/department/riparian-restoration
Why creek buffers?
Why creek buffers?

Creek buffer if Current Code Applied
East Austin Headwater Creeks

- Perpetually maintained and mowed
- Erosion issues
- Lack of riparian functioning and habitat
- No room for meander
Critical Water Quality Zones
Buffers depend upon Drainage Areas and Geographic Location

- **Urban Creeks**: CWQZ same as 100-year-floodplain with 50’ minimum and 400’ maximum
- **Suburban Creeks** (East): Not tied to Floodplain
  - Minor 64-320 acres of drainage → 100’ CWQZ
  - Intermediate 320-640 acres of drainage → 200’ CWQZ
  - Major +640 acres of drainage → 300’ CWQZ
  - Buffers can be averaged
  - Half CWQZs established to allow more intense use
- **Drinking Water Protection Zone and Barton Springs Zone** (West)
  - Same Creek size categories as Suburban
  - Buffers same as 100-Year-Floodplain, but with min/max setbacks
    - Minor → 50’-100’
    - Intermediate → 100’-200’
    - Major → 200’-300’
  - Barton Creek → always 400’ from centerline
  - Water Quality Transition Zones also established, providing additional protections
    - No buffer averaging allowed
    - No half CWQZs
- **Colorado River** established from OHWM → 100-year-floodplain with 200’ minimum
- **Lake** CWQZs established from shoreline → 75’-100’ depending upon use
Barton Springs Zone
Creek Setbacks

Unclassified  Minor  Intermediate  Major  Barton Creek

Critical Water Quality Zone  Water Quality Transition Zone
Suburban Creek Setbacks

- Unclassified
- Minor
- Intermediate
- Major
- Colorado River
Urban Creek Setbacks

Lady Bird Lake

Downtown Exempt

100-Year-Fully Developed Floodplain 50’ min, 400’ max

Underground Pipes Exempt
Critical Water Quality Zone Allowances

• Allowable development depends upon Watershed Regulation Area
• Types of uses allowed in CWQZs (depending):
  • Open space
  • Fences
  • Community gardens
  • Multi-use trails
  • Necessary utility line crossings (most direct path through CWQZ)
  • Boat docks/Shoreline access along lake shorelines
  • Athletic fields
  • Green stormwater infrastructure
  • Streets/Sidewalks/Trails depending upon type of street, size of creek, and distance from nearest crossing
• Floodplain Modifications
Floodplain Modifications Allowed:

- If necessary to protect public health and safety,
- Provides a significant, demonstrable environmental benefit, as determined by a functional assessment of floodplain health,
- Is located within a floodplain area classified as in fair or poor condition, as determined by a functional assessment, or
- Is necessary for development already allowed in a CWQZ
Functional Assessment of Floodplain Health

- Tool of riparian function
- Provides scoring for poor, fair, good, or excellent health
- 3 zones for Creeks
- 4th zone for Lake Shoreline (3 measures)

![Diagram showing zones of floodplain assessment](image)
Functional Assessment Zones

Zone 1
Floodplain outside of CWQZ

Zone 2
CWQZ

Zone 3
Active Channel

Zone 4
Lake Shoreline

Additional Plots as Needed
Functional Assessment

• Zone 1 (Floodplain outside of CWQZ)
  • Gap Frequency
  • Large Woody Debris
  • Soil Compaction
  • Structural Diversity
  • Tree Demography

• Zone 2 (CWQZ)
  • Wetland Tree Status
  • Riparian Zone Width

• Zone 3 (Active Channel)
  • Riparian Zone Width
  • Mass Wasting
  • Scouring/Deposition
  • Undercutting
  • Entrenchment Ratio
  • More…
Required Restoration

- **Standard Specification for Native Restoration**
  - Weed Control
  - 6” topsoil
  - Seeding (grass and forbs)
    - Upland, Full Sun mix
    - Upland, Dappled Shade mix
    - Facultative mix
  - Planting
    - 1 plant/100 s.f.
    - 2 native species of trees
    - 2 native species of shrubs
  - Includes Milkweed species
Erosion Hazard Zone Analysis

Required for development within 100’ of centerline
Planning for the Future: CodeNEXT

- **Flood Mitigation for Redevelopment**
  - Current code does not require flood mitigation for redevelopment projects that do not increase impervious cover, even if constructed without sufficient detention.
  - Reduce post-development peak rates to match undeveloped conditions
  - On-site or off-site detention, off-site conveyance, payment into Regional Stormwater

- **Water as a Resource**
  - Retain and beneficially use stormwater
  - On-site retention of stormwater for the 95th percentile storm
  - Some payment-in-lieu options in certain conditions