

Comprehensive Watershed Ordinance Celebrating 30 Years: A Brief Summary

The purpose and guiding principle for City Council to enact this ordinance are stated in the Findings and Objectives section (j):

“The City Council further finds that minimum standards should be adopted as an application of general principles for conservation and development to encourage innovative planning and design of urban developments to protect the water quality and recreational resources of Lake Austin, Lake Travis, Barton Creek, the Edwards Aquifer, and other watersheds within the City’s jurisdiction,...”

The general principles employed by the City set forth a number of progressive environmental protection measures by placing limitations on the density of development and on the amount of impervious cover in all watersheds outside of the urban core by limiting development on steep slopes and along creeks, requiring the use of erosion and sedimentation controls for construction sites, defining and requiring the protection of critical environmental features, establishing creek buffers, requiring structural water quality controls and limiting the disruption of natural terrain (cut/fill restrictions). Although a few of these requirements already applied to a few specific watersheds, now **ALL** subdivision and site plan development city-wide, outside of the urban core, was required to follow the Comprehensive Watersheds Ordinance (CWO). Creek buffers called the Critical Water Quality Zone (CWQZ) were established parallel to waterways and a second buffer called the Water Quality Buffer Zones were parallel to the CWQZ. Prior to the CWO, impervious cover limits, creek buffers, and slope protection had been applied in only a few watersheds such as Lake Austin, Williamson Creek and Barton Creek due to the environmental issues related to drinking water and aquifer protection. Recognition of the fact that all watersheds are our drinking water supply and are “*significant and irreplaceable recreational and aesthetic resources*” is integral to the CWO.

The findings and objectives listed at the beginning of the ordinance describe the development pressures that faced Austin and how, due to Austin’s location at the edge of the Hill Country, the steep slopes, sparse vegetation, and thin soils are vulnerable to non-point source pollution. Non-point source pollution occurs from land activities that result in polluted stormwater runoff. Examples of non-point pollutant sources are lawn chemicals, vehicle fluids that contaminate pavement runoff, and wastewater disposal.

The CWO specifically identifies erosion as a threat. Why? **Two reasons.**

- The first is that sediment itself is a pollutant. Most of Austin’s creeks were clear running with bedrock and gravel bottoms. Excessive erosion dumped upland soils into the waterways, altering them aesthetically and smothering aquatic organisms or their habitats. Sediment is not as serious a health threat to humans because it may be filtered out of drinking water in low concentrations, but fish and aquatic invertebrates require clean water in order to breathe through their gills. When too much sediment enters creeks, biodiversity can be significantly diminished because many species can no longer live in creeks with too much sediment.

- The second reason is that some common pollutants readily attach to sediment, such as petroleum products. That means that eroded soil particles washing into our clear creeks may become a magnet for motor oil or gasoline residue.

How do the requirements of the ordinance reduce non-point source pollution? By protecting environmentally sensitive terrain with the intention of leaving the creeks, lakes, cliffs, canyons, caves, sinkholes, springs and wetlands intact, and by removing pollutants from developed areas before they are allowed to flow into our creeks. Not only does this protect water quality but it helps preserve the natural environment and provides a secondary benefit of recreational enjoyment. In fact, many people are drawn to the clear creeks and greenbelts found throughout the City. Here are some of the ordinance requirements that help protect water quality and preserve the natural character:

Creek Buffers are land areas parallel to a creek that prohibits most development. Exceptions in the CWO that allow disturbance of the creek buffer are utility and roadway crossings. The drainage area to the creek had to be 64 acres or greater, in order for the creek buffer requirement to apply to a plat or subdivision. Creek buffers were required in the City limits plus the extra-territorial (ETJ), except the urban watersheds. Creek buffer widths related to water supply importance and degree of urbanization within a watershed. This innovative concept was later replicated in other cities across the nation and is now considered a fundamental concept for maintaining watershed functionality. The buffer protects the floodplain, allows stormwater to deposit sediment, filters out pollutants, allows infiltration that sustains flow in the creek and gives the creek space to adjust due to changing hydrologic conditions in the watersheds.



Critical Environmental Features are defined in the CWO as “*Features which have been determined to be of critical importance to the protection of one or more environmental resources.*” It includes the following features:

Caves. A natural underground cavity, chamber or series of chambers formed by the dissolution of limestone by surface or groundwater.

Sinkholes. A closed depression formed by the dissolution of limestone and is a point of recharge.

Springs. A point or zone of natural groundwater discharge having a measurable flow and/or a pool. Identified by the presence of hydrophytic vegetation, such as maiden hair fern or mineralized calcium carbonate deposits, such as travertine.

Wetlands. Lands transitional between terrestrial and aquatic systems where the water table is at or near the land surface.

Canyon Rimrocks. A steep rock face with a horizontal extent of 50 feet or greater length and 4 feet or greater height. Most commonly found paralleling the side of a canyon or surrounding a canyon head.

Bluffs. An abrupt vertical change in topography of 40 feet or greater in height.

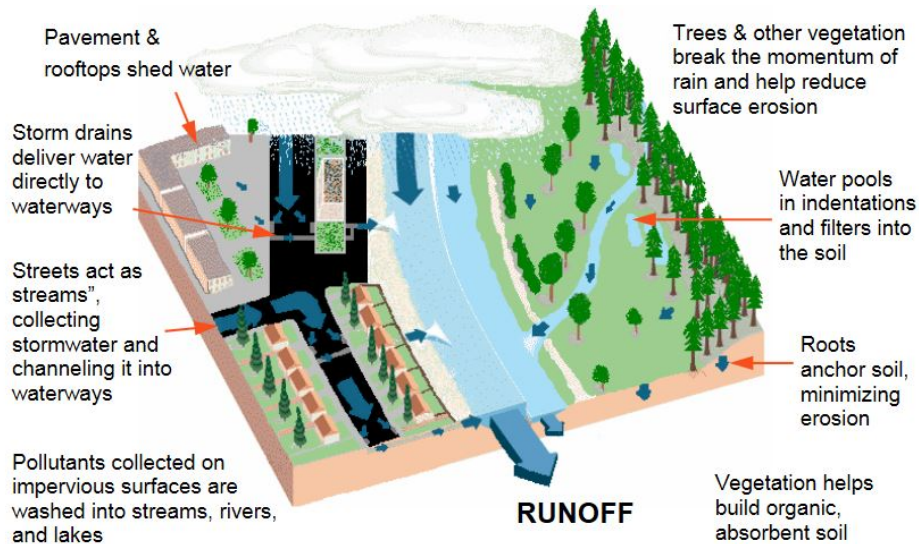
[Critical Environmental Features](#) (CEFs) are present all over Austin, occurring in the canyons, creeks, uplands terrain and along our lakes. Geologic processes have created features such as caves, sinkholes and springs. Wetlands sometimes develop naturally along creeks or lakes or within a manmade excavation created as a livestock water source (“stock tank”). Erosion leads to the steep rock faces called canyon rimrocks or bluffs. It’s no surprise that bluffs have been created along creeks or the Colorado River when these waterbodies have been active for greater than 1 million years! In the last 30 years, City of Austin staff have identified over 4,780 CEFs; primarily during the site plan and subdivision review process.

The other water quality protective measures of the CWO included the following:

Structural water quality controls remove pollutants from stormwater runoff from rooftops and pavement by capturing sediment and filtering pollutants, thus protecting our creeks and lakes from polluted run-off.



Impervious cover limits reduce the volume and rate of stormwater runoff and provides green space that allows water to soak into the ground (infiltration). This protection is intended to prevent erosion, reduce peak flooding and sustain baseflow to springs, wetlands, recharge features and creeks.



Temporary Erosion and Sedimentation Controls are controls that capture disturbed soil on the construction site so that it doesn't impact nearby creeks or lakes. Silt fencing is the most common temporary control. At the time of the CWO, straw bales and rock berms were also used. Today, mulch socks are used on steep slopes and as a secondary control to silt fencing due to their ability to "mold" to the ground and capture sediment.

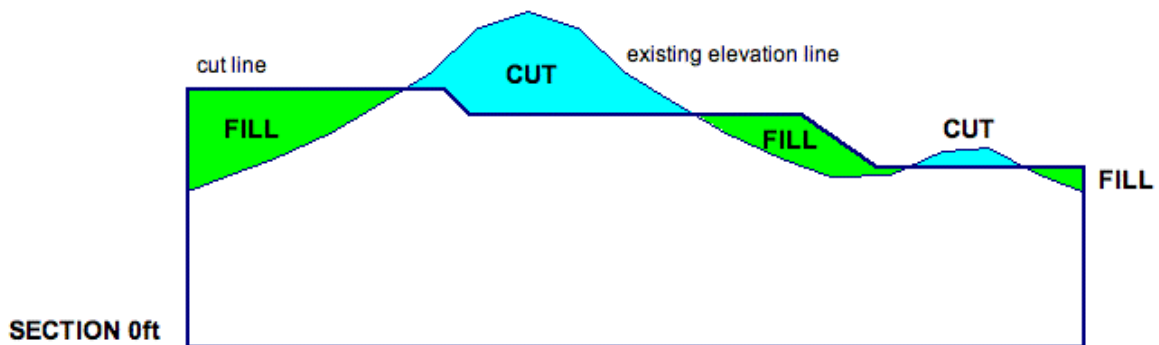


Silt fencing is placed at the “limits of construction” to catch sediment before it runs offsite and into a creek. The bare soil becomes sediment when it’s mobilized by stormwater runoff.



Mulch socks have proven to be an effective way to capture sediment where silt fencing is impractical. This is a photo taken on I10 near Junction, TX.

Cut/fill limits encourage developers to consider existing topography when designing a project and also help limit the amount of soil disturbed during construction, thus helping to minimize the amount of sediment entering creeks from construction activities. The result is preservation of natural characteristics and appearance of our hills, canyons and creeks.



All of the strategies included in the CWO have resulted in preserving our watersheds and protecting our drinking water supply. In the 30 years since the ordinance went into effect, additional water quality protection ordinances have been adopted by the Austin City Council. In 1992, citizens voted and approved the Save Our Springs Ordinance, which reduced impervious cover limits and enhanced stormwater treatment in the watersheds contributing to Barton Springs. In 2014, the Watersheds Protection Ordinance modified the requirements for creek buffers to provide greater protection for the headwaters of our creeks and to establish Erosion Hazard Zones along creeks. More information on the CWO and later ordinances are available on the Watershed Protection Department's website at:

www.austintexas.gov/watershedprotection

As you're out enjoying our creeks, the lakes and Barton Springs, remember the efforts of the citizens and City Council to keep our drinking water supply clean and providing recreational opportunities by enacting the Comprehensive Watersheds Ordinance!