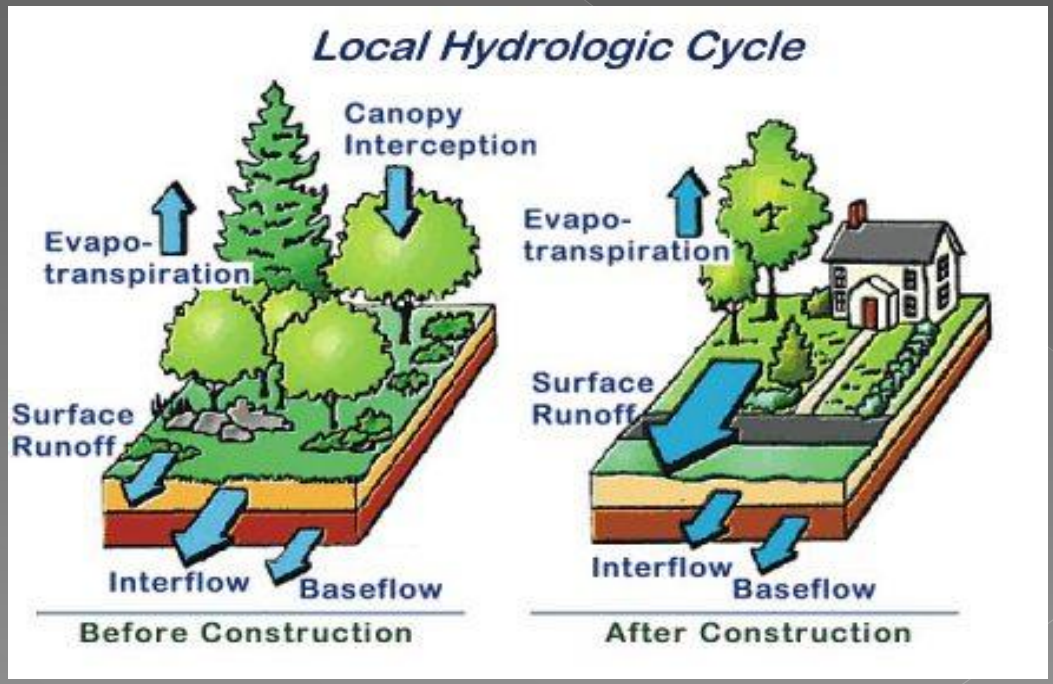
Why Stormwater Matters:

Impacts of Runoff on Texarkana's Watersheds

Urban Development

- Urban development has a profound influence on the quality of Texarkana's waters. To start, development dramatically alters the local hydrologic cycle (see below).



The Hydrology of a Site Changes

- The hydrology of a site changes during the initial clearing and grading that occur during construction. Trees, meadow grasses, and agricultural crops that intercept and absorb rainfall are removed and natural depressions that temporarily pond water are graded to a uniform slope.
- Cleared and graded sites erode, are often severely compacted, and can no longer prevent rainfall from being rapidly converted into stormwater runoff.

The Situation Worsens After Construction

- Roof tops, roads, parking lots, driveways and other impervious surfaces no longer allow rainfall to soak into the ground. Consequently, most rainfall is converted directly to runoff.
- The increase in stormwater can be too much for the existing natural drainage system to handle. As a result, the natural drainage system is often altered to rapidly collect runoff and quickly convey it away (using curb and gutter, enclosed storm sewers, and lined channels). The stormwater runoff is subsequently discharged to downstream waters such as streams, reservoirs, lakes or estuaries.

Water Quality is Affected

- Water Quality is affected by the accumulation of trash, oil and rubber from cars, fertilizers and pesticides applied to lawns, sediment from bare or poorly vegetated ground and other pollutants entering streams, creeks and Sulphur River. Inflow of sediment can cloud water, blocking sunlight from submerged plants.
- Sediment also settles to the bottom of streams, clogging the gravel beds used by fish for laying their eggs. Nutrients from fertilizers, such as phosphorus and nitrogen, enter the water and promote unusually rapid algae growth. As this algae dies, its decomposition reduces or eliminates oxygen needed by fish, shellfish, and other aquatic life for survival.
- These are all examples of nonpoint source pollution, one of the major contributors to the degradation of water quality in Texarkana.

Stormwater Management Practices

- Stormwater management practices help control nonpoint source pollution through the use of nonstructural and/or structural techniques to intercept surface runoff from developed areas, filter and treat this runoff, and then discharge it at a controlled rate.
- The overriding condition that governs the quantity of stormwater runoff is the amount of impervious surfaces located on your property (driveways, roofs, carports, sidewalks, etc.). Stormwater quality, however, is governed by the accumulation of pollutants on the entire surface area, regardless of whether it is grassed or paved.

Stormwater Management Practices Cont'd

- As the use of chemicals around the home such as fertilizers, pesticides, engine oils, deicing materials, and similar products increases, the more degraded the stormwater runoff from your property will be.
- Although the effect of one property on the quality and quantity of stormwater runoff may seem insignificant, the cumulative impact from hundreds of thousands of yards across the State continues to be destructive to our water quality.

These Activities Will Minimize Stormwater Runoff from Your Property:

- Limit the amount of impervious surfaces in your landscape. Use permeable paving surfaces such as wood decks, bricks, and concrete lattice to allow water to soak into the ground. Where possible, direct runoff from impervious surfaces across vegetated areas.
- Allow "thick" vegetation or "buffer strips" to grow alongside waterways to filter and slow runoff and soak up pollutants.
- Plant trees, shrubs, and groundcover. They will absorb up to fourteen times more rainwater than a grass lawn and they do not require fertilizer.
- For more information on environmentally-friendly planting and "landscaping", contact the Arkansas Department of Environmental Quality here: www.adeq.state.ar.us

Activities That Will Reduce Fertilizer, Pesticide, and Sediment Runoff:

- Use natural alternatives to chemical fertilizers and pesticides. If you must use fertilizers or pesticides, test your soil to determine the appropriate amount. For more information, contact the Arkansas Department of Environmental Quality at 501-520-0541.
- If a lawn care company services your lawn, make certain it is not applying "blanket" applications of fertilizer and pesticides. Ask if they have conducted soil tests and a pest analysis to determine appropriate applications.
- Resod or reseed bare patches in your lawn as soon as possible to avoid erosion