



Design, Construction and Performance of Low Impact Development in North Texas

Dallas/Fort Worth, Texas

The Dallas-Fort Worth metropolitan area is one of the 20 fastest growing metropolitan areas in the country with an estimated 47% of the area classified as impervious surfaces. The soils typically have a high amount of clay content and the underlying calcareous layer has low permeability. This project evaluated urban stormwater best management practices in a typical urban watershed in the Dallas Fort Worth area. Effectiveness of Low Impact Development (LID) practices in various regions in the United States have been evaluated however modeling studies have suggested the adaptability of LID designs to other regions is problematic. The objectives of this project were to design, construct and demonstrate the effectiveness of green building infrastructure at the Texas A&M AgriLife Research and Extension Center in Dallas, Texas. The funding for this research was provided by a Clean Water Act Section 319(h) grant provided by EPA and TCEQ.

Three LID best management practices (BMPs) evaluated in this project were permeable pavements, bio-retention areas, and green roofs.

Results are:

- Reduction in both volumes and pollutants concentration were recorded for all BMPs.
- Total suspended solids (TSS) showed close to 90% reduction repeatedly in the BMPs, especially the bioretention area.
- All LID BMPs reduced flow volumes and lagged peak flow times decreasing flooding and degradation in urban stream systems.

Overall, these LID practices increased groundwater recharge in North Texas clay soils while simultaneously decreasing runoff, contaminant loads, velocity and flooding in their systems. These sites have been used in many educational and outreach trainings to inform companies and individuals about the ecosystem services and energy savings utilized by LID.

See the entire project poster. [Click here.](#)

EPA Region 6

Green Infrastructure &
Low Impact Development
Poster Competition

Winning
Entry
2014



Permeable
Pavement
Study Area



Green Roof
Study Area

Photos courtesy of Texas A&M AgriLife Research and Extension Center

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