Texas Stormwater Scorecard

Executive Summary

Rain is one of Texas's greatest resources, but it also causes some of our most serious problems. Too much produces flooding and erosion, too little produces droughts and aquifer depletion, and dirty runoff produces water pollution. These problems are becoming worse as more of the state's land is covered with buildings and roads that prevent rain from soaking into the ground where it falls. That's why more Texans are using building and landscaping features that can retain and reuse stormwater on-site. These features include rain gardens, green roofs, permeable pavement, and rain cisterns, and are known as Green Stormwater Infrastructure (GSI) and Low Impact Development (LID).

Stormwater has traditionally been viewed as an issue for flood management. The conventional approach has been to move runoff away from buildings and roads and into natural water bodies, and to do this as quickly as possible with concrete curbs, pipes, drains, and tunnels. Newer variations of this approach include detention features that can hold stormwater temporarily and release it slowly.

But gray infrastructure is now also being supplemented by green infrastructure, which uses plants, soil, and natural drainage processes to manage runoff on-site. GSI/LID has started to appear in more places around Texas over the past decade, and the state's largest cities have begun creating policies and programs to support its use. GSI/LID is still relatively rare in Texas, however, which means that our cities can do more.

For the Texas Stormwater Scorecard, Environment Texas evaluated GSI/LID policies in the state's five largest cities by a modified version of a policy checklist from the U.S. Environmental Protection Agency. Our checklist includes ten policies divided into three categories:

Private Development Policies
- *Flood detention requirement*
- *Water quality requirement*
- *GSI/LID regulatory credit*
- *Stormwater retention requirement*

Private Development Policies
- *Regulatory incentives*
- *Financial incentives*
- *Stormwater fee discount*

Public Initiatives
- *Capital project construction*
- *Street construction*
- *Education*

We based our evaluations of each city on information available from or provided by municipal officials, state agencies, environmental organizations, and academic institutions from around Texas. We also gathered information from many professionals who have worked on GSI/LID projects, including engineers, landscape architects, and providers of GSI/LID equipment and services. While none of Texas's top cities achieved the highest possible score, the intent of this survey isn't to criticize them for what they haven't done, but to recommend what they could do next. Scores represent what percentage of the steps on our checklist have been implemented by each city:

Austin: 90%
The state's capital has long been known for its environmental policies, so its high score isn't surprising. But actual use of GSI/LID features in Austin is lower than the city's official support would lead one to expect. Many private-sector professionals also report that it can be difficult to get the city's approval for regulatory credit for GSI/LID installations. Austin should looks for ways to improve its regulatory and financial incentives for GSI/LID, and to streamline its approval process.

San Antonio: 65%
While flooding is a less-pressing issue in our survey's driest city, water quality is a top concern. The San Antonio River Authority has provided financial and educational support for GSI/LID, and the city recently changed its development code to make it easier to use GSI/LID in some developments. As with Fort Worth, San Antonio could benefit by expanding its water quality and GSI/LID policies to cover the whole city.

Fort Worth: 60%
The city historically nicknamed Cowtown has been gradually embracing progressive urban policies. Fort Worth has higher flood mitigation and water quality requirements for developments in areas covered by form-based zoning codes. The Tarrant Regional Water District also has higher water quality requirements for developments along the Trinity

River. Fort Worth could benefit by expanding these water quality and GSI/LID policies to cover the whole city.

Houston: 50%
Even before Hurricane Harvey devastated the city this year with unprecedented amounts of rain, Houston had been struggling to compensate for decades of development built with inadequate drainage. The Bayou City's longstanding preference for gray stormwater infrastructure has meant that it's been slow to support green infrastructure. Harris County, by contrast, has some of the most progressive GSI/LID policies in the state. Houston should consider following the county's lead.

Dallas: 40%
While Big D has some of the most prominent GSI/LID installations in the state, the city has few official policies to support green infrastructure. That may be remedied if Dallas adopts planned revisions to its drainage and paving manuals (last updated in 1993 and 1998, respectively). The city could also benefit by officially adopting the Integrated Stormwater Manual (iSWM) created by the North Central Texas Council of Governments.

San Antonio: LID Policies & Programs

Flood detention requirement: YES
The peak runoff rate from a new development must be less than or equal to the site's predevelopment peak rates for 5-, 25-, and 100-year storm events. Developers are allowed to pay a fee-in-lieu to the Regional Storm Water Management Program (RSWMP), which is the city's preferred alternative to site-specific stormwater mitigation. However, detention ponds are mandatory in some areas, including the Upper San Antonio River, Leon Creek, and Mitchell Lake watersheds.

Water quality requirement: PARTIAL
Developers wanting to take advantage of the incentives available through the city's voluntary Low Impact Development and Natural Channel Design Protocol (LID/NCDP) must manage 60% of water quality volume, defined as the runoff resulting from the first 1.5 inches of rain falling in 24 hours. Compliance requires removal of 80% of total suspended solids and 60% of bacteria. Developments in the city's River Improvement Overlay (RIO) districts that are adjacent to the San Antonio River must either discharge runoff through drainage features below water level, or through an approved GSI/LID feature.

GSI/LID regulatory credit: PARTIAL
GSI/LID features may be considered as on-site detention features if they reduce the runoff expected downstream.

Stormwater retention requirement: NO

Regulatory incentives: PARTIAL
Developments that meet the voluntary LID/NCDP water quality criteria can receive credit and offsets towards stream protection, parkland, and criteria, and tree preservation, as well as a density bonus allowing a 10% increase in density. IN addition, permeable pavement does not count as impervious cover if it is designed to store stormwater from a two-year, 24-hour event.

Financial incentives: PARTIAL
LID/NCDP developments can receive discounts on fees-in-lieu paid into the RSWMP. In addition, SARA offers GSI/LID installation rebates.

Stormwater fee discount: PARTIAL
LID/NCDP developments can receive discounts on stormwater fees.

Capital project construction: YES
GSI/LID features have been included in projects including Mission Branch Library.

Street construction: YES
GSI/LID features have been included in projects including Ray Ellison Road.

Education: YES
SARA offers annual trainings and certification/registration courses.
