



TCEQ FUNDING FOR LID BMPs

Nonpoint Source Pollution Program

**Texas Commission on
Environmental Quality**



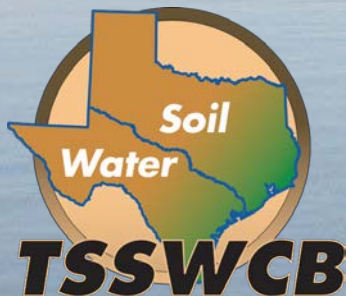


Texas Nonpoint Source Management Program

**Federal Clean Water Act Section 319(h) Grants
Administered by:**

**Texas State Soil and
Water Conservation Board**

- **Silviculture**
- **Agriculture**



**Texas Commission on
Environmental Quality**

- **Urban stormwater**
- **Septic systems**
- **Other**



The goal of this grant program is to

- Develop and implement watershed plans
- Restore impaired waterbodies
- Protect waterbodies

**Voluntary
Program**



**Achieve Water
Quality Standards**

**Stakeholder
Driven**





Showing Water Quality Improvements

➤ Monitoring

- Instream water quality trends
- Pollutant loadings reduced (inflow/outflow)

➤ Modeling

- Pollutant loadings to be reduced





Certify that the proposed activity is not required by TPDES permit

- Applicants for 319h grants must certify that funds will not be used to meet the requirements of a TPDES permit.
- This includes the Stormwater Management Plan (SWMP) of an MS4 permit





Nonpoint Source Funding Criteria in MS4s

- Must not fund a requirement of a storm water or wastewater permit
- “Over and above” standard practices, e.g. retrofits, advanced performance practices
- Cutting edge but proven: specific designs
- Credible basis for water quality results
- Projects embraced by local stakeholders



Statewide LID Workshops 2010-11

Region (Target Community)	Impaired Waterbody	Why Listed	When first listed
Houston	Buffalo & Whiteoak Bayous	Bacteria; Dissolved oxygen	1996
Waco	Bosque River	Bacteria; Dissolved oxygen	1996
San Antonio	Upper San Antonio River, Salado Creek	Bacteria fish exclusion; Macrobenthic community; Dissolved oxygen	Impaired fish community: 2004; Impaired benthic community: 2006
Corpus Christi	Oso Bay	Bacteria; Dissolved oxygen; DSHS shellfish harvesting exclusion.	1996 for dissolved oxygen; 2006 for bacteria
Lower Rio Grande Valley (McAllen)	Arroyo Colorado	Bacteria	1996 for bacteria, 2008 for PolyChlorinated Biphenyls & Mercury
Austin (Pflugerville)	Gilleland Creek	Bacteria	1999
Dallas/Fort Worth (Arlington)	Upper Trinity River & West Fork Trinity River below Lake Worth.	Legacy pollutants; Bacteria	Upper Trinity: 1996 for bacteria; 2002 for PCBs. West Fork: 1996

<https://www.tceq.texas.gov/waterquality/nonpoint-source/projects/statewide-low-impact-development-workshops/>



Mission Drive-In Redevelopment, San Antonio



Cisterns



Bioswales



Bioretention



Mission Drive-In Redevelopment, San Antonio



**Permeable Friction Course Pavement
Draining to Bioswale**



**Automated
Monitoring**

<https://www.tceq.texas.gov/water/quality/nonpoint-source/projects/upper-san-antonio-river-mission-drive-in-redevelopment-lid>



Street Drainage BMPs, Houston



Rain Gardens

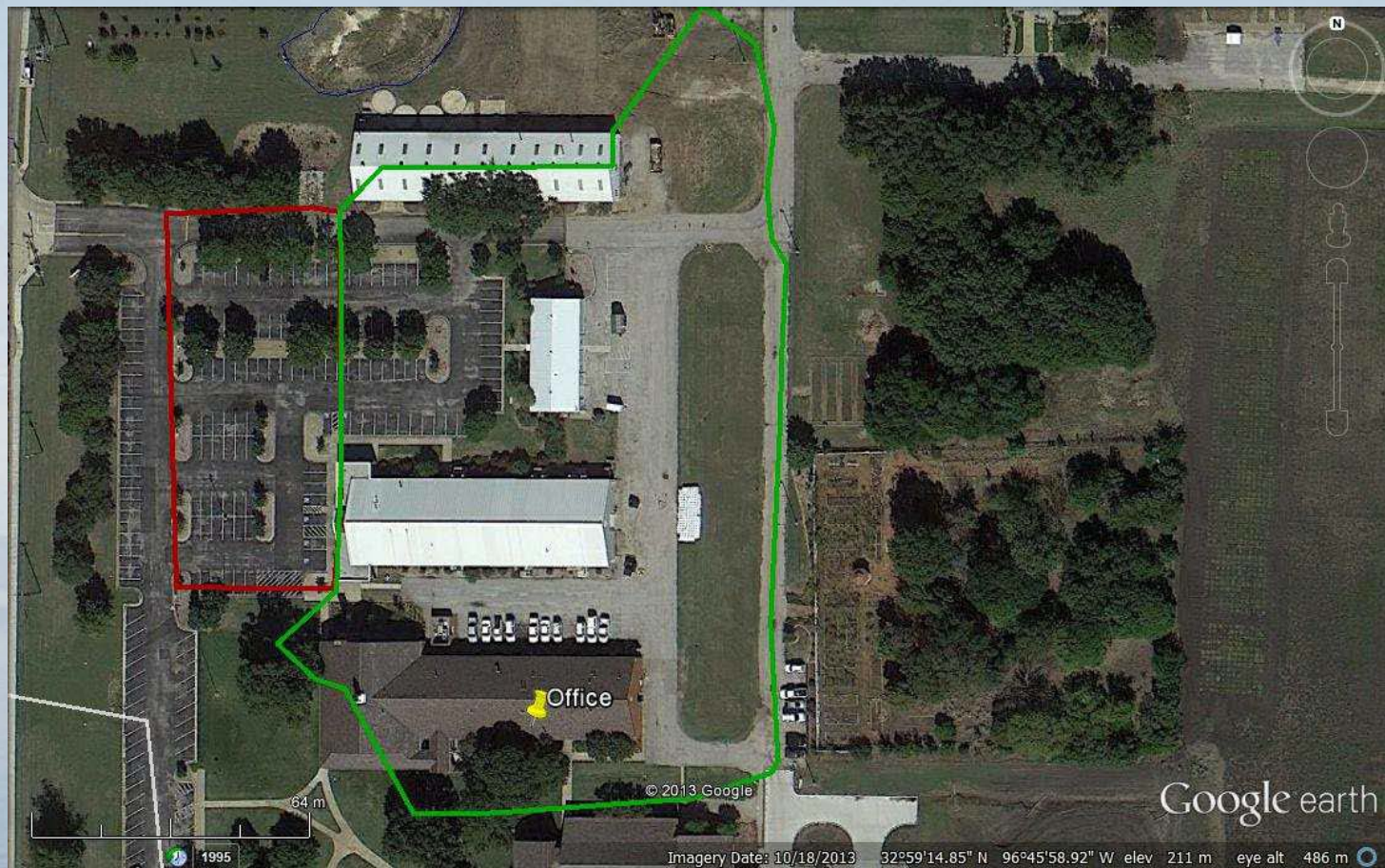


Tree Boxes

<https://www.tceq.texas.gov/waterquality/nonpoint-source/projects/new-copy-whiteoak-bayou-low-impact-development-lid-implementation/>



Dallas AgriLife Center



<https://www.tceq.texas.gov/waterquality/nonpoint-source/projects/upper-trinity-river-dallas-tmdl-implementation-low-impact-development/>



Dallas AgriLife Center

Retention Pond



Aerial Overview



Dallas AgriLife Center

Green Roof Experiment

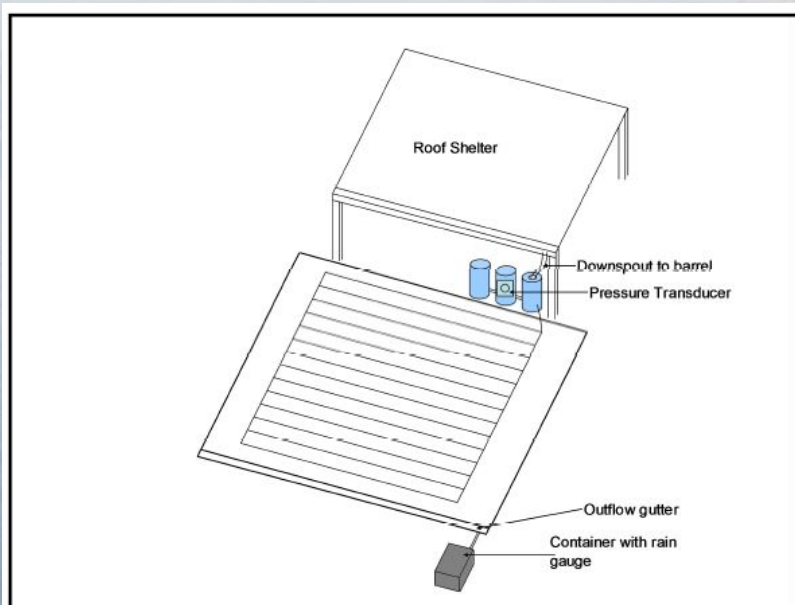


Figure 6. General design of rainwater harvesting experimental plot

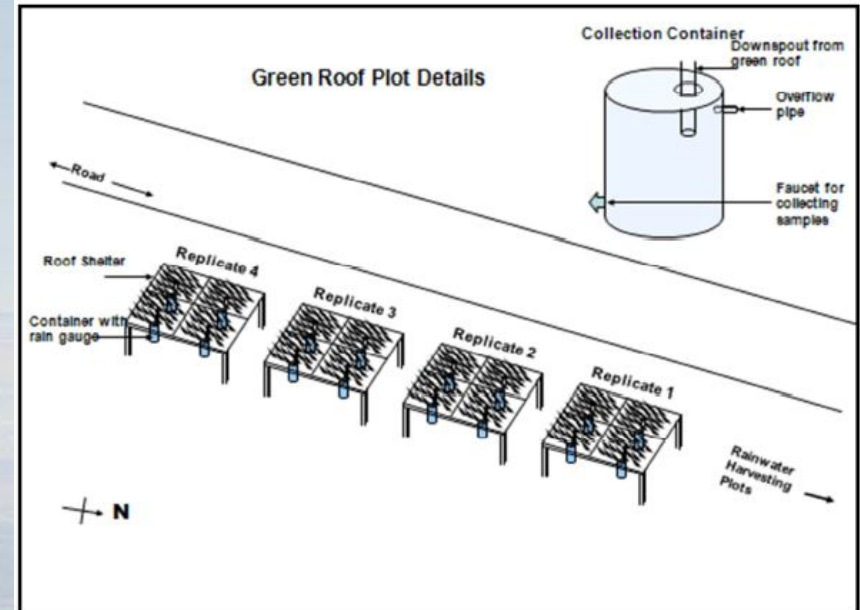
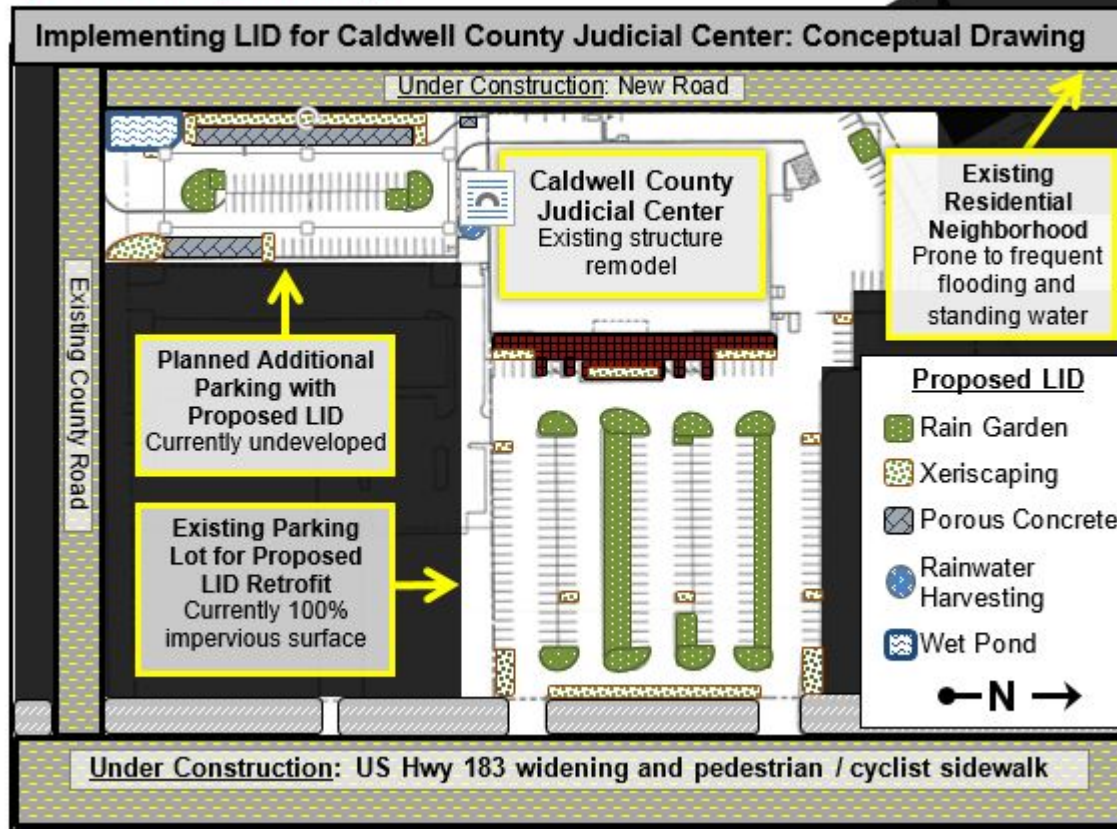


Figure 5. Details of green roof monitoring set up.



County Justice Center. Lockhart

Amended Conceptual Drawing:



<https://www.tceq.texas.gov/waterquality/nonpoint-source/projects/upper-trinity-river-dallas-tmdl-implementation-low-impact-development/>



San Antonio River Authority

Retrofits: Guenther Street



Bioretention



Cisterns



<https://www.tceq.texas.gov/waterquality/nonpoint-source/projects/upper-san-antonio-river-wpp-implementation-river-authority-lid>



San Antonio River Authority

Retrofits: Euclid Street



Massive Cisterns

Bioswale



Lower Rio Grande Valley



<https://www.tceq.texas.gov/waterquality/nonpoint-source/projects/arroyo-colorado-implementing-low-impact-development-lid-practices-phase-iii>



Lower Rio Grande Valley



Cisterns



**Permeable
Pavement**

<https://www.tceq.texas.gov/waterquality/nonpoint-source/projects/arroyo-colorado-implementing-low-impact-development-lid-practices-phase-iii>



Seguin Outdoor Learning Center



**Permeable
Pavement**

**Vegetated
Swale**



Rain Garden

<https://www.tceq.texas.gov/waterquality/nonpoint-source/projects/geronimo-and-alligator-creeks-watershed-protection-plan-wpp-implementation-education-and-outreach>



Detention Basin Retrofit, Pflugerville



Automated controller retaining runoff in Pon Court basin, Pflugerville

<https://www.tceq.texas.gov/waterquality/nonpoint-source/projects/arroyo-colorado-implementing-low-impact-development-lid-practices-phase-iii>



Current NPS Program Priorities

- Implement watershed-based plans
- Restore impaired water bodies
- Significantly reduce N, P, and Sediment
- Implement measures with high potential for successful replication to additional sites
- Significant leveraging: commitments beyond the project-funded activities
- “Shovel-ready” projects (pre-planned, all systems go)





We Would Have Loved to Fund...

The Houston LID Competition



<http://www.houstonlwsforum.org/lid-design-competition.html>

National NPS Coordinator's testimonial:

http://www.houstonlwsforum.org/documents/AmazingHoustonLIDCompetition_DovWeitman-EPA.pdf



Don't Forget!

- EPA might have paid for 60% of that!





TCEQ NONPOINT SOURCE PROGRAM

- **Website: How to apply for grants, summaries of recent and current projects, etc.**

<https://www.tceq.texas.gov/waterquality/nonpoint-source/index>

- **Email:**
- nps@tceq.texas.gov



NPS Project Summaries



Texas Commission on Environmental Quality
Nonpoint Source Program



Low Impact Development: Redevelopment of the Mission Drive-In Project

Water Body	Upper San Antonio River (Seg 1911)
Location	Bexar County
River Basin	San Antonio River (19)
Contractor	City of San Antonio
Project Period	August 31, 2011 to August 31, 2014
Project Total	\$867,368 (Federal 60% and Local 40%)

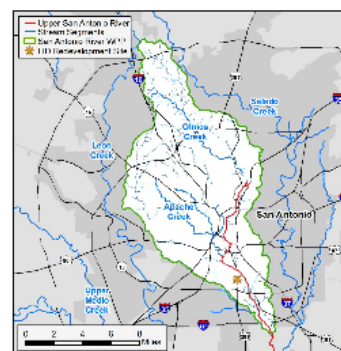
Low Impact Development (LID)

LID is a comprehensive approach to site planning, design, and pollution prevention strategies that, when combined, create a more economically sustainable and ecologically functional landscape. LID works with nature to manage stormwater as close to its source as possible. This approach treats stormwater as a resource, rather than a waste product, and integrates hydrologic and water quality functions into all aspects of the urban landscape and infrastructure. The result is a functional and appealing landscape providing site drainage that restores the ecological integrity of receiving waters, promotes the natural movement of water within an ecosystem or watershed, and reduces construction, maintenance, and inspection costs. Examples of LID management approaches and technologies include rain gardens, porous pavements, green roofs, and rainwater harvesting for later use.

Portions of the Upper San Antonio River (Segment 1911) have been impaired for bacteria since 2000. As a result, this segment does not currently meet its contact recreation use. In 2008, the San Antonio River Authority completed the [Upper San Antonio River Watershed Protection Plan \(WPP\)](#), and in 2007 the TCEQ adopted a [total maximum daily load \(TMDL\)](#) addressing this segment among others.

Project Description

The purpose of this project is to implement a portion of the Upper San Antonio River WPP by designing, installing, demonstrating, and monitoring the effectiveness of a set of LID features. LID practices appropriate for the region will be installed at the City of San Antonio's Mission Drive-In redevelopment site in order to demonstrate their regional effectiveness. Elected officials, developers, and the general public will be educated on the values of LID to the region and the feasibility of adding LID features to the Unified Development Code. The pollutant-removal effectiveness of the LID features will be evaluated by collecting stormwater samples at their inlets and outlets. The goal is to sample at least five stormwater events.



Current Status

Contract was executed 08/31/2011. Construction progress at the site prior to project initiation made it necessary to revised some of the LID features for the site. A large rainwater harvesting system was integrated into the site irrigation system. All BMP design and construction is completed. Monitoring the project site and a paired site for comparison of runoff quality is in preparation.

For More Information

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<https://www.tceq.texas.gov/waterquality/nonpoint-source/projects/index.html>





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