

TWIN OAKS LIBRARY

Texas Green Infrastructure Case Study

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Two 2,500-gallon cisterns sitting at the back corners of the library.
Photo Credit: Texas Water Development Board

PROJECT COMPONENTS

Practice

Rainwater Harvesting: Collecting and storing runoff from an impervious surface for later non-potable use.

Rain Garden: A shallow depression planted with native and adapted plants that collects rainwater from roofs, parking lots, and other surfaces.

Scale

Site: A practice designed to collect and naturally treat rainwater falling on a single site, such as an individual home or business. Examples: bio-swale, pervious pavement.

Green infrastructure practices are designed and engineered to work with nature to capture, store, and treat stormwater runoff in ways that provide both water quantity and water quality benefits. One such project in Austin, Texas, at the Twin Oaks Library helps to teach the public about rainwater harvesting.

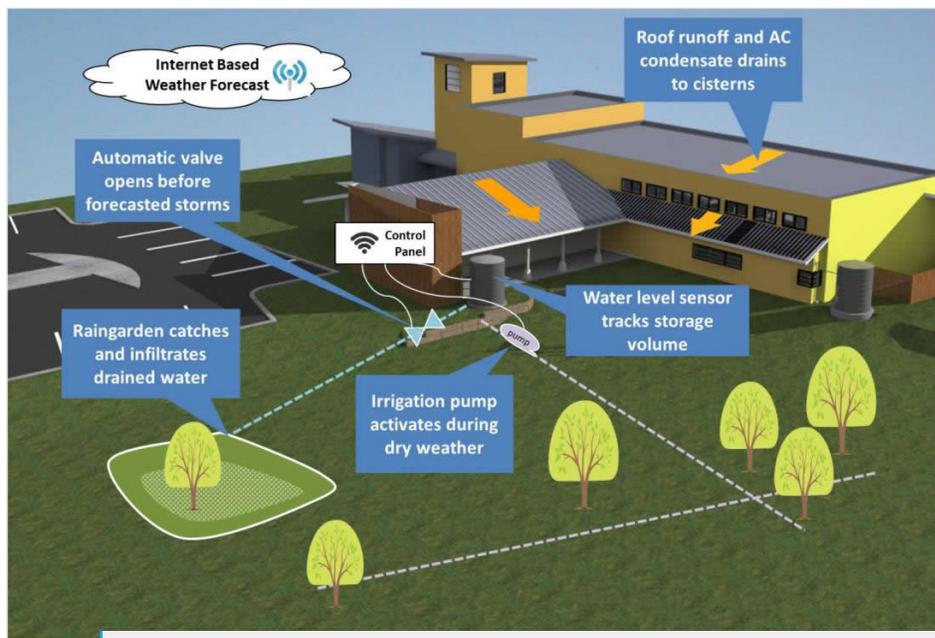
PROJECT OVERVIEW

Sustainability was a major design consideration for the Twin Oaks Library in Austin during its 2010 to 2012 renovation. During this renovation, two 2,500-gallon cisterns were installed to collect rain from the 10,000-square-foot roof along with air conditioning (AC) condensation.¹ The collected water is used around the grounds of the library to irrigate the lawn, gardens, and trees. Another renovation to the rainwater collection system in 2015 added a control system that monitors the weather. A rain garden collects water released from the cistern and sheet flow. When drought conditions arise, the system's stored water reduces irrigation costs for the library and the need from the municipal water supply. On the contrary, when the weather gets stormy, the cistern system can reduce the impact of localized flooding by collecting rainwater, reducing water running off the library grounds.

FINANCING

The project cost \$33,000 for two 2,500-gallon cisterns, an irrigation system, and a rain control panel. It was funded from 2010 through 2015 by in-kind contributions and direct funding comprising:

- ▶ \$15,000, City of Austin
- ▶ In-kind Contribution, Water Environment Research Foundation
- ▶ In-kind Contribution, Geosyntec Consultants



Water flows from the roof and AC units through the rainwater harvesting system.
Photo Credit: Texas Water Development Board

HOW IT WORKS

When it rains at the Twin Oaks Library, rainwater flows off the roof into a gutter system that leads to the two cisterns. To prevent debris build-up in the tanks, mesh filters are fitted on the pipes. AC condensation is also collected in the cisterns. Collecting the AC condensation reduces water usage, making the library more efficient and drought resistant. Water in the tanks will remain there until needed for irrigation or if a chance of rain occurs. The cisterns are part of an irrigation system that releases water regularly. When weather is forecasted for the library, the cistern control panel will release water the day before if the chance of precipitation is 60 percent or higher.² Released water then flows into a rain garden on site, allowing the water to seep naturally into the ground.¹ The rainwater collection system at the Twin Oaks Library helps to keep vegetation alive when the weather is dry and prevents flooding during rainy days. During 2015, the system caught 29,000 gallons of water, of which 10,000 gallons were used for irrigation and 19,000 gallons were released before storms.²

FIND OUT MORE

You can visit the Library in the South Austin Neighborhood of Bouldin Creek at 1800 S. Fifth St., Austin, TX 78704.

Learn more about Austin's watershed projects online:
<https://www.austintexas.gov/department/watershed-protection/programs>.

¹ <https://www.twdb.texas.gov/innovativewater/rainwater/raincatcher/2014/CityofAustin.asp>

² https://www.austintexas.gov/sites/default/files/files/Watershed/MasterPlan/Green_Infrastructure.pdf



Green Infrastructure for Texas | AgriLife.org/GIFT
Texas Community Watershed Partners | Houston, Texas
Texas A&M AgriLife Extension