



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 May 30, 2015
Project Total	\$867,398 (Federal 60% and Local 40%)

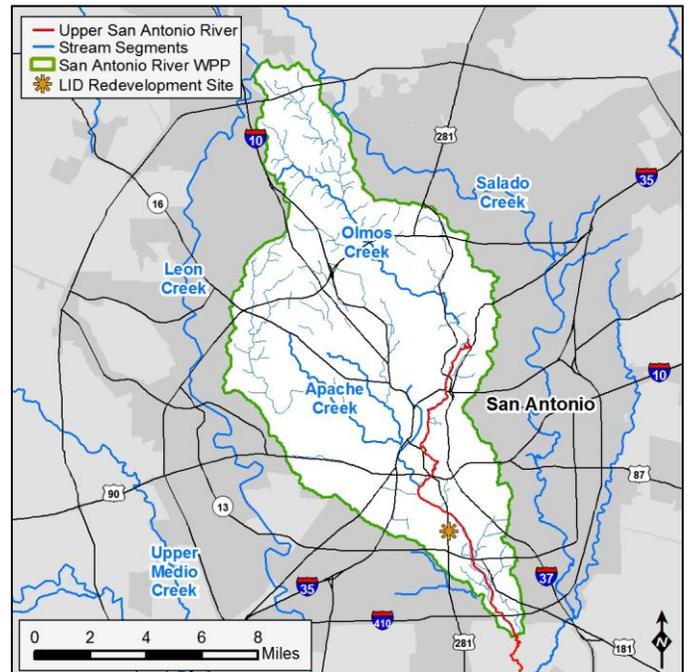
Low Impact Development (LID)

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. 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 a watershed, and reduces construction, maintenance, and inspection costs. Examples of LID and technologies include rain gardens, porous pavements, green roofs, and rainwater harvesting.

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 2006, 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. The WPP was [updated](#) in 2014 and the update was approved by EPA in 2015.

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 have been 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 are being 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 is being evaluated by collecting



stormwater samples at their inlets and outlets. The goal is to sample at least five stormwater events.

Current Status

All BMP construction and water quality monitoring is completed. This project is closed.

For More Information

TCEQ Project Manager

Bill Carter
512.239.6771; bill.carter@tceq.texas.gov

City of San Antonio Project Manager

Roberto Reyna
210.207.8084; Robert.Browning@sanantonio.gov

Project Highlights

- 08/2011 – Contract executed. Rainwater harvesting system was already in place.
- 11/2011 – QAPP planning meeting.
- 01/2012 – LID feature revision planning meeting.
- 01/2012 – Second meeting to plan LID feature revisions. Agreement is reached to proceed with permeable ring road overlay and adjacent bioswale under pending bid.
- 01/2012 – EPA conducts site visit.
- 09/2012 – Draft feasibility analysis of LID implementation in San Antonio is completed.
- 02/2013 – Contract is amended to incorporate changes in BMP plan.
- 06/2013 – BMP installation is completed.
- 09/2013 – Final design plans are submitted.
- 10/2013 – The LID Technical Guidance Manual and the Proposal for revisions of the COSA Unified Development Code are submitted.
- 01/2014 – Final QAPP is accepted; storm event monitoring begins.
- 04/2014 – Final construction report with as-built design/construction documents submitted.
- 11/2014 – First dataset is submitted.
- 04/2015 – Second dataset is submitted.
- 04/2015 – Reports on site tours and education/outreach activities are submitted.
- 05/2015 – BMP Evaluation Report submitted.
- 05/2015 – Cost-Benefit Analysis submitted.
- 06/2015 – Final Report approved.