



Gilleland Creek: Stormwater Retrofit for TMDL Implementation

Water Body	Gilleland Creek (Seg 1428C)
Location	Travis County
River Basin	Colorado River (14)
Contractor	University of Texas (UT), Center for Research in Water Resources
Project Period	October 10, 2011 to August 31, 2014
Project Total	\$332,623 (Federal 60% and Local Match 40%)

Background

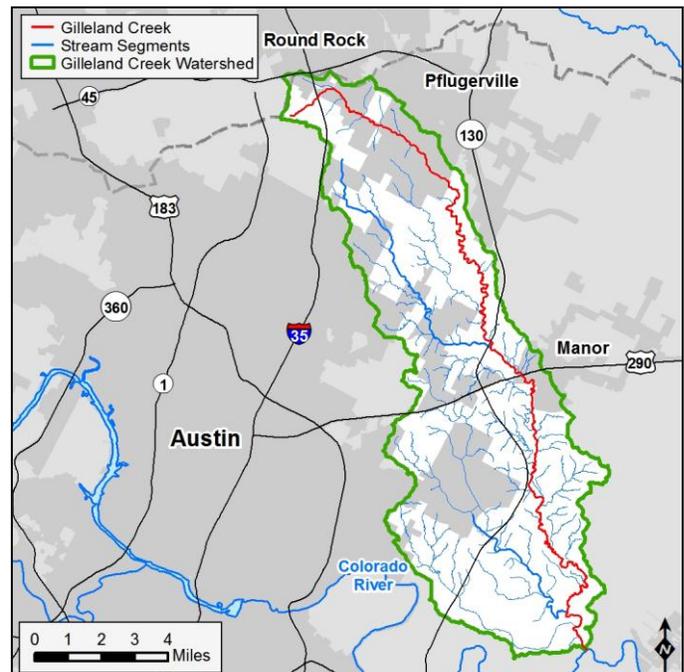
Levels of bacteria in excess of the state's contact recreational standard have been documented for Gilleland Creek in northeast Travis County resulting in its inclusion on the state's impaired water bodies list. In June 2005, the Lower Colorado River Authority (LCRA) conducted a study to determine the source of bacterial contamination in Gilleland Creek. Historic data and stream monitoring showed increased bacteria levels after rainfall runoff events in Gilleland Creek. This provides evidence that bacterial sources are of nonpoint source (NPS) origin. Probable sources of pollution in Gilleland Creek watershed include malfunctioning septic tanks, storm sewers, agriculture practices, pet and wildlife waste, and other natural sources.

To address the bacteria impairment, the state developed a bacteria total maximum daily load (TMDL) for Gilleland Creek in 2009. A subsequent TMDL Implementation Plan (I-Plan) was adopted in 2011.

Project Description

This project assessed the effectiveness of retrofitting existing flood control facilities (stormwater detention basins) within the Gilleland Creek watershed to perform as water quality facilities to reduce bacteria concentrations of stormwater. This study has widespread potential because many urban areas in the U.S. have stormwater systems that are similar to the Pflugerville portion of the Gilleland Creek watershed. There are essentially no facilities built specifically to address water quality concerns; however, flood control basins are widespread.

The study design includes the monitoring of two flood control basins in the Gilleland Creek watershed. One of the basins was retrofit with an automated valve, which allows all of the runoff from the contributing watershed to remain in the basin while bacteria loads are reduced. Reduction in bacteria concentrations result from sedimentation and exposure to



sunlight. The valve automatically opens after a period of time and allows the runoff to discharge to the Creek. The second basin acted as a control site and had water quality monitoring equipment installed to evaluate the bacteria concentrations from a standard flood control basin.

Project goals were to achieve 50% reduction in *E. Coli* and fecal coliform levels and 50% reduction in total phosphorus, and total suspended solids in the outflow.

Current Status

The study has been completed and the project is closed. Results were favorable but not statistically significant because only 5 storms were successfully sampled.

Public Participation

The Gilleland Creek TMDL Stakeholder Group coordinates implementation activities of the TMDL I-Plan. Participants represent government, permitted facilities, agriculture, business, environmental, and community interests in the Gilleland Creek watershed. For information on upcoming meetings please visit the [TMDL Gilleland Creek Website](#).

For More Information

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Project Highlights

- 10/11/2011 – The contract was initiated.
- 10/12/2012 – QAPP approved.
- 05/2012 – Detention facilities cleaned and prepared for retrofit.
- 02/2013 – Retrofit of detention basin completed; monitoring equipment set up completed.
- 05/2013 – First samples taken and sent to laboratory for analysis.
- 08/2013 – New monitoring equipment at Pon Court detention basin installed.
- May 2013 thru February 2014 – Storm sampling continued and data was submitted to TCEQ.
- 04/2014 – Stakeholder meeting was held.
- 07/2014 – Final report approved.
- **08/2014 – Contract closed**