Improving Water Quality in Gilleland Creek
A TMDL Project for Bacteria

Water Quality in Gilleland Creek

The state of Texas requires that water quality in Gilleland Creek (Segment 1428C) be suitable for contact recreation, aquatic life and fish consumption use, as designated in the Texas Surface Water Quality Standards (TSWQS). The Texas Commission on Environmental Quality (TCEQ) establishes the standards to maintain the quality of the water in the state consistent with public health and enjoyment, protection of wildlife, operation of industries, and economic development of the state. The contact recreation designated use of this waterbody is not supported due to high concentrations of *E. coli* bacteria.

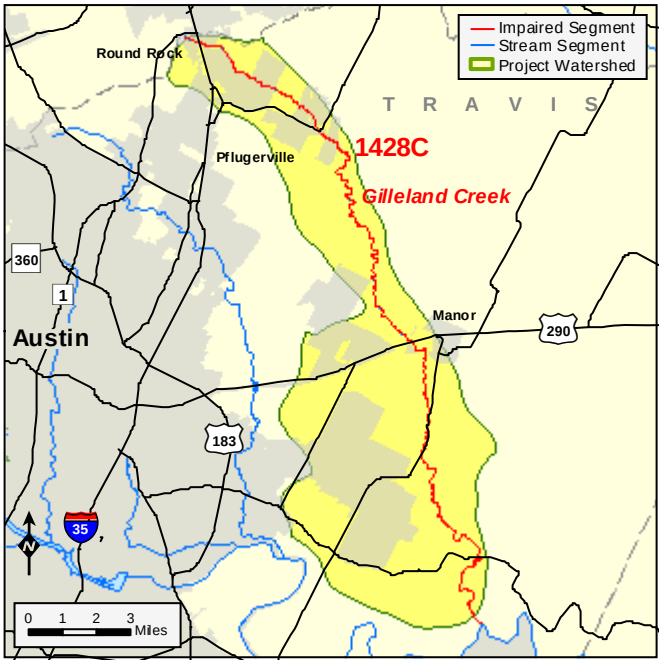
In response to this issue, a total maximum daily load (TMDL) project has been initiated to determine the pollution controls necessary to restore and maintain water quality in Gilleland Creek. The goal of a TMDL is to determine the amount (or load) of a pollutant that a body of water can receive and still support its designated uses. The allowable load is allocated among all the potential sources of pollution within the watershed, and measures to reduce pollutant loads are developed.

Bacteria from human and animal waste often indicates the presence of disease-causing microorganisms that pose a threat to public health. People who swim or wade in the creek may be at risk.

Learn more about water quality standards and monitoring by reading *Clean Water for Texas: Working Together for Water Quality*, available on the Web at <www.tceq.org/goto/tmdl/>.

Description of the Gilleland Creek Watershed

The watershed is located in central Texas (Travis County) and covers about 76 square miles running through the Blacklands Prairie region. Land use in the watershed is undergoing a transition from primarily agricultural, to becoming heavily urbanized. Results of urbanization are most evident during ambient flow, when Gilleland Creek is mostly made up of wastewater effluent from the six municipal wastewater treatment facilities and one industrial permitted discharger in the watershed.



TMDL Development

The TMDL process was initiated by TCEQ in August 2004 through a contract with the Lower Colorado River Authority. Initial tasks in the project included review of existing water quality data for the segment, and the development of a monitoring plan to outline additional sampling strategies necessary to complete the TMDL. Data collection began in August 2005 and was completed in spring 2006. The sampling results were modeled using load duration curve analysis. The creek was generally out of compliance with the contact recreation standard during medium to high flow events, which indicates that the cause is due to non point source contributions. The percent reductions required to bring the water body into compliance with the contact recreation standard are 92.8 percent at high flow, and 83 percent at moderate flow.

Public Participation

The Gilleland Creek TMDL Stakeholder Group was formed to provide advice and comment on the project. The group represents government, permitted facilities, agriculture, business, environmental, and community interests in the Gilleland Creek watershed.

During the fall of 2007, five work groups were formed by the stakeholders to assist with development of the Implementation Plan: the Natural Resource Management Work Group, the Ordinances and Planning Work Group, the Wastewater Work Group, the Storm Water Work Group, and the Education and Outreach Work Group. Each work group was responsible for development of management measures for their area of expertise that would improve water quality. These management measures will be incorporated into the draft Implementation Plan.

For More Information

To find out more about upcoming meetings and progress of the project, contact one of the people listed below. Or visit the TCEQ Web site at <www.tceq.org/goto/tmdl/>.

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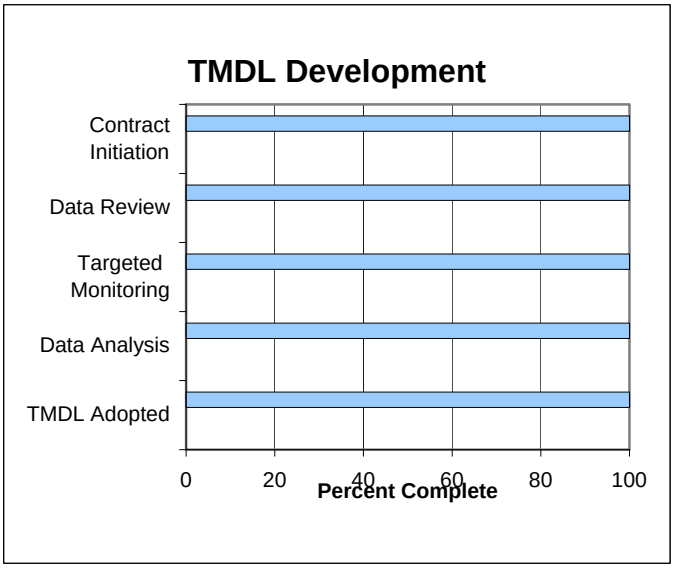
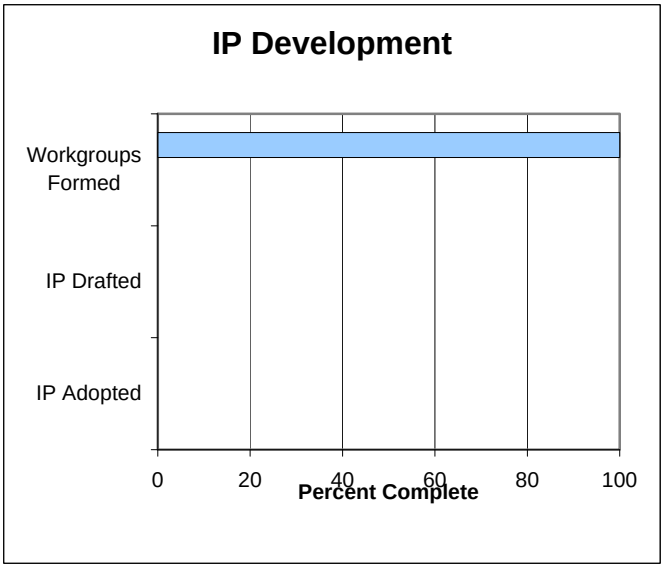
TMDL Development Status

Start Date: August 2004
Projected End Date: January 2007
TCEQ Adoption: August 8, 2007
EPA Region 6 Approval:

Implementation Plan Status

Start Date: May 2007
Projected End Date: January 2009
TCEQ Adoption:





TMDL Project Highlights

- Data analysis revealed that bacteria concentrations were elevated during rainfall events, and up to three to four days following the rain. This trend strongly suggests that the sources of bacteria mainly come from nonpoint sources.
- The TMDL document was adopted by the TCEQ on August 8, 2007.
- The draft Implementation Plan is expected to be ready by fall 2008.
- Implementation efforts have been strongly supported by the stakeholders.