

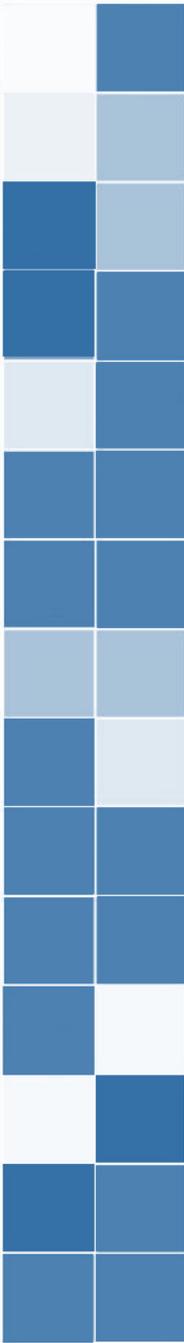
NOLAN CREEK

Outreach and Education Strategy for the Nolan Creek/South Nolan Creek Watershed

Texas Institute for Applied Environmental Research
Stephenville, Texas

January 20, 2016

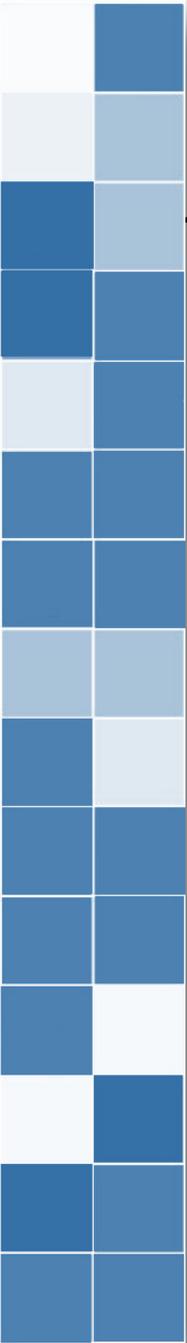




Outreach and Educational Program

- Goals

- To enhance public understanding of water quality issues and
- Encourage implementation of practices to reduce bacteria contributions



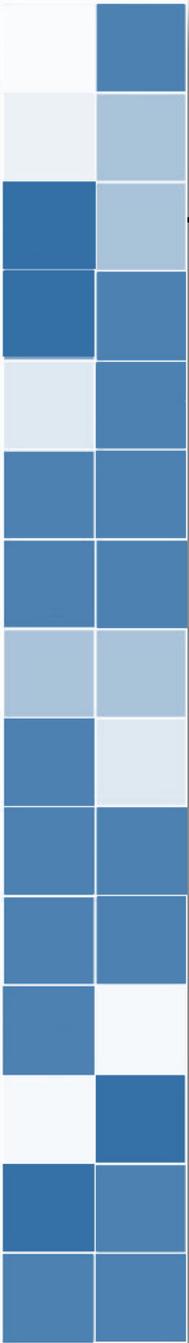
Outreach and Educational Program

- Water Quality Goal

- To reduce bacteria concentrations throughout Nolan Creek/South Nolan Creek

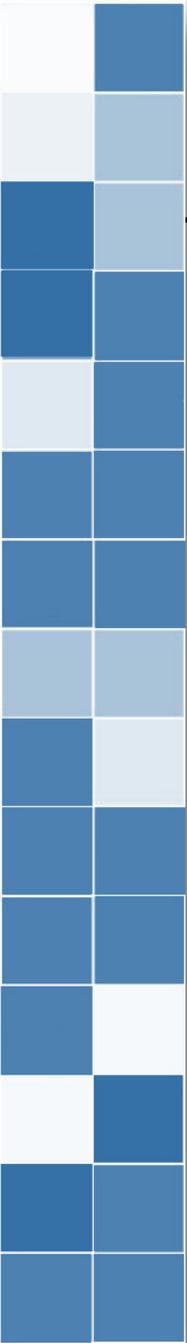
Texas Water Quality Standard

126 cfu/100 mL Primary Contact Recreation



Objectives

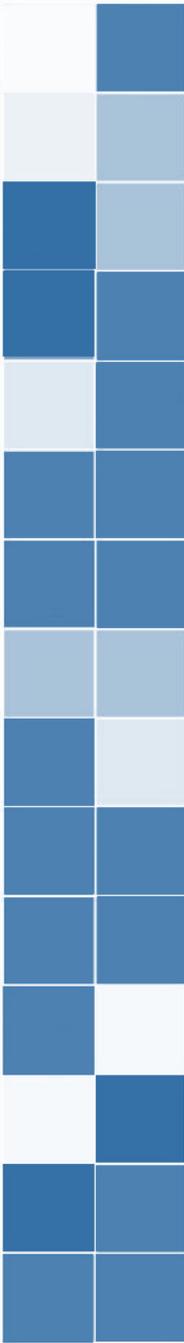
- **Creating awareness of watershed issues**
 - What are the impairments and concerns?
 - Why are these important to stakeholders?
- **Providing information on causes**
 - What are the sources of elevated bacteria concentrations?
- **Encouraging action**
 - What can be done to reduce bacteria concentrations to improve water quality?



Who is a stakeholder?

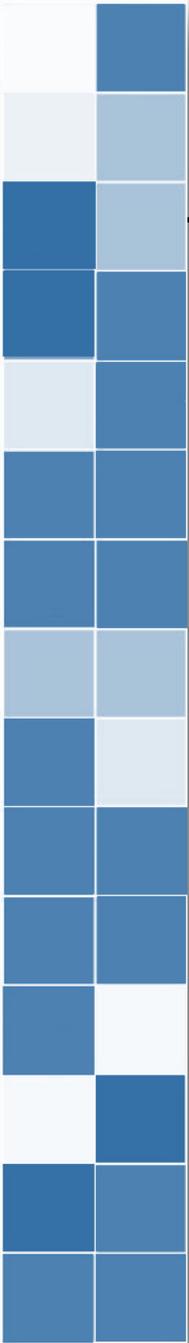
- Landowners
- Citizens
- Citizen Groups
- Local Representatives
- Local Governmental entities
 - Cities
 - Counties
 - Soil and Water Conservation Districts
- Non-Governmental Organizations

Stakeholders are key for a successful educational and outreach program and must be identified!



Outreach and Education Strategy

- Create Awareness and Provide Information
 - Public Meetings
 - Partnership Website
 - Advertising and Marketing Materials
- Encourage Action
 - Regional, Agricultural & Urban Programs
- Measure Effectiveness
 - Utilization of Resources
 - Strategy Assessment



Timeline

Providing Information

Creating Awareness

Encouraging Action

Public Meetings

Advertising & Marketing Materials

Watershed Workshops



Partnership Website

Community Outreach Events

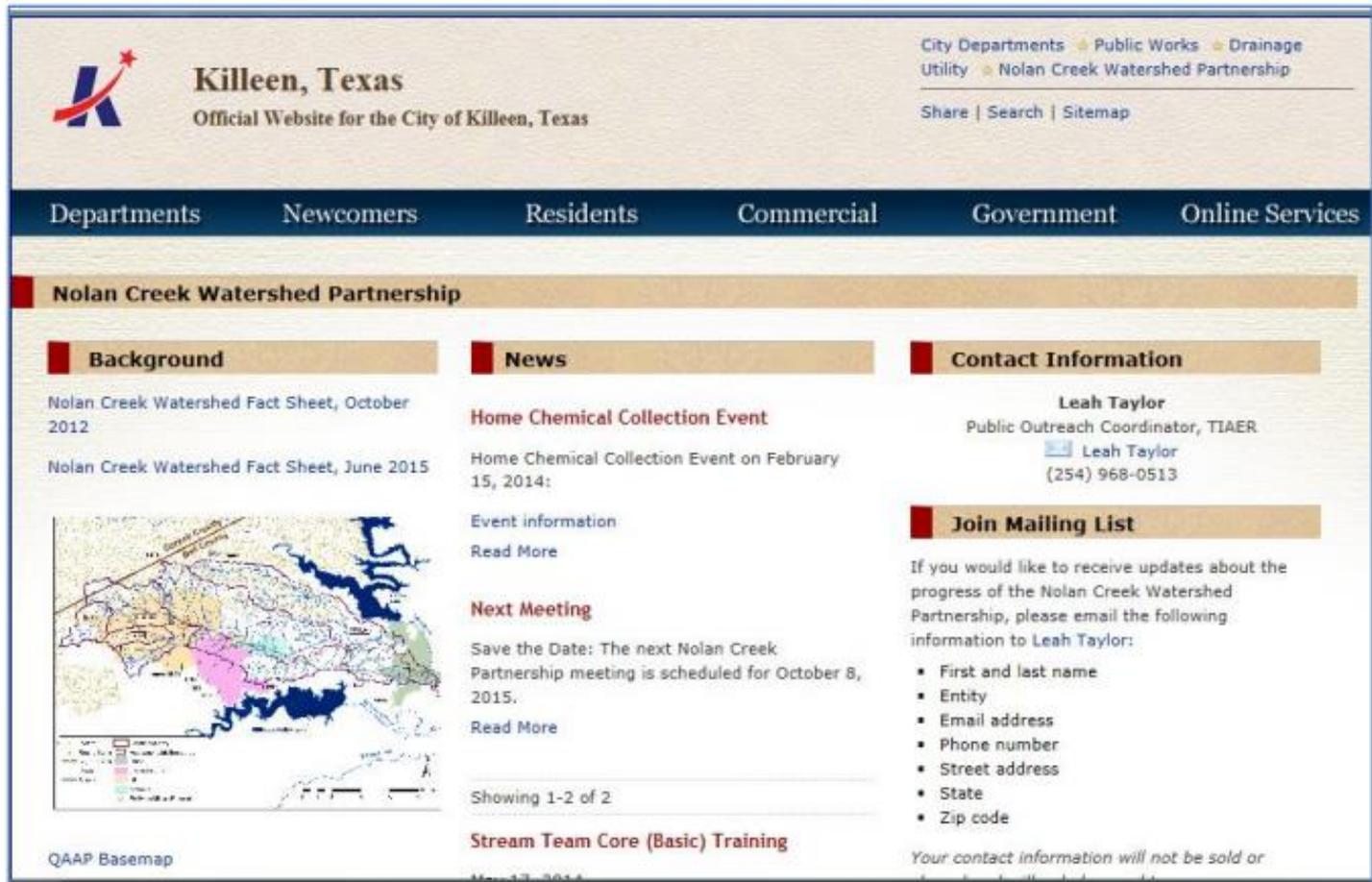
Public Meetings

- Provide stakeholders an opportunity to be informed and provide feedback on watershed issues and activities



Partnership Website

- <http://www.killeentexas.gov/nolancreekwatershed>



Killeen, Texas
Official Website for the City of Killeen, Texas

City Departments • Public Works • Drainage Utility • Nolan Creek Watershed Partnership

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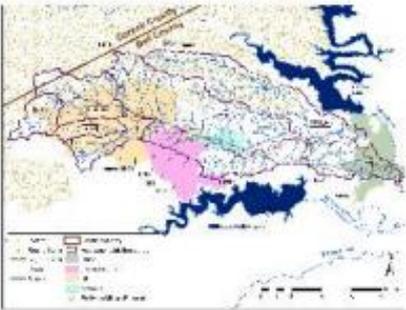
Departments Newcomers Residents Commercial Government Online Services

Nolan Creek Watershed Partnership

Background

Nolan Creek Watershed Fact Sheet, October 2012

Nolan Creek Watershed Fact Sheet, June 2015



QAAP Basemap

News

Home Chemical Collection Event

Home Chemical Collection Event on February 15, 2014:

Event information
[Read More](#)

Next Meeting

Save the Date: The next Nolan Creek Partnership meeting is scheduled for October 8, 2015.

[Read More](#)

Showing 1-2 of 2

Stream Team Core (Basic) Training

Nov 13, 2014

Contact Information

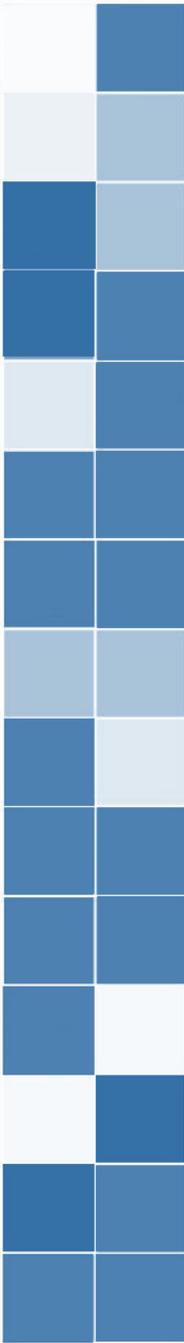
Leah Taylor
Public Outreach Coordinator, TIAER
[Leah Taylor](#)
(254) 968-0513

Join Mailing List

If you would like to receive updates about the progress of the Nolan Creek Watershed Partnership, please email the following information to Leah Taylor:

- First and last name
- Entity
- Email address
- Phone number
- Street address
- State
- Zip code

Your contact information will not be sold or



Advertising and Marketing Materials

- Nolan Creek/South Nolan Creek Fact Sheet
- News Releases
- Partnership Newsletters
- Brochures
- Fliers
- Watershed Signage
- Community Events

Advertising and Marketing Materials Examples





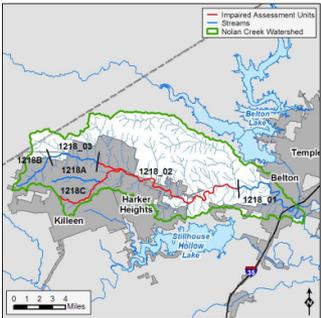
**Texas Commission on Environmental Quality
Nonpoint Source Program**

Assessment of Water Quality and Watershed Based Planning for Nolan Creek

Water Body	Nolan Creek / South Nolan Creek (Seg 1218)
Location	Bell County
River Basin	Brazos River Basin (12)
Contractor	Texas Institute for Applied Environment Research (TIAER)
Project Period	September 1, 2012 to August 31, 2015
Project Total	\$459,418 (Federal 60% and Local Match 40%)

Background

Segment 1218 was first listed on the 1996 303(d) List for elevated bacteria concentrations. The 2010 303(d) List identifies assessment unit 1218_02 (portion of South Nolan Creek from confluence with North Nolan/Nolan Creek fork upstream to confluence with Liberty Ditch in City of Killeen in Bell County) and 1218C (Little Nolan Creek from confluence with Nolan Creek/South Nolan Creek upstream to headwaters in the City of Killeen, Bell County) for elevated bacteria concentrations. Both assessment units are classified as 5b, indicating that a review of the water quality standards for this water body will be conducted before a total maximum daily load (TMDL) will be scheduled. In addition, the 2010 Texas Water Quality Inventory identifies the following concerns: nitrate, total phosphorus, and orthophosphorus.



Project Description

Through this project, project partners and collaborating entities will work with local stakeholders to progress through the data collection and analysis components of the first two tiers of the Bacteria TMDL Task Force recommended three-tier approach. The goal of the data collection and analysis effort is to remove waterbodies in the study area from the 303(d) List; however, the mechanism is not predetermined. This three-year assessment project may conclude: 1) waterbodies are achieving current water quality standards, 2) adequate data exists to develop a Watershed Protection Plan, or 3) adequate data exists to develop a TMDL and Implementation Plan for TCEQ adoption. This project should complete Element A and address large portions of Element B of the nine required elements of a watershed plan specified in the Environmental Protection Agency's Handbook for Developing Watershed Plans to Restore and Protect Our Waters.

Current Status

Water quality monitoring, data inventory, public participation activities, and watershed analyses are ongoing. Evaluation tool for information and education activities has been developed.

For More Information

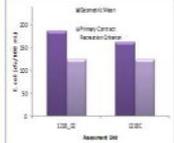
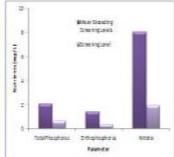
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<http://www.killeentexas.gov/nolancreekwatershed>

DATA

2012 Texas Integrated Report







Texas Institute for Applied Environmental Research

**NOLAN CREEK/
SOUTH NOLAN CREEK
PROJECT
BACKGROUND**



TEXAS INSTITUTE FOR APPLIED ENVIRONMENTAL RESEARCH (TIAER)

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PREPARED BY: COOPERATION WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY AND U.S. ENVIRONMENTAL PROTECTION AGENCY

The preparation of this report was financed through grant from the U.S. Environmental Protection Agency through the Texas Commission on Environmental Quality

WATER QUALITY STANDARDS

Water Quality Standard

- The designated beneficial uses of a water body and the water quality criteria necessary to protect those uses

Clean Water Act

- Requires States to establish Water Quality Standards to achieve objectives and goals of the Act
- Requires Texas to identify water bodies failing to meet or not expected to meet water quality standards and not supporting their designated uses

Texas Water Quality Inventory & 303(d) List

- The list of Texas impaired water bodies

NOLAN CREEK/SOUTH NOLAN CREEK IMPAIRMENTS (SEGMENT 1218)

2012 Texas 303(d) List Assessment Units	Impairments or Concerns
<ul style="list-style-type: none"> 1218_02—South Nolan at Liberty Ditch in Killeen to the confluence with North Nolan Creek west of Belton 1218C—Little Nolan Creek in and south of Killeen 	<ul style="list-style-type: none"> Bacteria Impairment and Concerns for Nutrients Bacteria Impairment

Why Bacteria?

- Elevated levels of bacteria (E. coli, fecal coliform) indicate possible fecal contamination including recreational use
- Potential presence of disease-causing pathogens that may result in illness if ingested

Why Nutrients?

- Nitrate cause potential human health issues if high concentrations occur in drinking water
- Elevated Nitrogen & Phosphorus concentrations raise environmental concerns in that they can cause excessive algae growth in surface waters also known as accelerated eutrophication (Nolan Creek is NOT currently listed for excessive algae.)

PROJECT GOALS

- Evaluate potential sources
 - Geographical inventory
 - Water quality monitoring program
 - Focuses on E. coli but also includes nutrients
 - Monthly routine sampling
 - 11 sampling stations
 - Quarterly storm sampling stations
 - 4 sampling stations
- Identify targeted control practices
- Identify future watershed needs

The ultimate goal of the data collection and analysis effort is to remove water bodies in the study area from the 303(d) List; however, the mechanism is not predetermined.

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Station 18819, South Nolan Creek at 1819 (15Oct2013)

June 2015

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Examples of Community Events

Hosting City/County	Event	Month
City of Killeen	Celebrate Killeen Festival	May
	Killeen GIS Day	September or October
	Killeen ISD Science Fairs and Career Days	
	Barktober Fest	October
City of Belton	4th of July	July
	Belton ISD Science Fairs and Career Days	
City of Harker Heights	Harker Heights Fun Day at Purser Family Park	July
	Harker Heights ISD Science Fairs and Career Days	
Fort Hood	Fort Hood Earth Fest	April
Bell County	Bell County Kidfest	July/August
	Kids Expo at Bell County Expo Center	May
	Bell County Crops and Livestock Conference	
	Bell County Professional Groundskeeper Council	
	Bell County Water Symposium	November

Regional Programs

- Texas Watershed Stewards
- Texas Stream Team
- On-Site Sewage Facilities
 - Septic System Informational Campaign
 - Homeowner Septic System Maintenance Workshops
- Riparian & Stream Ecosystem Education Program



Agricultural Programs

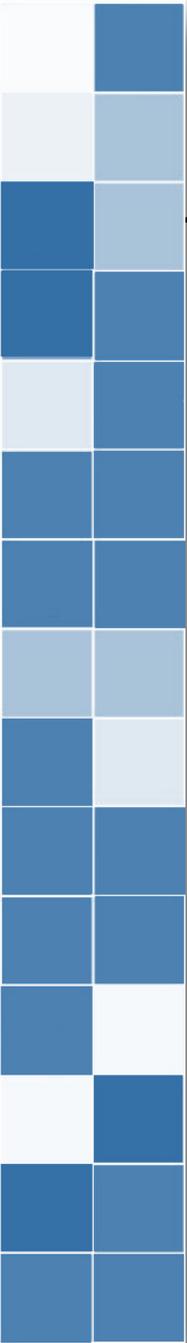
- Lone Star Healthy Streams Program
- Feral Hog Management Workshop
- Agricultural Waste and Pesticide Collection Events



Urban Programs

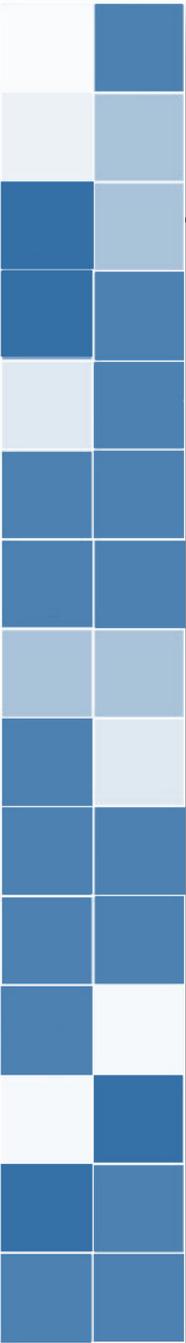
- Texas Waterway Cleanup Program
- Domestic Pet Waste
 - Pet waste management
 - Pet Stations
- Home Chemical & Hazardous Waste Collection Events





Measuring Effectiveness

- Are resources being effectively utilized?
 - Track time involved, cost, and stakeholder participation
- Is the educational strategy effective?
 - Conduct a planning evaluation at least once every three years:
 - Are objectives being met?
 - Are materials effective?
 - Are target audiences being reached?
 - Are improvement activities being implemented?



Contact Information

Leah Taylor

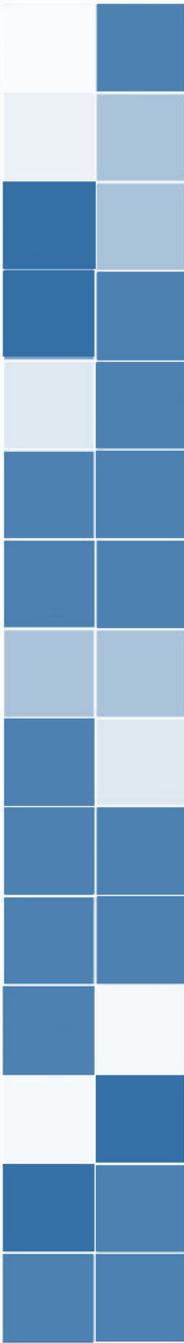
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Questions?

Project Website:

<http://www.killeentexas.gov/nolancreekwatershed>

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