



# Bacteria Reduction Plan

## Year One Update

Tara Bushnoe  
Natural Resources Coordinator  
UGRA





# Welcome Stakeholders

- Provide input and feedback on Bacteria Reduction Plan activities
- Stay informed and apprised of all Bacteria Reduction Plan activities
- Assist in disseminating accurate information



# Guadalupe River above Canyon Lake TMDL

- Bacteria impairment for contact recreation in a 3.5 mile reach of Guadalupe River in Kerrville
- Placed on 303(d) list in 2002
- TMDL approved in 2007
- Implementation Plan approved in 2011



December 13, 2012

Lauren Young  
TCEQ TMDL Program

**TMDL Implementation Plan Year 1**



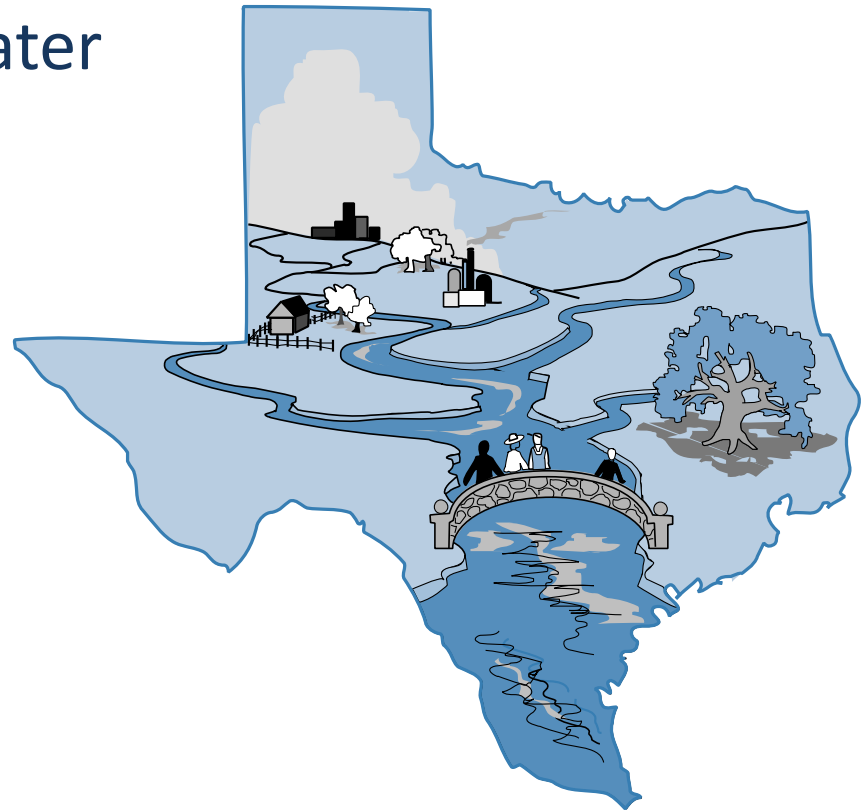


# Key Elements

- TMDL
- Implementation Plan
- Status Updates
- Telling Our Story

# What is a TMDL?

- Total Maximum Daily Load
- A basis for restoring water quality



# Federal Legal Requirements

- Clean Water Act
  - Identify polluted water bodies - Section 303 (d)
  - Develop TMDLs to guide restoration



# Why do a TMDL?

- Restoration
- Tool
- Sources



TCEQ Adopted: July 25, 2007

One Total Maximum Daily Load  
for Bacteria  
in the Guadalupe River  
Above Canyon Lake

For Segment Number 1806

Prepared by the:  
Chief Engineer's Office, Water Programs, TMDL Section  
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



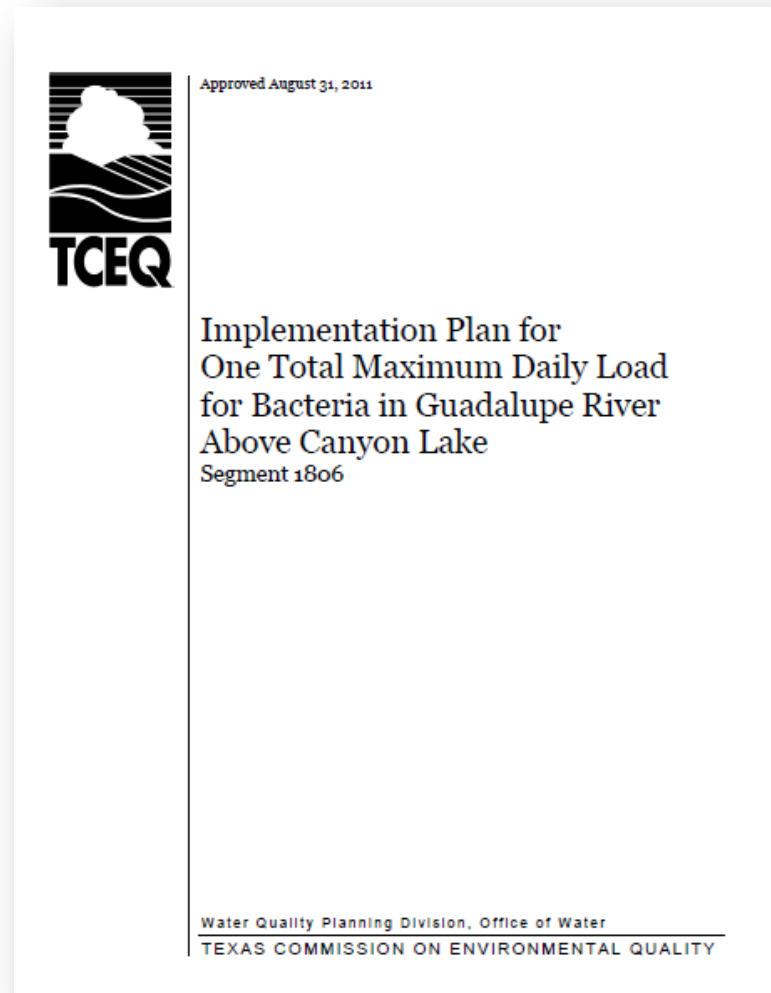


# What is an I-Plan?

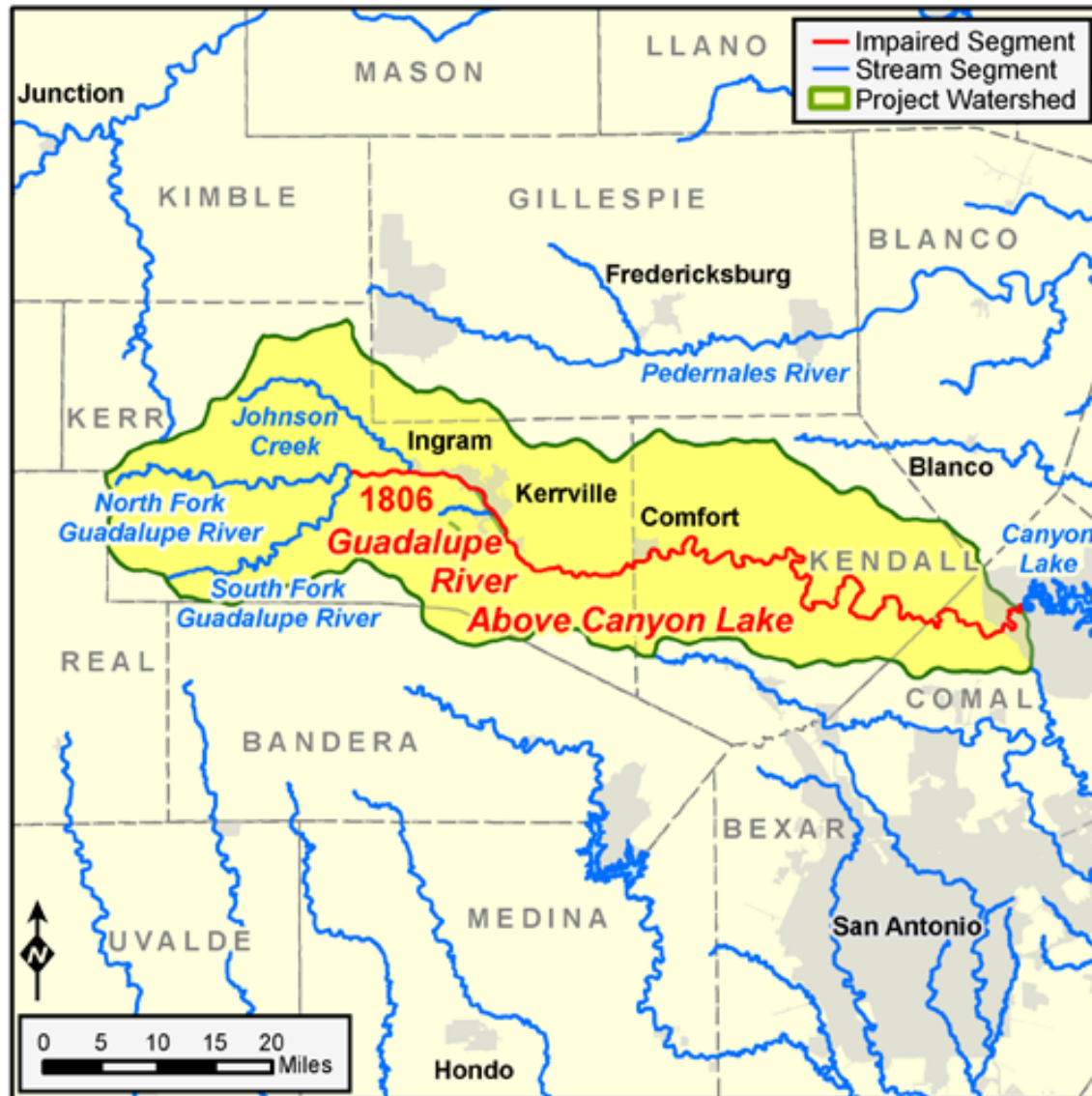


# Why do an Implementation Plan?

- TMDL requirement
- Developed by stakeholders
- Approved by TCEQ 8/31/2011



# Why GRACL?



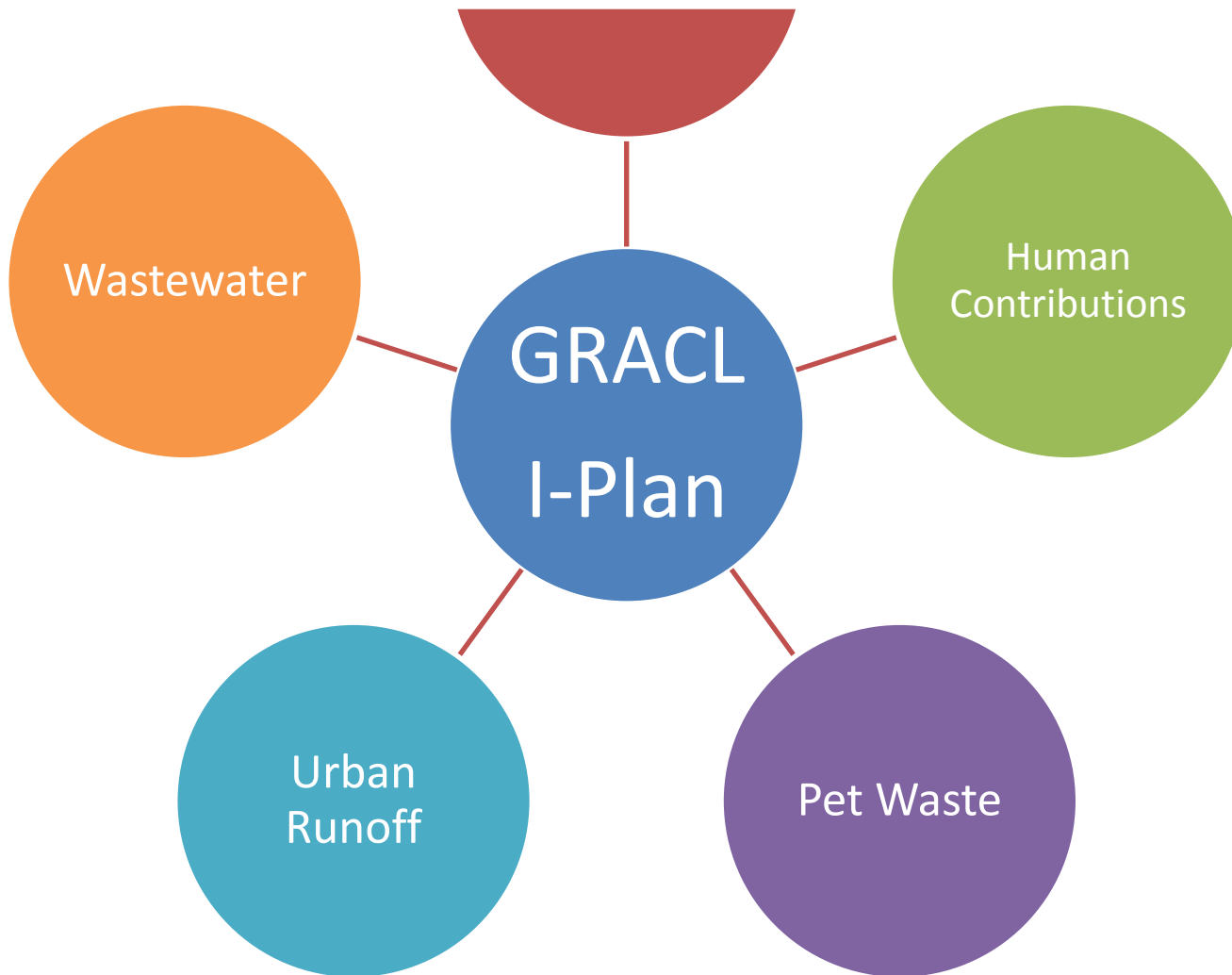
# Ultimate Goal

- Reduce bacteria concentrations



copyright Matthew Lee High







# Bacteria Reduction Plan

- Funded by TCEQ Non Point Source Program
- \$475,201 Total Project
  - 60% Federal Funding (\$285,121)
  - 40% Local Match (\$190,080)
- October 15, 2011 – August 31, 2014
- Partners
  - UGRA
  - City of Kerrville
  - Kerr County
  - TXDOT

# Wildlife

- Install bird exclusion/deterrent structures
- Reduce bird feeding
- Manage waterfowl population
- Partners involved:
  - UGRA
  - City of Kerrville
  - Kerr County
  - TxDOT



copyright Matthew Lee High





---

# Wildlife Results

---

- Install bird exclusion/deterrent devices
  - Bird deterrent structures designed for SH 16 and SH 534 bridges
  - Plans reviewed by local partners
  - Comments incorporated
  - TXDOT utility installation agreement
  - Publically bid
  - Contractor selected
  - Construction start date December 17th





---

# Wildlife Results

---

- Installation of bird deterrent structures on three sections of SH 16 bridge



- Lane closures – one lane in each direction

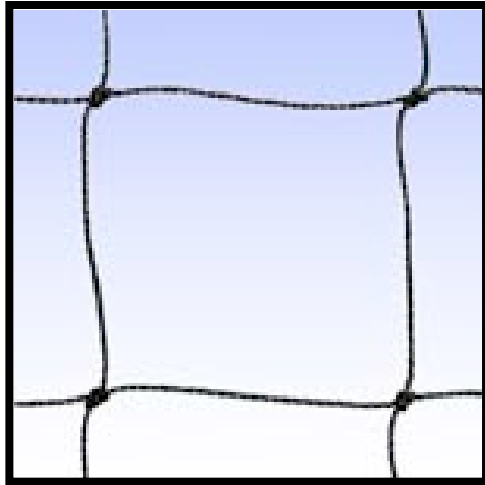
---

# Spikes

---



# Netting

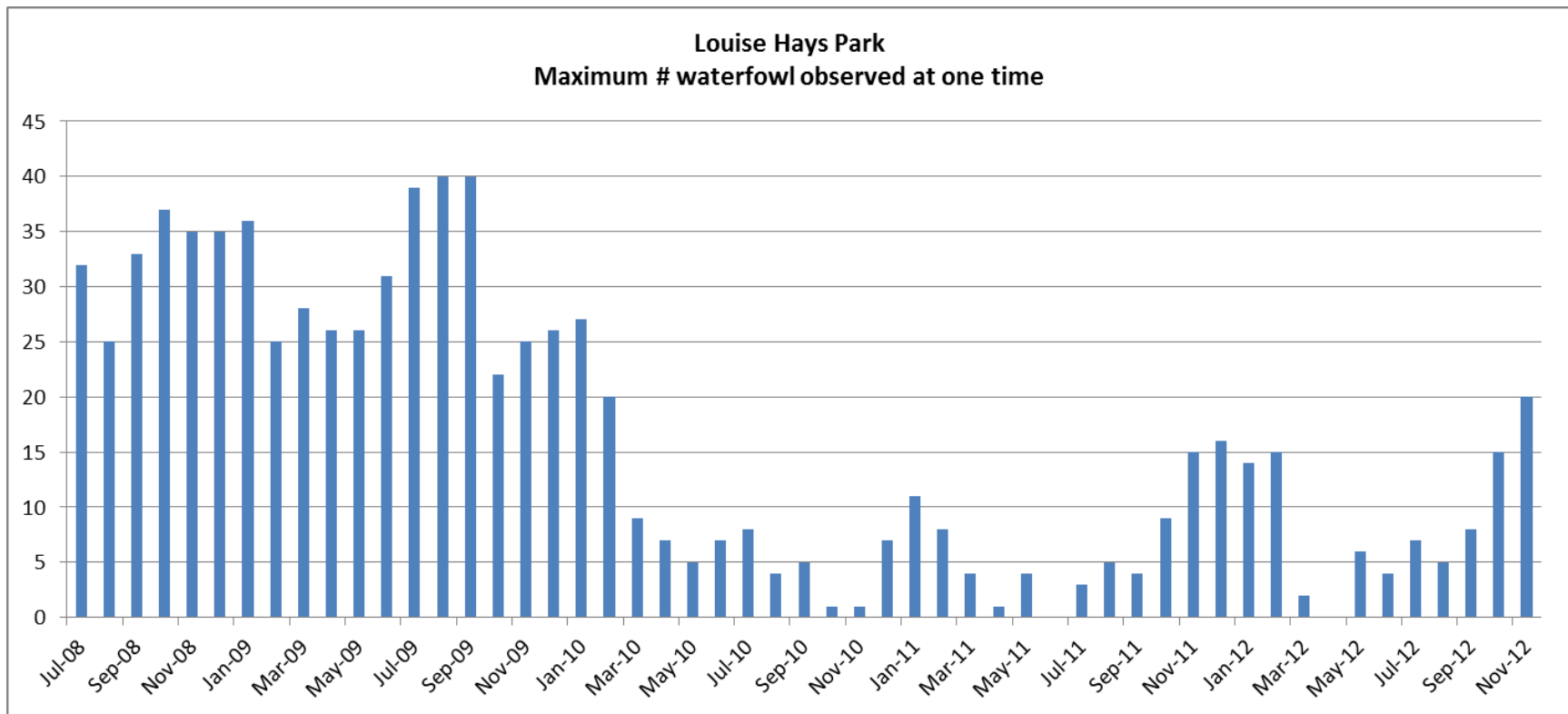


3/4-inch mesh polyethylene



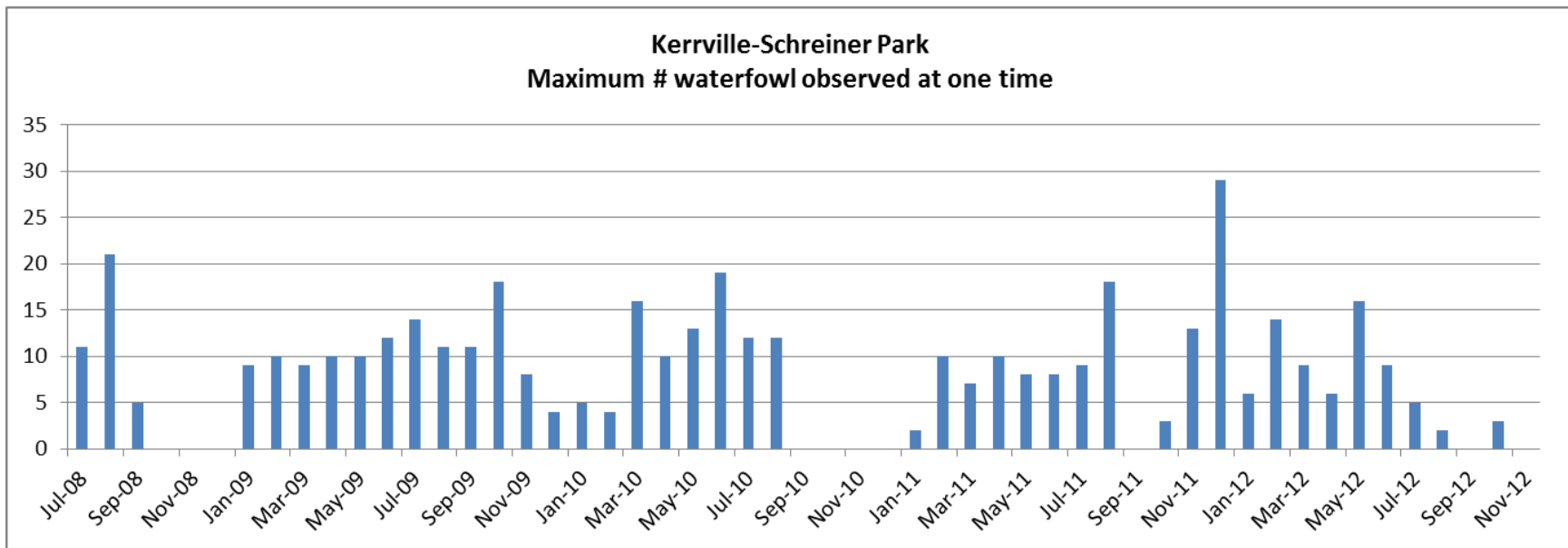
# Wildlife Results

- Reduce bird feeding
- Manage waterfowl population



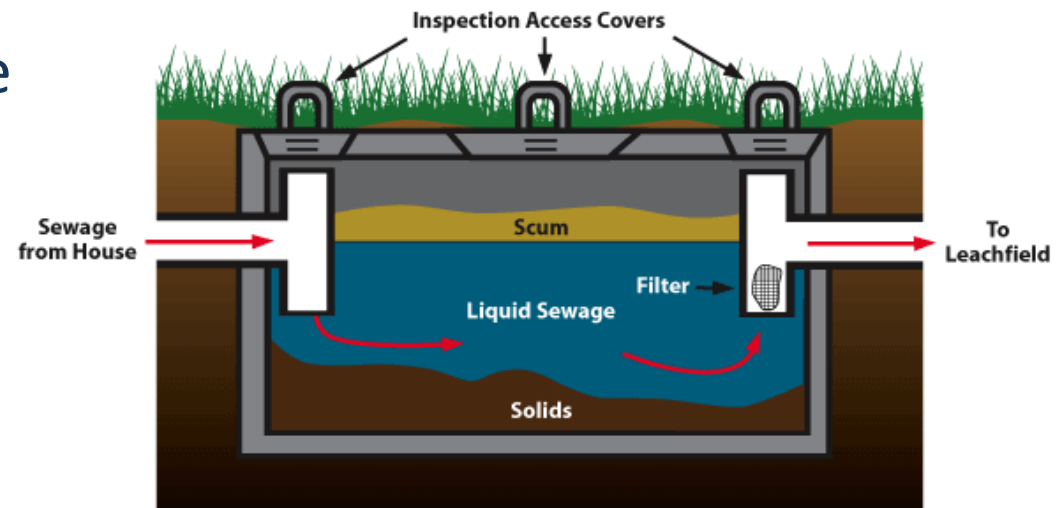
# Wildlife Results

- Reduce bird feeding
- Manage waterfowl population



# Human Contributions

- Ongoing lateral sewage line replacement
- Sewer inspection and rehabilitation
- OSSFs
- Partners involved:
  - UGRA
  - City of Kerrville
  - Kerr County
  - TxDOT





---

# Human Contributions Results

---

- Improvements to wastewater collection systems
  - \$7,938,219.60 spent on improvements
  - 25,660 lateral feet of collection line system repaired/replaced
  - 1 lift station replaced (Birkdale)
  - 15 manholes replaced
  - 59 manholes rehabilitated
  - 9 city cleanouts replaced
  - 276 customer service cleanouts repaired





---

# Human Contributions Results

---

- Gravity main footage
  - 54,481 lateral feet inspected via camera
  - 190,225 lateral feet cleaned/vacuumed
  - 1,698 lateral feet root sawed

**WOW!**







---

# Human Contributions Results

---

- Mapping of On-site Sewage Facilities (OSSF)
  - Designate priority area – 300 feet from waterbody
  - Identify properties in area
  - Cross reference with OSSF database



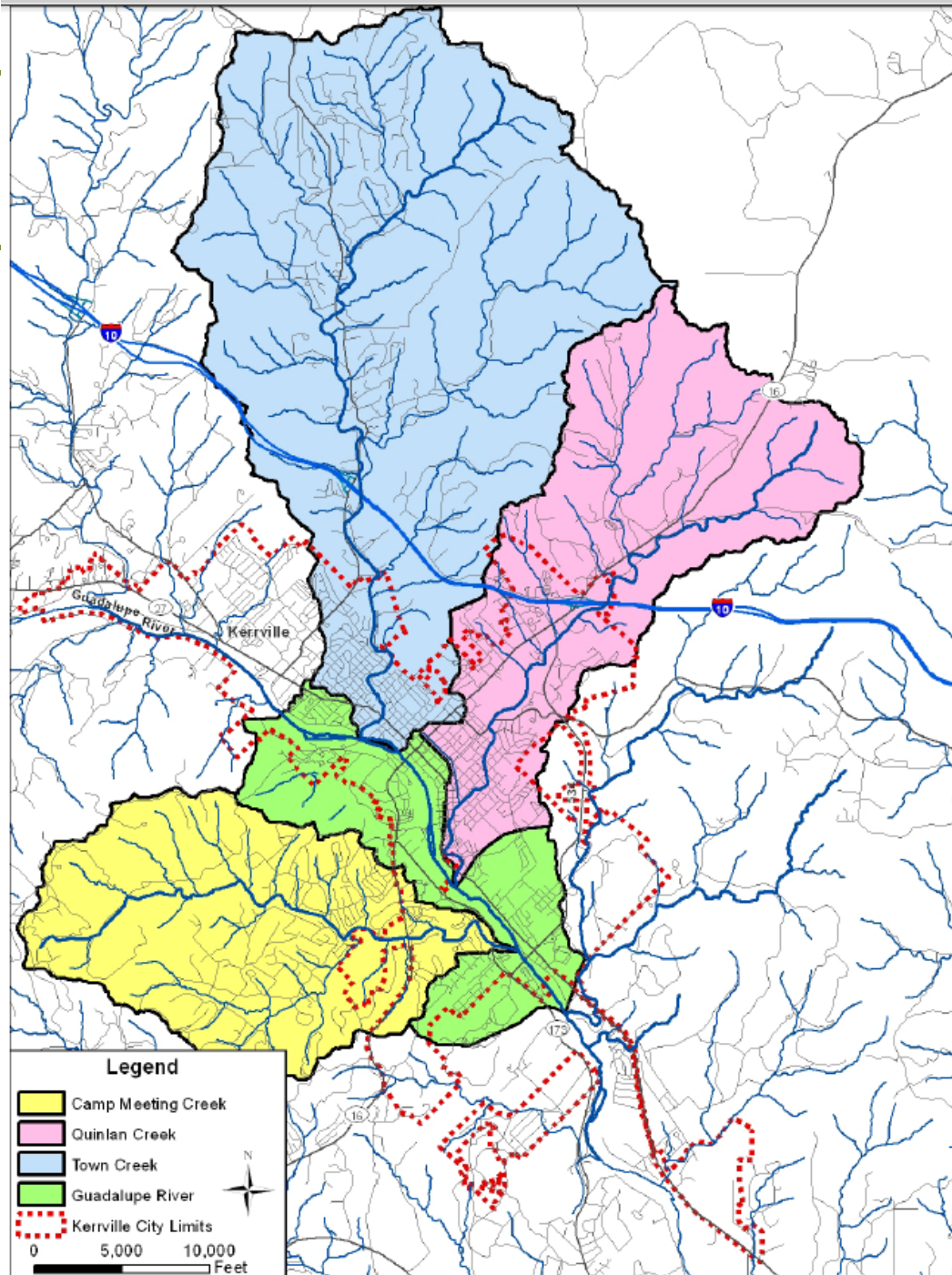


Figure 1: Guadalupe River (Segment 1806) and Study Area Subwatersheds



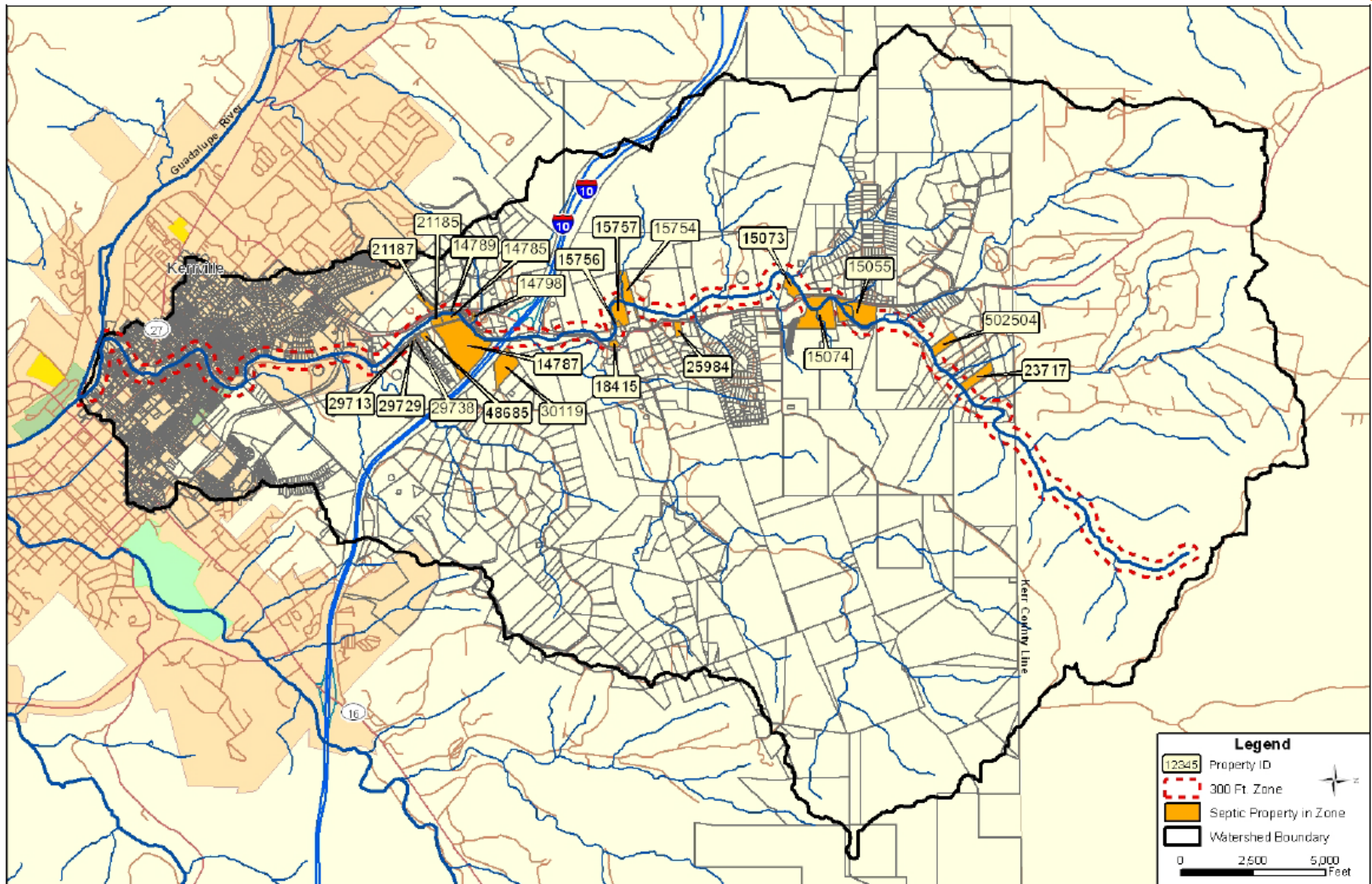


Figure 2: Town Creek Septic System Priority Zone



---

# Human Contributions Results

---

- Summary of OSSFs in priority area

Watershed	Total Number of Septic Properties	Number of Septic Properties in Priority Area
Town Creek	276	21
Camp Meeting Creek	906	69
Quinlan Creek	121	9
Guadalupe River	84	6
<b>Total</b>	<b>1390</b>	<b>105</b>



---

# Pet Waste

---

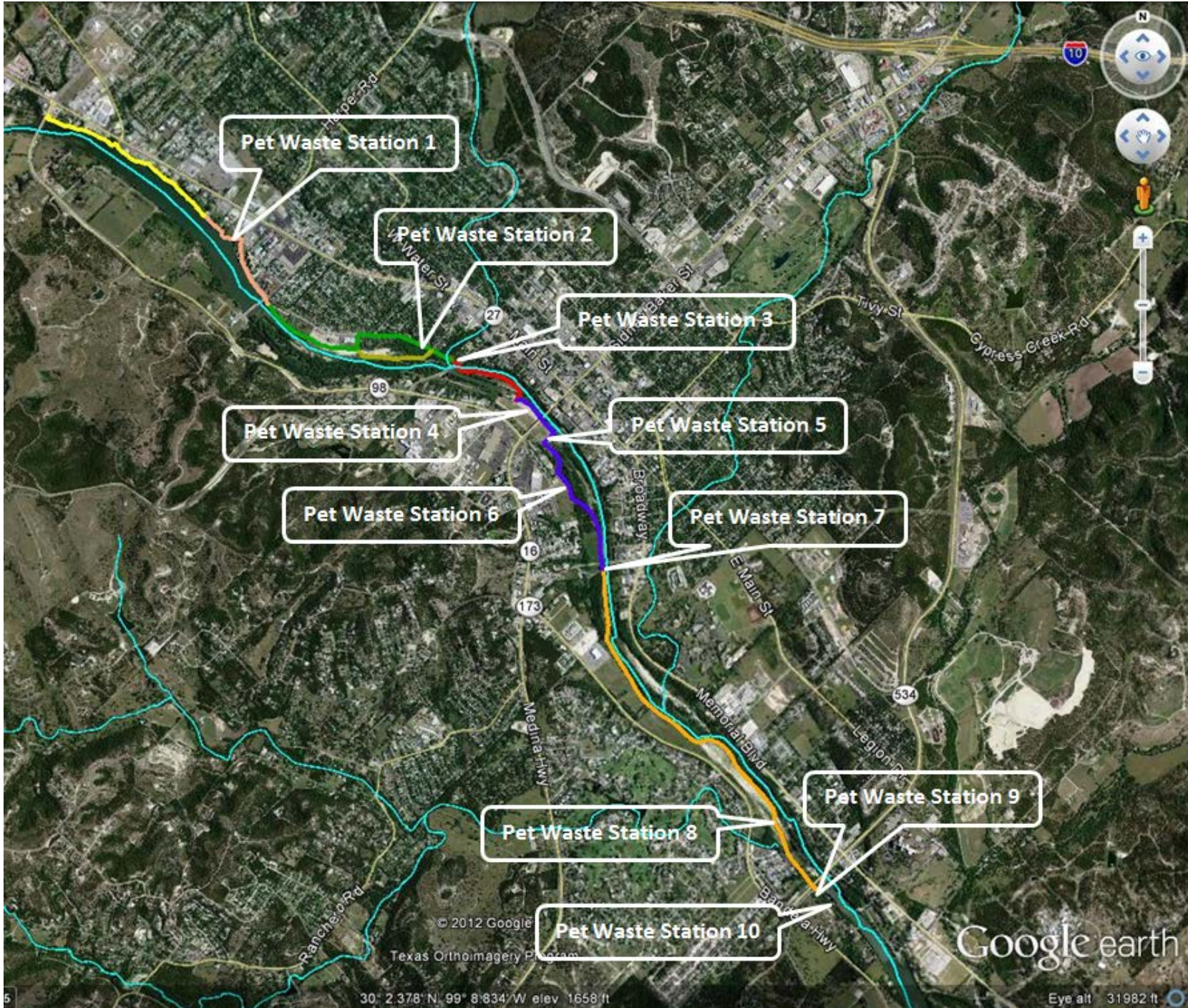
- Implement education program
- Install pet waste stations
- Partners involved:
  - UGRA
  - City of Kerrville
  - Kerr County



# Pet Waste Results

- Seven active stations in Flat Rock Park
- Five active stations in Kerrville Parks
- Ten planned stations along River Trail







---

# Pet Waste Results

---

- Education materials in Years 2 and 3
- Effectiveness monitoring
  - Weekly monitoring
  - 80-100 pounds of waste/month
  - **2,700 pounds removed since November 2010**
  - 1,207 pounds removed in Year One





# Urban Runoff

- Storm water education programs
- River clean ups
- Street sweeping
- Partners involved:
  - UGRA
  - City of Kerrville





---

# Urban Runoff Results

---

- Interactive kiosk coming soon
- Watershed model presentations
- Clean ups
  - 2012 UGRA Annual River Clean 11,165 pounds
  - UGRA Annual River Crossing Clean Up Program 16,170 pounds
  - Tim Lewis work on Town Creek
- City of Kerrville 488 hours of street sweeping







---

# Wastewater

---

- Monitor and report *E. coli* concentrations
- Partners involved:
  - Local WWTFs
  - TCEQ TMDL Program



---

# Wastewater Results

---

- WWTFs
- TCEQ TMDL Program
  - Review water quality data
  - Single WWTF not currently operating





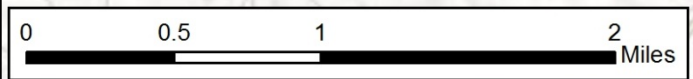
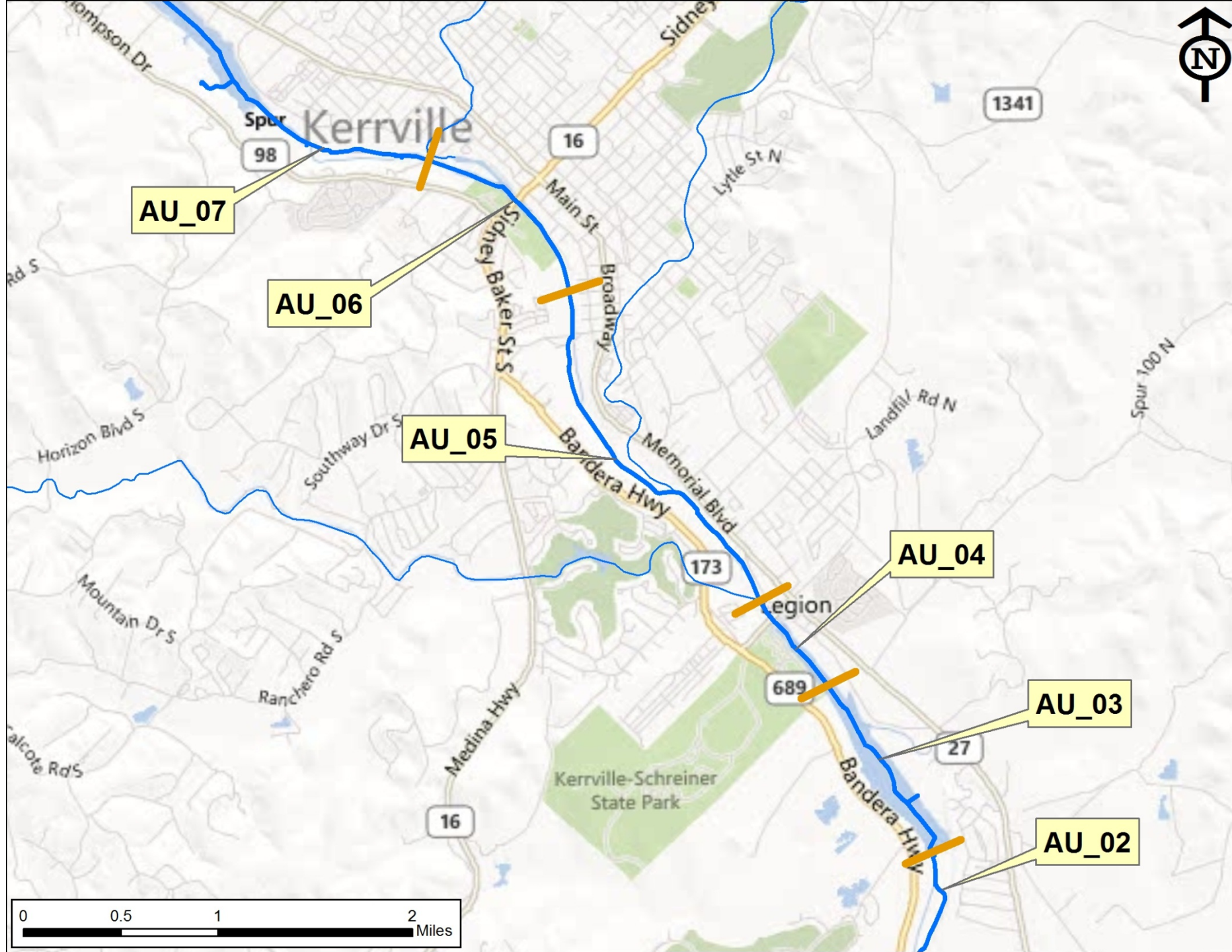
---

# Texas Integrated Reports

---

- Segment 1806
- Contact recreation use
  - *E. coli* samples
  - Geometric mean exceeds 126 cfu/100mL





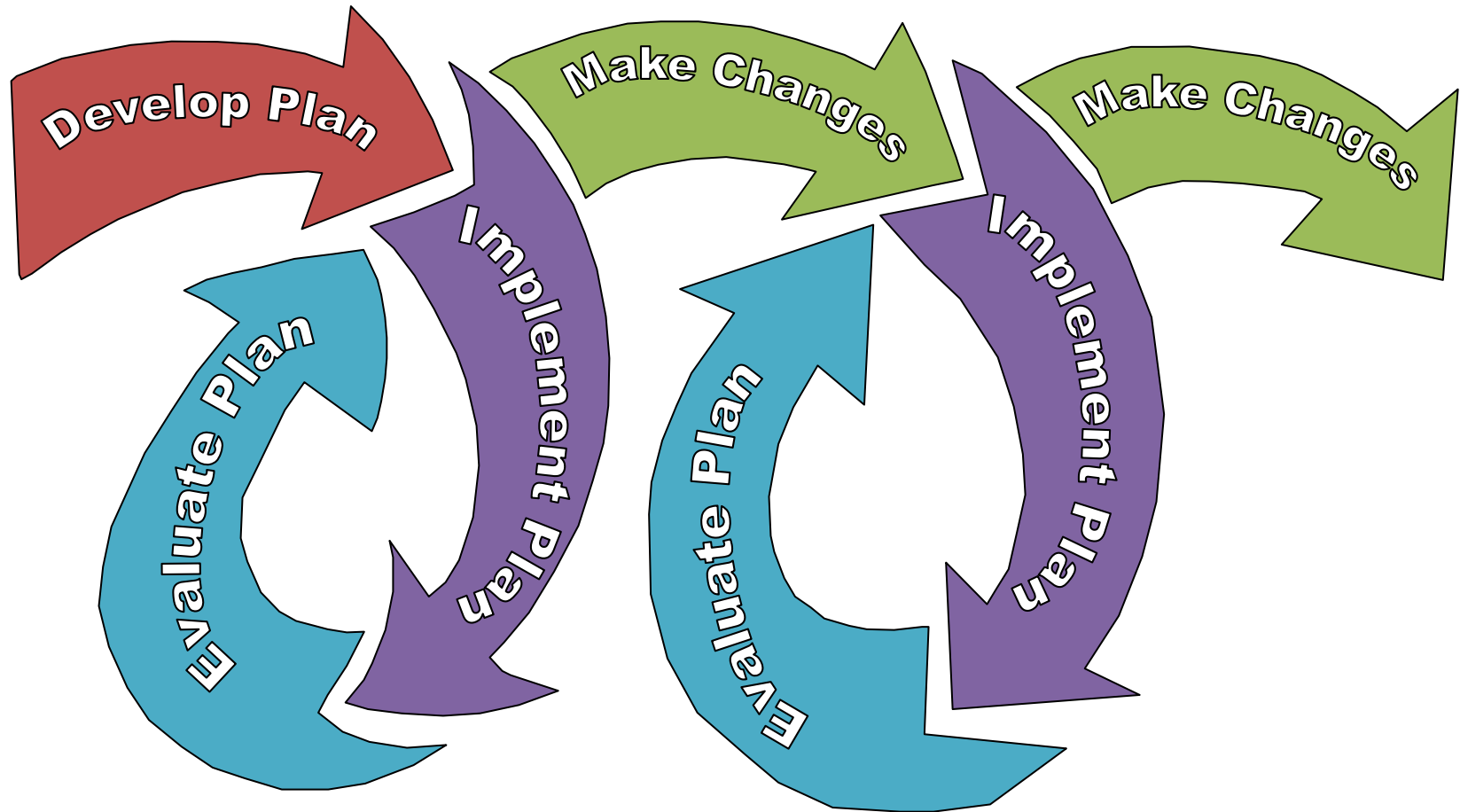
# What's Next?

- Year 2
  - Continuation of Year 1 activities
  - Complete bird deterrent structures
  - Install pet waste stations
  - Waterfowl management
  - OSSF homeowner's guide
  - Education
  - Evaluating effectiveness





# Adaptive Management













Site Navigation

You are here: Home > Water Quality > Total Maximum Daily Load Program > Gilleland Creek: Implementing a TMDL for Bacteria

>> Questions or Comments: [tmdl@tceq.texas.gov](mailto:tmdl@tceq.texas.gov)

- Cleanups, Remediation
- Emergency Response
- Licensing
- Permits, Registrations
- Preventing Pollution
- Recycling
- Reporting
- Rules

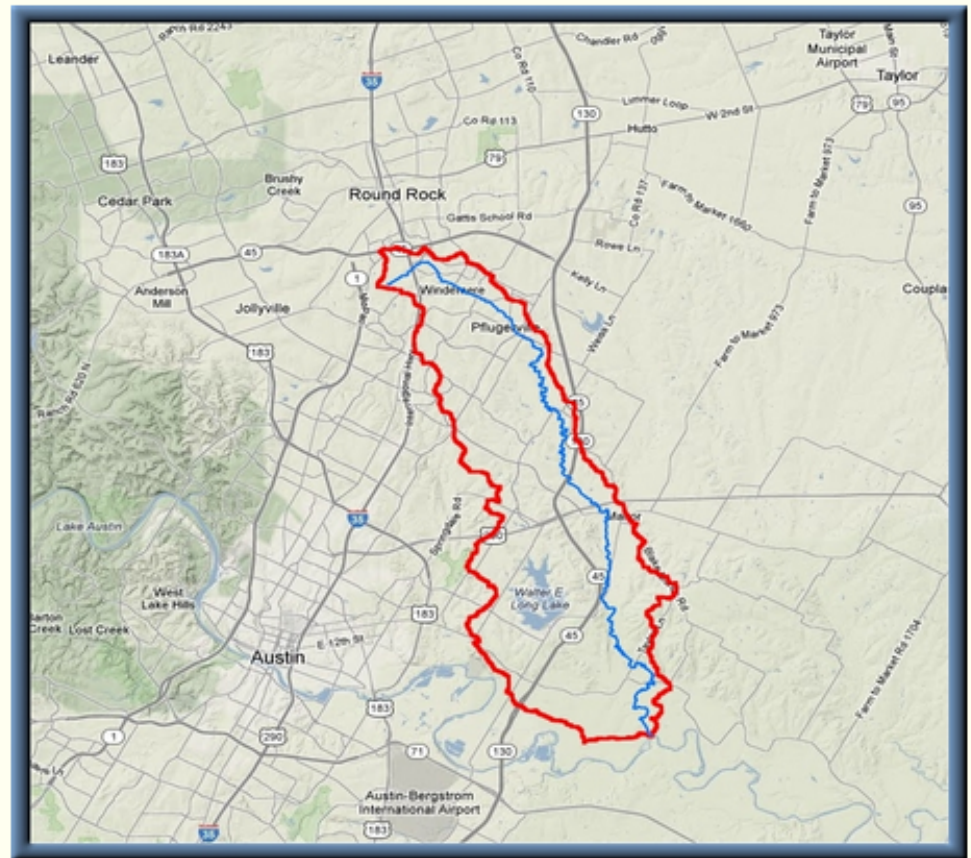
# Gilleland Creek: Implementing a TMDL for Bacteria

The goal of this project is to make recreation safe in Gilleland Creek by reducing bacteria. The adopted TMDL and the approved I-Plan combined are the road map to improving water quality in the creek.

[Back to TMDL Projects](#)

**Watershed County:** Travis  
**Parameter:** Bacteria  
**River Basin:** Colorado  
**Segment:** 1428C

- [Overview](#)  
Why there's a project for Gilleland Creek
- [Participate](#)  
Ways to get involved, including meeting notices
- [Partners](#)  
People and agencies working on this project
- [Status and Activities](#)  
What's going on and what's been done to improve water quality
- [Videos, News, and Galleries](#)  
Videos, news, maps, and photos



Click map to see monitoring stations, permitted discharges, flood control project sites, and educational initiatives

- Data
- Forms
- Maps
- Public Notices
- Publications
- Records
- Webcasts

- About Us
- Contact Us

How 's our Customer Service? Please fill out our [Customer](#)

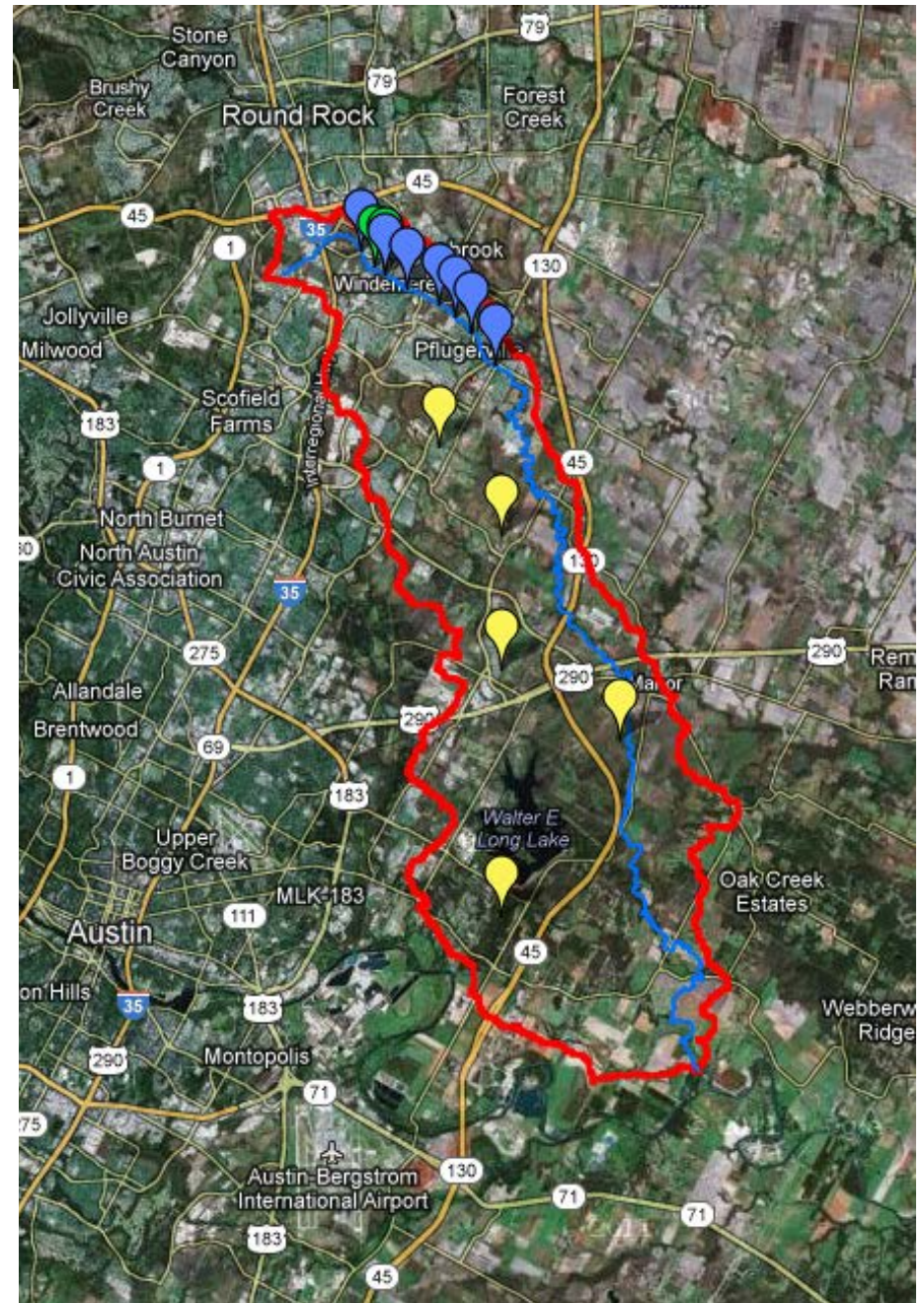
# Google maps

Displaying content from [www.tceq.texas.gov](http://www.tceq.texas.gov)

The content displayed below and overlaid onto this map is provided by a third party, and Google is not responsible for it. Information you enter below may become available to the third party.

Contents

- Gilleland Creek
  - Gilleland-AUs
  - Features
- Gilleland Creek Watershed
  - Features
  - Watershed Outline
- Monitoring Stations
- General Information
  - Gilleland - General Information
    - Pet Waste
      - Pet Waste Travis County and City of Pflug
  - Gilleland - General Information
    - Water Quality Ordinances
      - Water Quality Ordinances The Travis Coun
  - Gilleland - General Information
    - Wastewater
      - Wastewater City of Austin, City of Pflug
  - Gilleland - General Information
    - Riparian Zones
      - Riparian Zones Texas Wildlife Service
  - Gilleland - General Information
    - Septic Systems
      - Septic Systems The authorized agents (Tr
- Retrofitting Flood Control



## LCRA CRWN Site 369

### Gilleland Creek at Swenson Farms

LCRA's [Colorado River Watch Network](#) (CRWN) is the first and largest regional volunteer network of water quality monitors in Texas. Trained volunteers submit water quality data that is reviewed and analyzed by CRWN staff, creating an early warning system that alerts LCRA to potential water quality threats.



[Project Web Page](#)

[Directions](#) [Search nearby](#) [Save to map](#) [more](#) ▾





# Questions?

**[TBushnoe@ugra.org](mailto:TBushnoe@ugra.org) 830-896-4546**

**[Lauren.Young@tceq.texas.gov](mailto:Lauren.Young@tceq.texas.gov) 512-239-3182**

