



Tarleton State University
A member of The Texas A&M University System



Little Cypress Bayou

Recreational Use Attainability Analysis Introduction

Texas Institute for Applied Environmental Research
Stephenville, Texas



April 14, 2015



Project Partners

- Texas State Soil and Water Conservation Board (TSSWCB)
- Texas Institute for Applied Environmental Research (TIAER)



TSSWCB

- Provide state oversight
- Management and coordination of project activities
 - Project partners
 - Texas Commission on Environmental Quality (TCEQ)
- Provide project funding



TIAER

- Project administration
- Develop & maintain stakeholder relations
- Perform RUAA survey activities
- GIS inventory
- Facilitate meetings
- Develop final technical reports



Who is a Stakeholder?

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



Importance of Being a Stakeholder

- Stakeholders:
 - Make and implement decisions
 - Are affected by the decisions made
 - Participate in the implementation planning process



Why we are here

- Texas 303 (d) List of Impaired Waterbodies
 - Developed by TCEQ to summarize the condition of the state's surface waters, including concerns for public health, fitness for use by aquatic species and other wildlife, and specific pollutants and their possible sources.



RUAA Use Categories

- **Primary Contact Recreation** – 126 cfu/100 mL
 - Activities that are presumed to involve a significant risk of ingestion of water
 - Such activities are – wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater activities: kayaking, canoeing, and rafting.
- **Secondary Contact Recreation 1** – 630 cfu/100 mL
 - Activities that commonly occur but have limited body contact incidental to shoreline activity
 - Wading by adults, fishing, canoeing
 - Activities are presumed to pose a less significant risk of water ingestion than primary contact recreation but more than secondary contact recreation 2.



RUAA Use Categories

- **Secondary Contact Recreation 2 – 1030 cfu/100 mL**
 - These activities occur less frequently than secondary contact recreation 1 due to physical characteristics of the waterbody or limited public access
- **Noncontact Recreation – 2060 cfu/100 mL**
 - Activities that do not involve a significant risk of water ingestion, such as those with limited body contact incidental to shoreline activity, including birding, hiking, and biking.



Bacteria Impairment

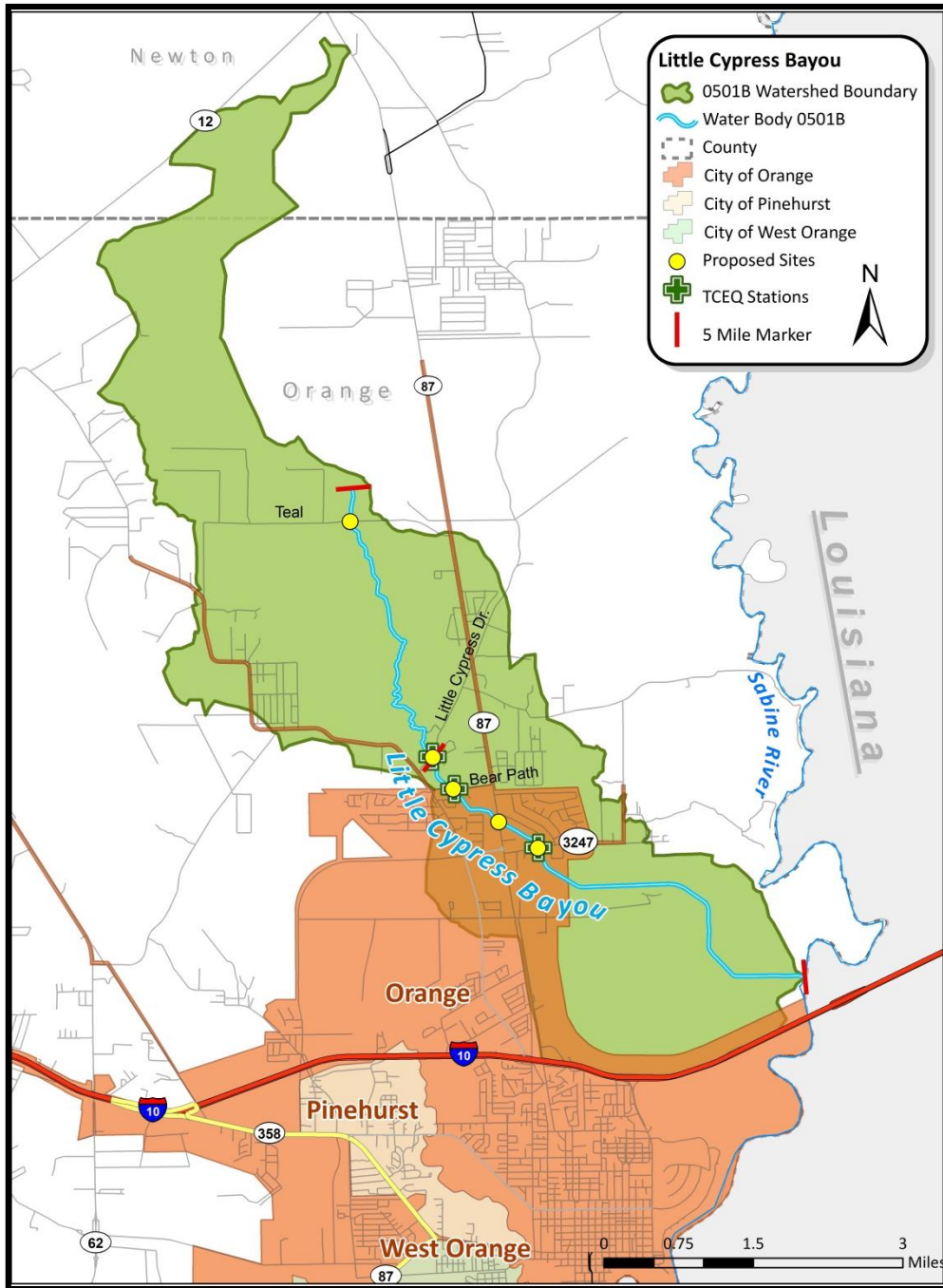
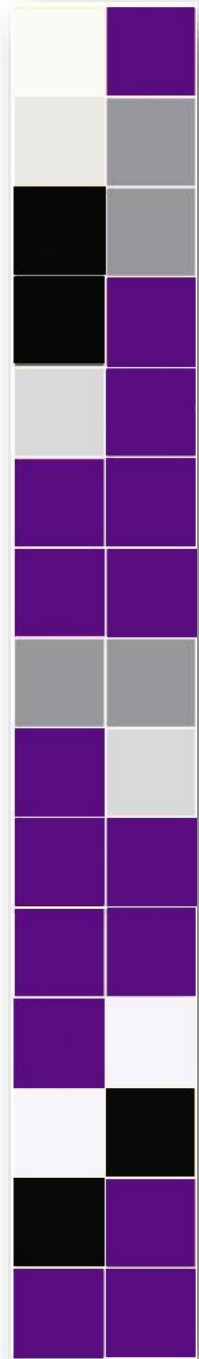
- The Little Cypress Bayou is not meeting the water quality standard for primary contact recreation
 - Due to elevated levels of bacteria, *E. coli*.
 - Requires action to meet the standards that are set by the State of Texas and EPA.
 - Geometric mean should not exceed 126 cfu/ 100ml



Impaired Stream Segments

- The Little Cypress Bayou (0501B)
 - 2006 Texas Water Quality 303(d) List
 - Bacteria
 - Current Geometric mean = 896 cfu/ 100mL (0501B_01)
 - Current Geometric mean = 976 cfu/ 100mL (0501B_02)
 - Current Geometric mean = 809 cfu/ 100mL (0501B_03)





Water Quality Monitoring Stations

Site Description

Little Cypress Bayou at FM 3247 about 0.5 mile downstream of SH 87 and 4.5 miles north of Orange - TCEQ 14503

Little Cypress Bayou at Bear Path Rd about 0.4 mile west of SH 87 and 4.5 miles upstream of the confluence with the Sabine River in Orange - TCEQ 15520

Little Cypress Bayou at Little Cypress Drive about 5 miles north/northwest of Orange and just under 1 mile west of SH 87 - TCEQ 16690



RUAA

- One method of removing the Little Cypress Bayou from the impaired list for bacteria
 - Assess if the recreational standard is appropriate
 - Recreational use attainability analysis (RUAA)



Purpose of RUAA

- To determine if primary contact recreation is the correct use or if another recreational use category may be more appropriate.



RUAA Components

- **Historical Information Review** – to document past recreational uses
- **Interviews** – to obtain feedback on current and past recreational uses from stakeholders
- **Field Surveys** – to document current waterbody conditions and uses



RUAA Components

Historical Information Review

- November 28, 1975 – Present
 - Any documentation of recreational use of the Little Cypress Bayou
 - Newspaper clippings or other publications
 - Historical or museum records
 - Personal pictures or letters



RUAA Components

Stakeholder Interviews

- Document use of the waterbody from individuals
 - Conducted during field surveys (if individuals are encountered)
 - Streamside landowners
 - Local residents
 - Other users
 - Interviews can be anonymous and conducted by phone, USPS mail, or email.



RUAA Components

Field Surveys

- Goal: 3 sites for every 5 miles
 - At each site:
 - 300 meter reach traversed
 - Document
 - Waterbody characteristics that may promote or hinder recreational use
 - Observations of direct use or signs of recreational use
 - Interviews with individuals



RUAA Field Surveys

- 2 Field Surveys Conducted
 - Base Flow Conditions
 1. Sustained typical dry warm-weather flow
 2. Between rainfall events
 - Periods of Likely Use (May – Sept)

Air Temperature > 70°F

 1. Spring Break
 2. Weekends
 3. Holidays
 4. Summer



RUAA Field Surveys

- Field Data Sheets:
 - Waterbody characteristics
 - Current weather conditions & daily conditions for the previous month
 - Riparian zone, ease of bank access, dominant substrate
 - Document recreation observed (if any) –
Stream and pool measurements



RUAA Field Surveys

- Field Photographic Records
 - Each Survey Site
 - Upstream
 - Left
 - Right Bank
 - Downstream
 - At 0, 150, 300 M



RUAA Site Selection Guidelines

- Identify areas where the waterbody is
 - Accessible to the public
 - Has a high potential for recreational use
 - Road crossings
 - Public lands
 - Parks
 - Populated areas



RUAA Site Selection Guidelines

- The Little Cypress Bayou is 8.5 river miles long
 - Goal: 5 sites



Time Frame

- Proposed Field Survey Dates
 - June 19 – 21, 2015
 - August 14 – 16, 2015



Next Steps

- Stakeholder involvement is fundamental to the success of this project
 - Provide access to the bayou
 - Complete interview forms
 - Interview forms can be found at <http://tiaer.tarleton.edu/ruaa/little-cypress-bayou.html>



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Questions?

Project Website:

<http://tiaer.tarleton.edu/ruaa/little-cypress-bayou.html>

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