The meeting will begin shortly

Please mute your microphone until called for questions.

Please disable your video unless you are speaking.

Please enter your name and title in the chat.

Please insert questions in chat or raise hand to speak.

This meeting is being recorded.

Houston-Galveston Area Council

Cotton Bayou Watershed Implementation Plan Development

Public Meeting
June 18, 2025

Texas Commission on Environmental Quality

Houston-Galveston Area Council

Meeting Outline

- Welcome & Introductions
- *Project Overview & TMDL Addendum*
- *I-Plan Updates*
- *Next Steps*
- *Discussion*

Introductions

Texas Commission on Environmental Quality (TCEQ)

lead state environmental management agency

Houston-Galveston Area Council (H-GAC)

regional council of governments

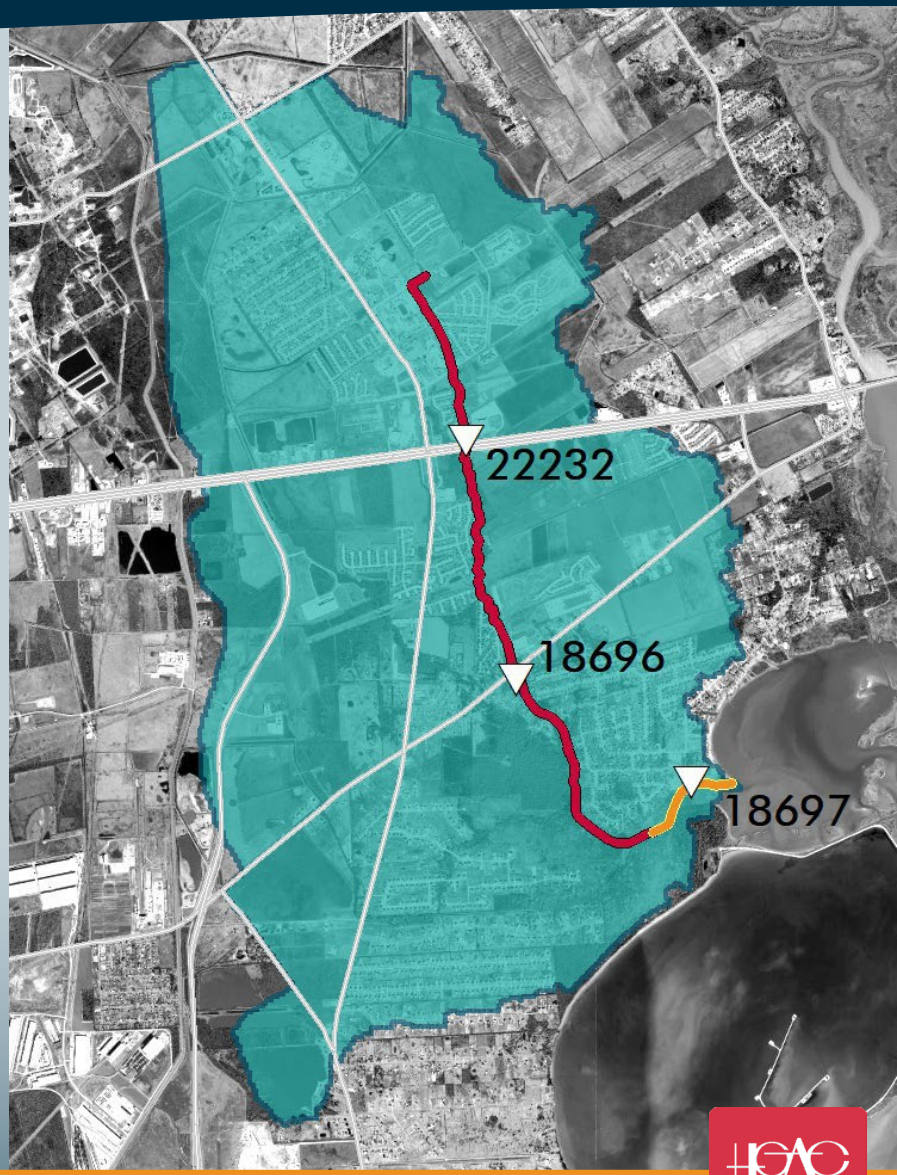
Meeting Outline

- *Welcome & Introductions*
- **Project Overview & TMDL Addendum**
- *I-Plan Updates*
- *Next Steps*
- *Discussion*

Project Timeline

Historic Review of Water Quality

- Contact recreation use **impaired** due to high levels of fecal indicator bacteria (Enterococci) in surface water
- Other water quality **concerns** included low dissolved oxygen and high concentrations of nutrients
- Three monitoring sites included new station (22232) at I-10



- Prepared original TMDL to address Enterococci impairment in the watershed

- The *Commission adopted this TMDL on May 22, 2024. EPA approved it on July 26, 2024, at which time it became an update to the state's Water Quality Management Plan*

- TCEQ asked HGAC to prepare an addendum for above tidal assessment unit due to its impairment documented from the 2024 IR.

2024 Texas IR Summary

Watershed	AU	Parameter	SWQM Station	No. of Samples	Data Date Range	Geometric Mean (cfu/100 mL)
Cotton Bayou Above Tidal	0801E_01	*E. coli*	18696, 22232	31	12/01/15 to 11/30/22	251.9

TCEQ's Addendum Process

- A TMDL addendum is exactly what it sounds like – an addition to the original TMDL using similar methodologies and processes utilized to develop the original TMDL document.
  - An addendum can add one or more AUs to the pre-existing list of AUs established in the original TMDL and any other previously completed addenda.

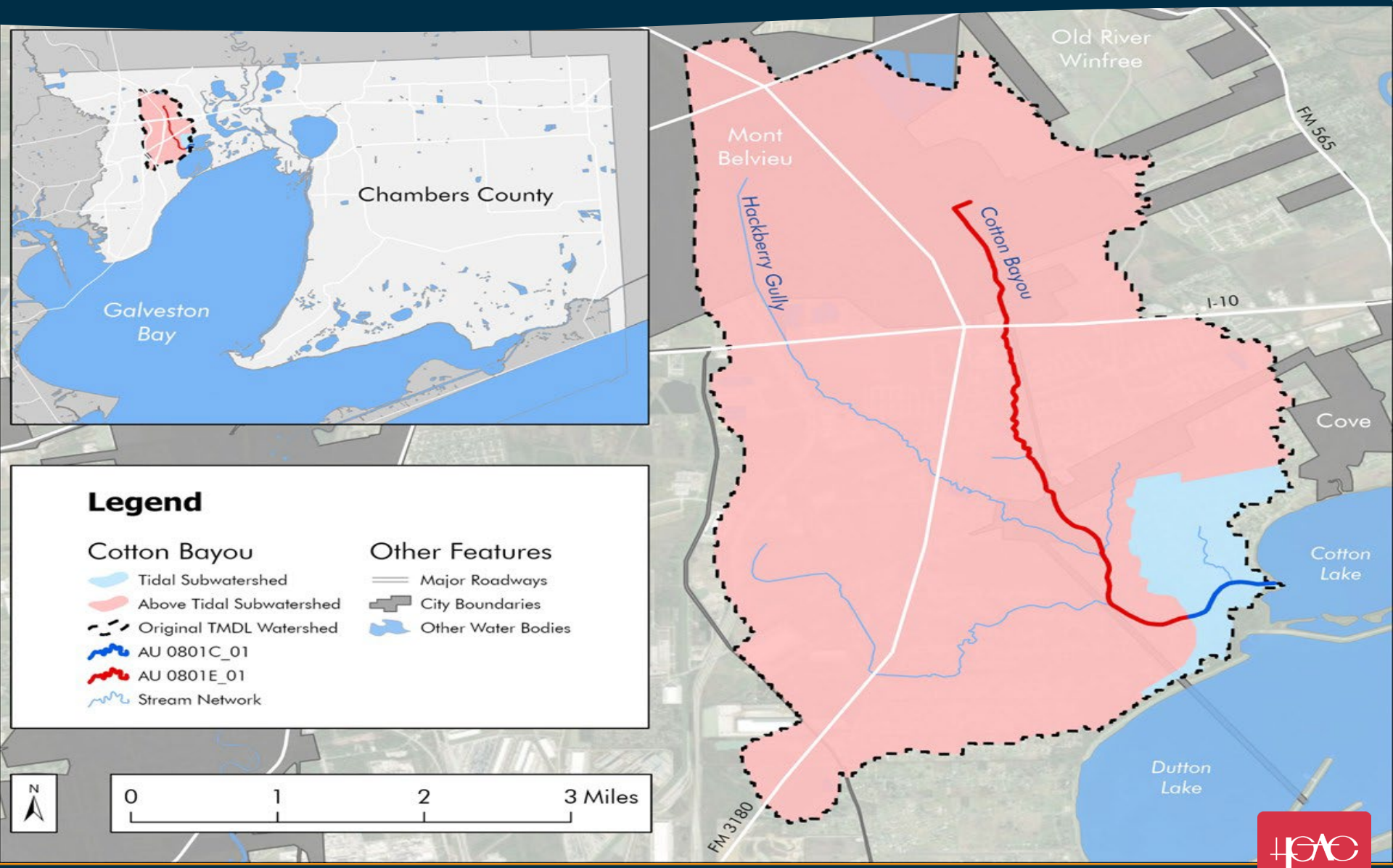
- Potential addendum AUs are identified when a new 303(d) List is made available by TCEQ.
  - Potential addendum projects are applicable to:
    1. AUs with the same impairment type included in the original TMDL (i.e. bacteria, dissolved oxygen, etc.)
    2. The AU must already be located either within the TMDL watershed boundary or can be added onto the existing boundary if the AU is immediately upstream or downstream of an approved TMDL AU.

TCEQ's Addendum Process

- Addendum projects have expedited timelines - they are completed in one to two years rather than four to six years when developing a new TMDL.
  - This shortened timeline is due to the fact that addendum AUs are not being developed from scratch unlike an original TMDL which expedites the process.

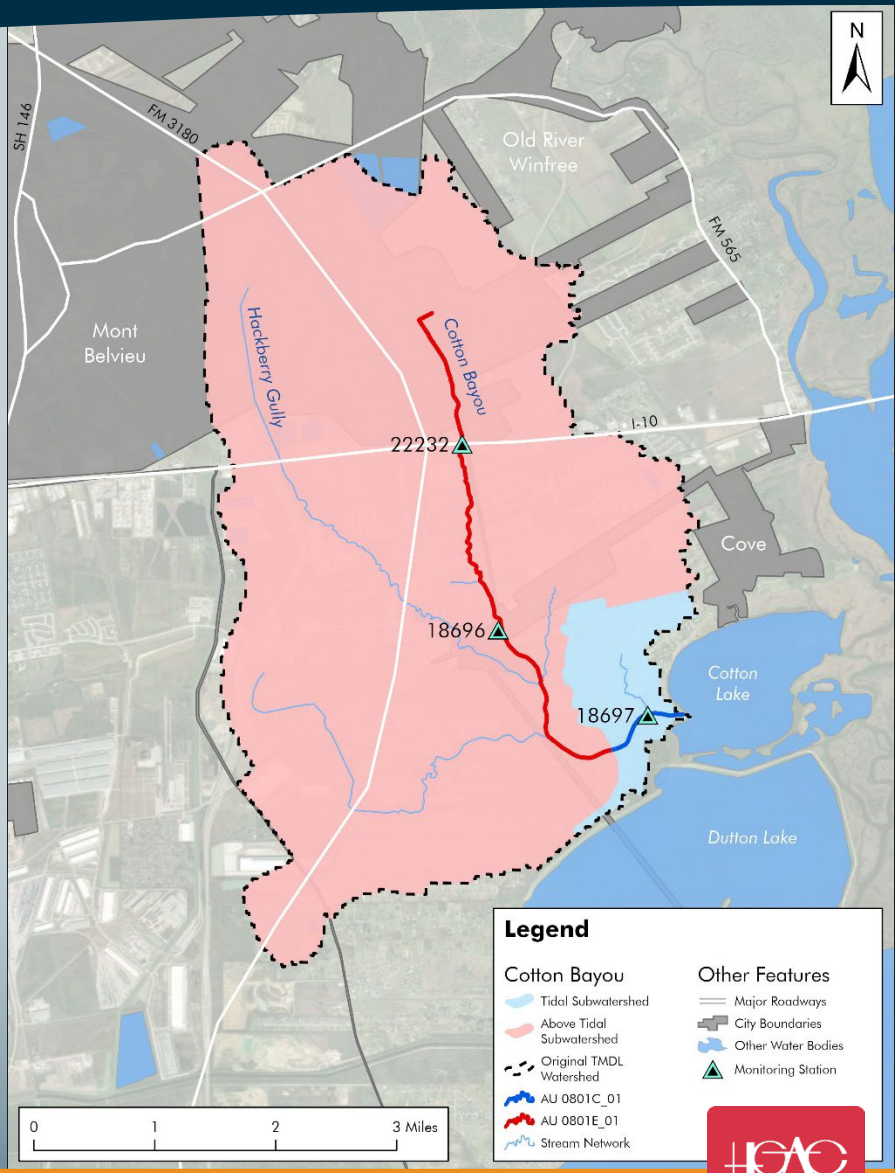
- Informal review and approval process by TCEQ and EPA.
  - Instead of going through the Agenda process in front of the TCEQ Commissioners, the addendum is submitted through a routine quarterly update to Texas' Water Quality Management Plan.
  - After EPA approves the quarterly WQMP update then the addendum is officially a part of the TMDL.

Updated Project Map



Water Quality Based on TMDL Addendum

- Contact recreation use **impaired** due to high levels of fecal indicator bacteria (*E. coli*) in surface water
- Three monitoring sites. 18696 and 18697 being actively monitored. 22232 was a special study



Bacteria Sources

- **Human Waste**
  - Wastewater
  - Septic/Aerobic Systems
  - Illicit Sewage
- **Domestic Animal Waste**
  - Pets
  - Livestock
- **Wildlife/Feral Hog Waste**
  - Deer and Other Wildlife
  - Feral Hogs

Addendum TMDL Calculations

- The TMDL is a calculation of the criterion load at the 95th percentile of flows

- The TMDL includes allocations for regulated and unregulated sources of pollution, future growth, and a 5% margin of safety by calculating the following components:

$$TMDL = MOS + WLA_{wwtf} + WLA_{sw} + LA$$

Margin of Safety (MOS)
5% of the allowable load at 95th percentile of flows

Wasteload Allocation for WWTFs (WLA_{wwtf})
regulated wastewater treatment facility load; includes allocation for future growth

Wasteload Allocation for Stormwater (WLA_{sw})
regulated stormwater load

Load Allocation:
unregulated source load

Cotton Bayou Above Tidal TMDL

- The results below are preliminary and may be subject to change*

Assessment Unit	TMDL (Total Allowable Load)	MOS (Margin of Safety)	WLA_{wwtf} (includes future growth) (Wastewater Allocation)	WLA_{sw} (Stormwater Allocation)	LA (Other Sources)
0801E_01	165.36	8.23	66.76	60.81	29.52

* Units for all values = billion cfu/day of *E. coli* *

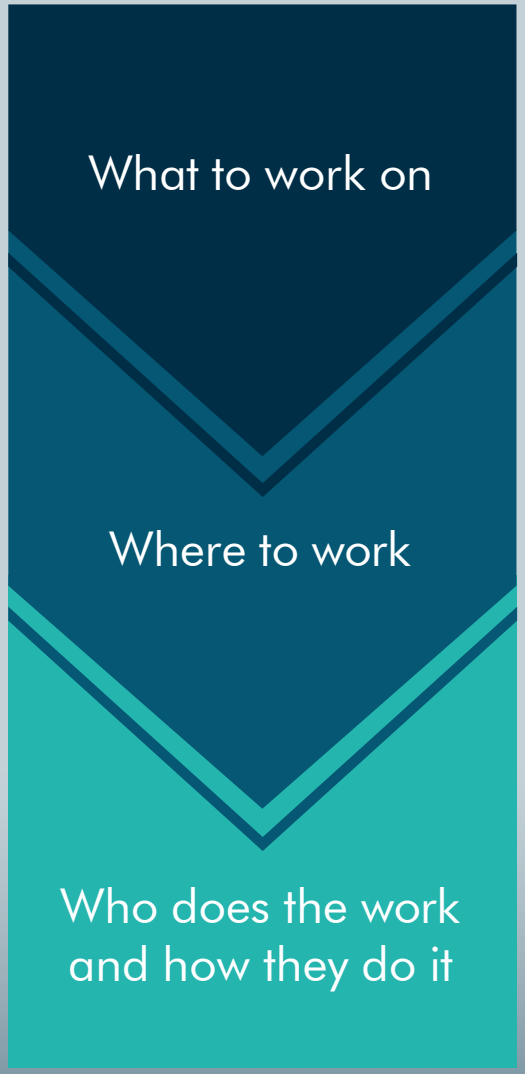
Meeting Outline

- *Welcome & Introductions*
- *Project Overview & TMDL Addendum*
- **I-Plan Updates**
- *Next Steps*
- *Discussion*

- Implementation Plan set to be approved by TCEQ Commission on July 9th, 2025

Strategies

- Voluntary actionable items to address bacteria reduction for a specific management measure
- Identify priority areas to implement actions supporting the management measure
- List parties responsible for each action and their obligations



Milestones and Schedule

- Measurable goals to reflect progress of strategies
- Implementation schedule details which milestones should be accomplished in the next five years and at what point

Adaptive Management

- Stakeholders periodically assess plan measures for efficiency and effectiveness
- Metrics:
  - Milestones
  - Schedule
  - Water quality data

Management Measures

Strategy Ranking

Reduce stormwater sources such as pet wastes and illegal dumping

Promote safe OSSF use and maintenance

Support land management initiatives

Promote feral hog management

Maintain and improve WWTF and collection system function

Stormwater and Runoff

WHAT

Goal: Reduce stormwater sources of fecal wastes, including pet waste and illegal dumping

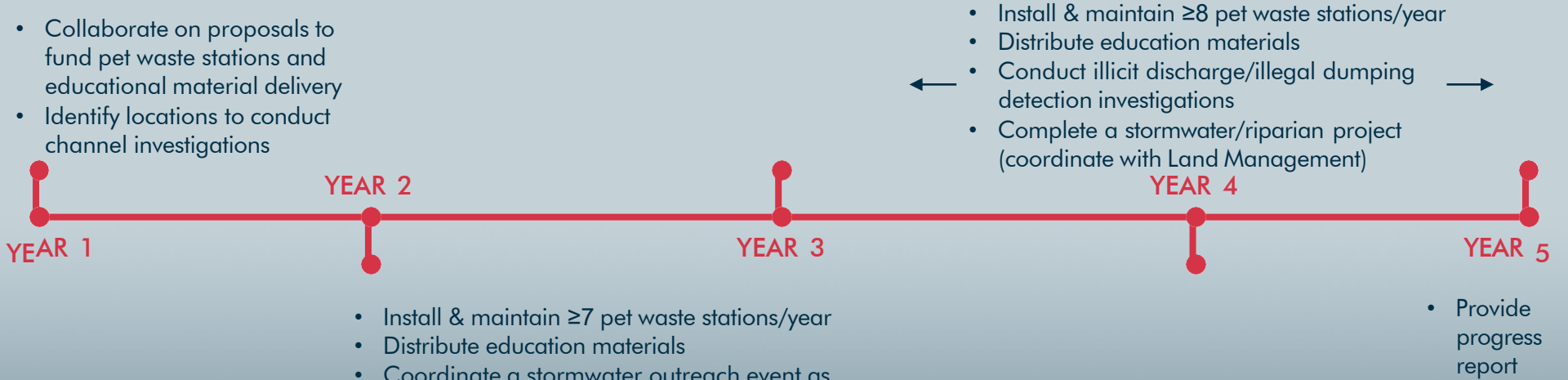
Potential Strategies:
- Educate/engage on appropriate pet waste disposal
- Install and maintain waste bag dispensers and collection stations
- Support control of feral animal population
- Identify and reduce illegal dump sites
- Develop stormwater/riparian demonstration project

WHERE

Priority Areas:
- Developed areas
- Watershed-wide (education)

WHO

Responsible Parties:
- Watershed coordinator
- Local governments
- H-GAC
- Texas A&M AgriLife Extension
- Texas Parks and Wildlife Department



On-Site Sewage Facilities

WHAT

Goal: Reduce fecal waste from failing on-site sewage facilities (OSSFs)

Potential Strategies:
- Educate/engage on appropriate OSSF maintenance
- Support home inspector and homeowner workshops
- Identify resources to repair or replace failing OSSFs
- Where possible, connect to centralized wastewater systems

WHERE

Priority Areas:
- Watershed areas south of I-10

WHO

Responsible Parties:
- Watershed Coordinator
- Authorized Agents
- H-GAC
- Real estate agents
- Texas A&M AgriLife Extension
- Texas General Land Office
- USDA Rural Utilities Service

Land Management

WHAT

Goal: Reduce bacteria loading from livestock and support nutrient reduction initiatives

Potential Strategies:

- Implement best management practices to reduce livestock exposure to waterway
- Support voluntary adoption of water quality management plans (WQMPs) and conservation management plans (CMPs)
- Manage/protect riparian corridors
- Support agricultural and riparian workshops
- Develop stormwater/riparian demonstration project

WHERE

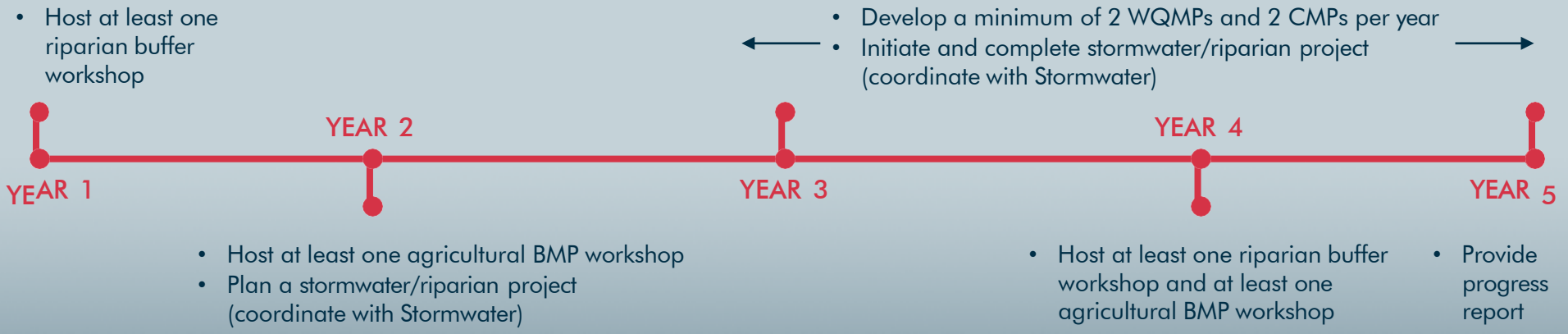
Priority Areas:

- Watershed areas with rural land cover

WHO

Responsible Parties:

- Watershed coordinator
- Landowners and producers
- Texas State Soil and Water Conservation Board
- Natural Resources Conservation Service
- Soil and Water Conservation District
- Texas A&M AgriLife Extension
- Texas Parks and Wildlife Department



Invasive Species

WHAT

Goal: Reduce fecal deposition by feral animal populations, specifically feral hogs

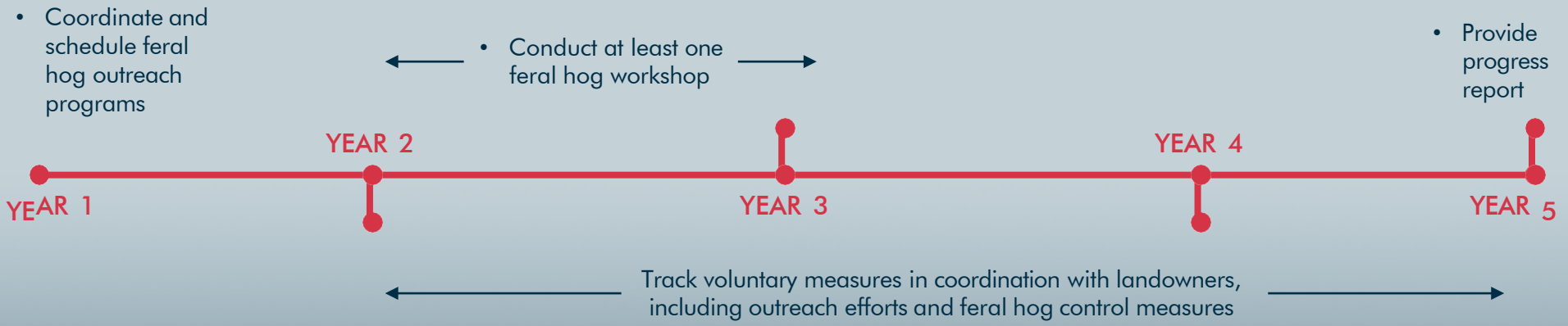
Potential Strategies:
- Manage feral hog population
- Educate/engage on best practices to discourage feral hog utilization of fringe areas

WHERE

Priority Areas:
- Areas of natural land cover (for direct management)
- Watershed-wide (education)

WHO

Responsible Parties:
- Watershed coordinator
- Texas A&M AgriLife Extension



Wastewater Treatment

WHAT

Goal: Develop and implement strategies that reduce fecal waste from wastewater treatment facilities (WWTFs) and sanitary sewer collection systems in priority areas

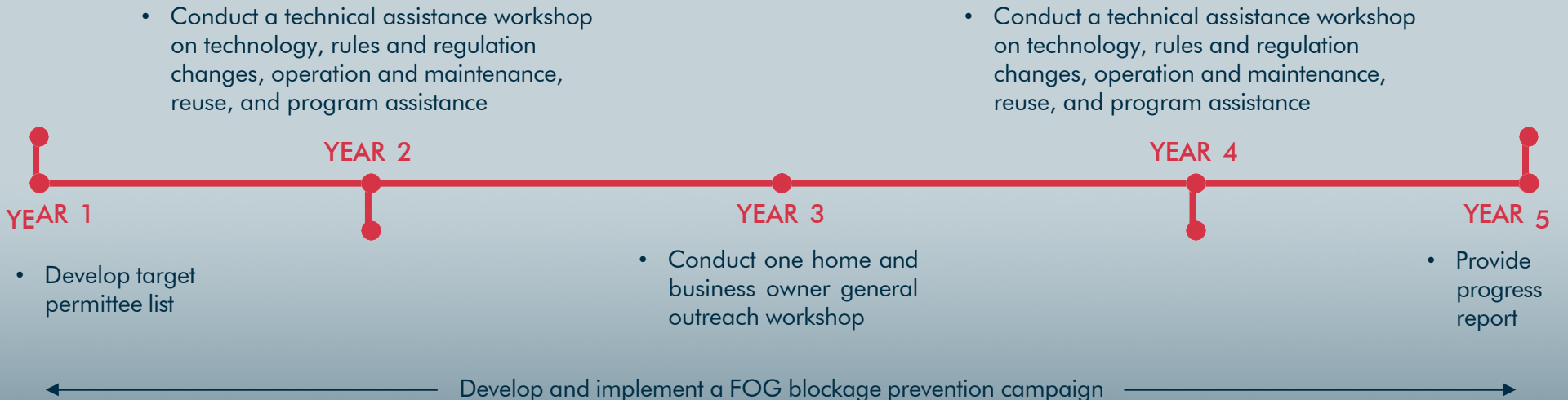
Potential Strategies:
- Educate/engage on WWTF and collection system maintenance
- Support operator workshops and training programs
- Develop and conduct a fats, oils, grease, and wipes (FOG) prevention campaign

WHERE

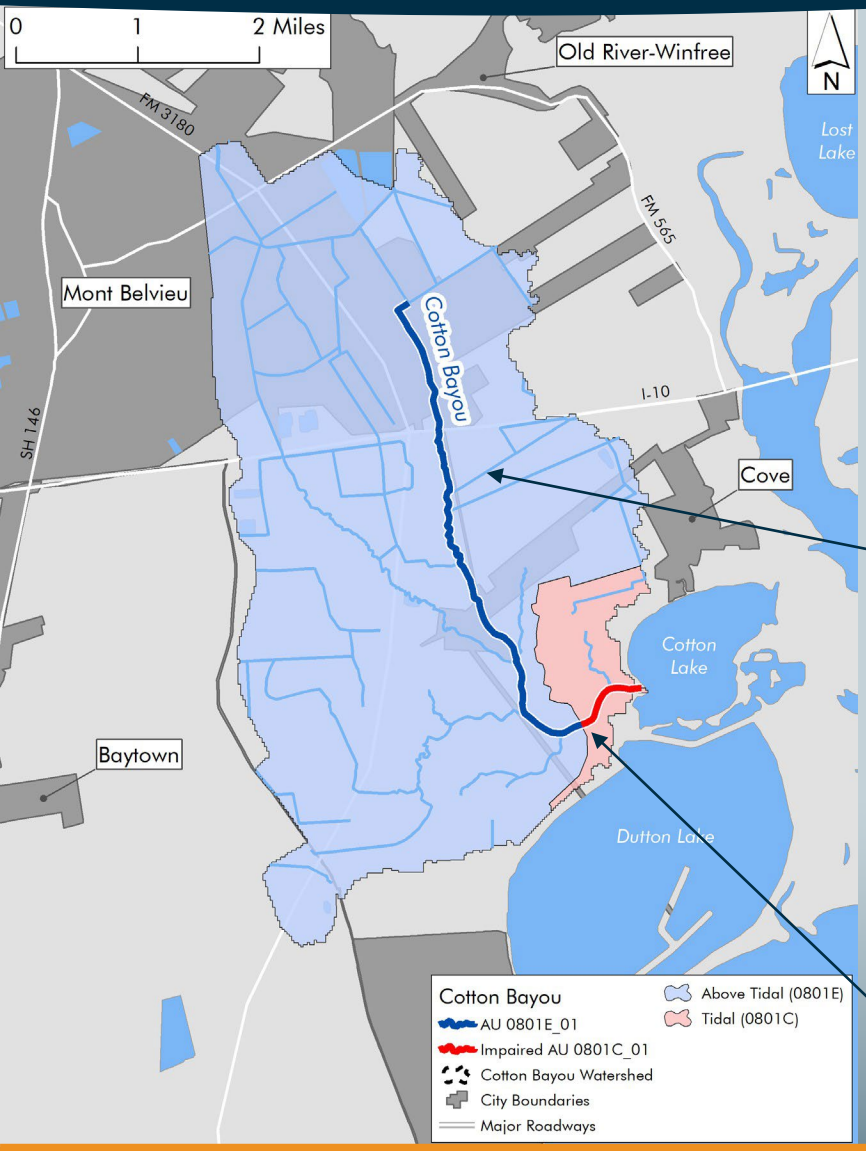
Priority Areas:
- Watershed-wide

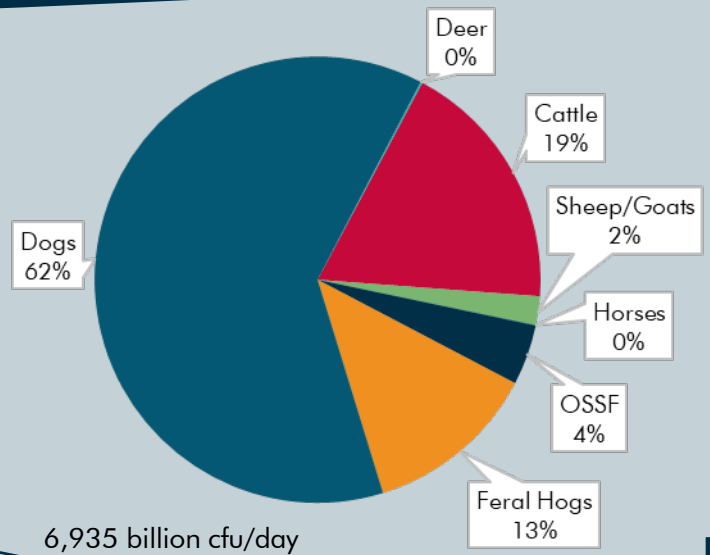
WHO

Responsible Parties:
- Watershed Coordinator
- Local Governments
- TCEQ
- H-GAC
- Texas A&M Engineering Extension
- USDA Rural Utilities Service
- Water Professional Associations

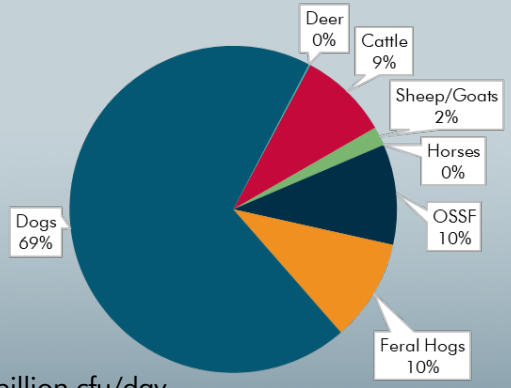


Estimated Bacteria Loads





6,935 billion cfu/day
(93% watershed load)



485 billion cfu/day
(7% watershed load)

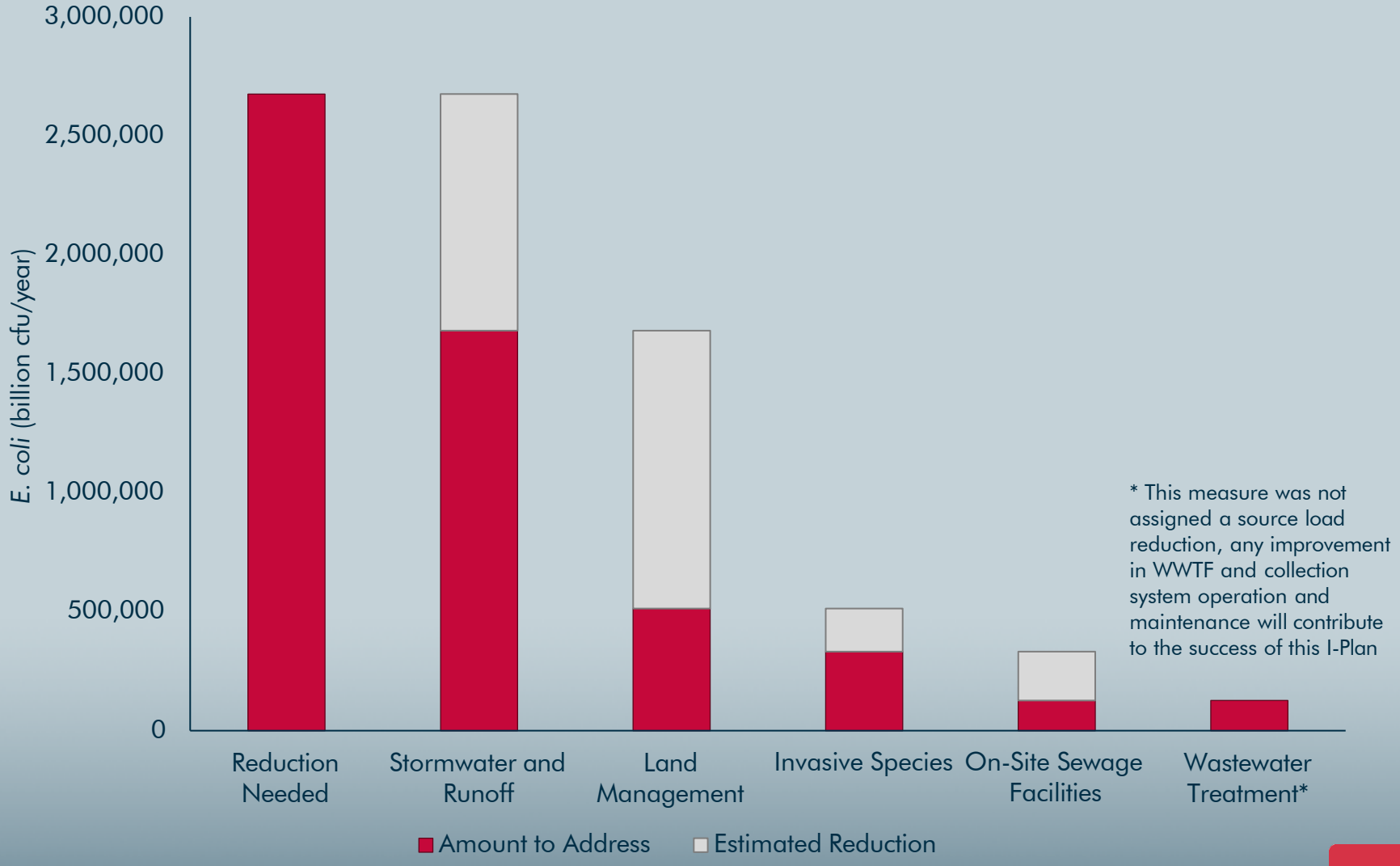
98.80%
Reduction
Needed

Estimated Reductions by Source

Watershed	OSSF Load Reduction	Cattle Load Reduction	Sheep and Goat Load Reduction	Horse Load Reduction	Deer Load Reduction	Feral Hog Load Reduction	Dog Load Reduction	Total Load Reduction
Cotton Bayou Above Tidal	300.57	1,261.75	142.27	2.28	8.00	861.72	4,275.50	6,852.09
Cotton Bayou Tidal	47.65	42.68	8.89	0.00	0.53	48.36	330.98	479.09
Total Watershed	**348.22**	**1,304.43**	**151.16**	**2.28**	**8.53**	**910.08**	**4,606.48**	**7,331.18**

* All loads are expressed in billion cfu/day

Potential Load Reduction



Meeting Outline

- *Welcome & Introductions*
- *Project Overview & TMDL Addendum*
- *I-Plan Updates*
- **Next Steps**
- *Discussion*

Next Steps

- Prioritize implementation strategies based on stakeholder feedback
- Overall goal is to begin funding discussions with stakeholders
- Build stakeholder list

Meeting Outline

- *Welcome & Introductions*
- *Project Overview & TMDL Addendum*
- *I-Plan Updates*
- *Next Steps*
- **Discussion**

Discussion and Questions

For more information, please contact:

Cornell Evans, Jr.
713-499-6666
cornell.evans@h-gac.com

Visit our project website at:

You may find the draft I-Plan at:

This project is funded by the Texas Commission on Environmental Quality and facilitated locally by the Houston-Galveston Area Council.