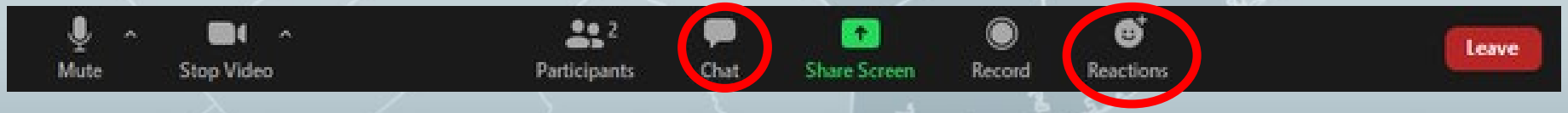
Clean Waters Initiative

Efforts to Improve the Region's Water Quality

August 26, 2021

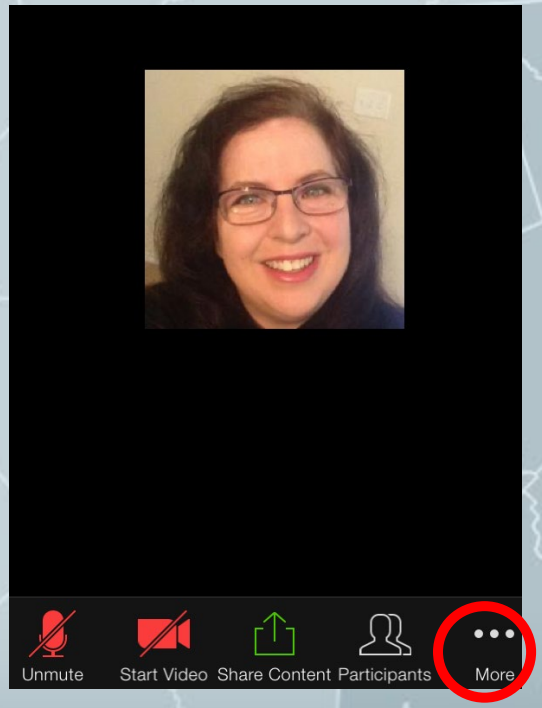
Online Meeting Notes

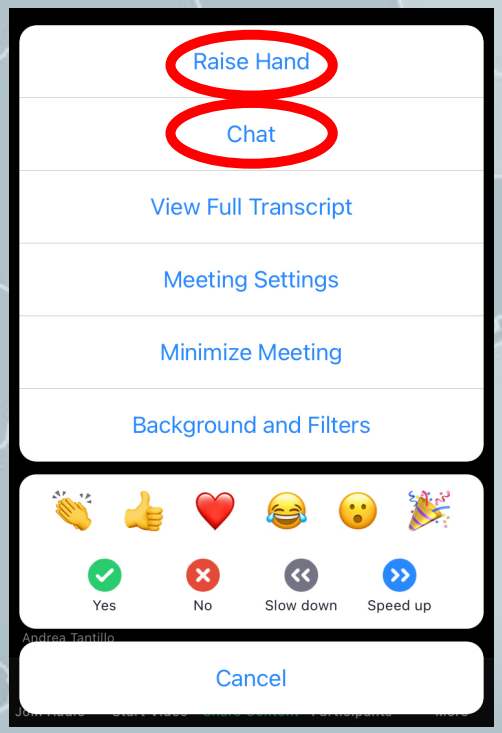
- The meeting is being recorded
- Microphones will be muted, and cameras turned off
- Ask your questions using the chat function or
- Use the Reactions button to raise your hand to be asked to unmute
- Use *9 to raise your hand if you are calling in on your phone



Handheld Device Tools

- Access chat or raise your hand using the 3 dots at the bottom of the screen





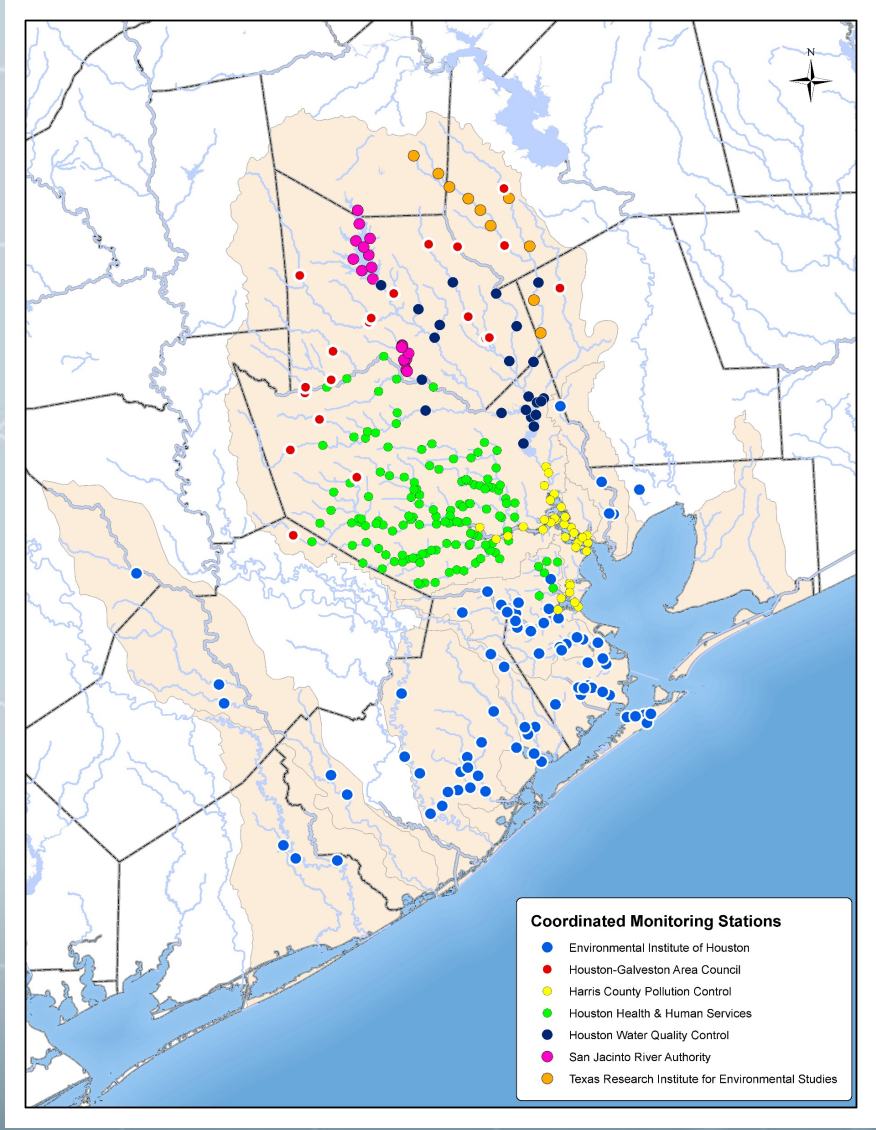
H-GAC's Efforts to Improve the Region's Water Quality

Watershed-based Plans Introduction

Todd Running, Program Manager

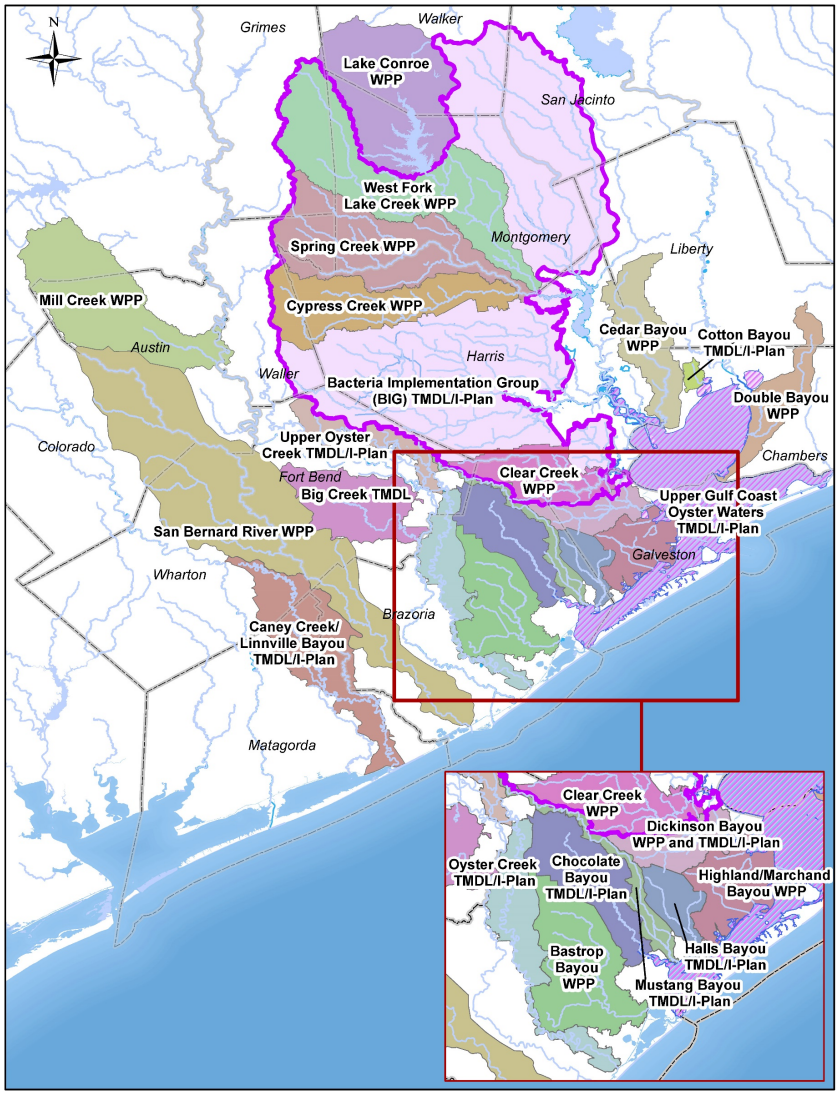
August 26, 2021

Coordinated Monitoring



- Clean Rivers Program Monitoring
- Over 400 Water Quality Monitoring Stations
- Eight Local Partners

Watershed Based Planning



- Watershed Protection Plans
- Total Maximum Daily Load Implementation Plans

Plan Implementation


On-Site Sewage Facilities

Pet Waste Stations


Targeted Monitoring

Public Education

Agenda

- 1:30 p.m. Watershed-based Plans Introduction.....Todd Running
- 1:35 p.m. Septic System Outreach and Education.....Brian Sims
- 1:50 p.m. Septic System Repair and Replacement.....Daniel Albanese
- 2:05 p.m. Non-point Source Education.....Kendall Guidroz
- 2:20 p.m. Urban Forestry/Riparian Cover.....Justin Bower
- 2:35 p.m. Green Infrastructure.....Steven Johnston
- 2:50 p.m. Targeted Monitoring.....Jessica Casillas
- 3:05 p.m. Closing & Breakout Instructions.....Todd Running
- 3:10 p.m. Watershed-specific Breakout Sessions.....All

H-GAC's Efforts to Improve the Region's Water Quality

On-Site Sewage Facility Outreach and Education

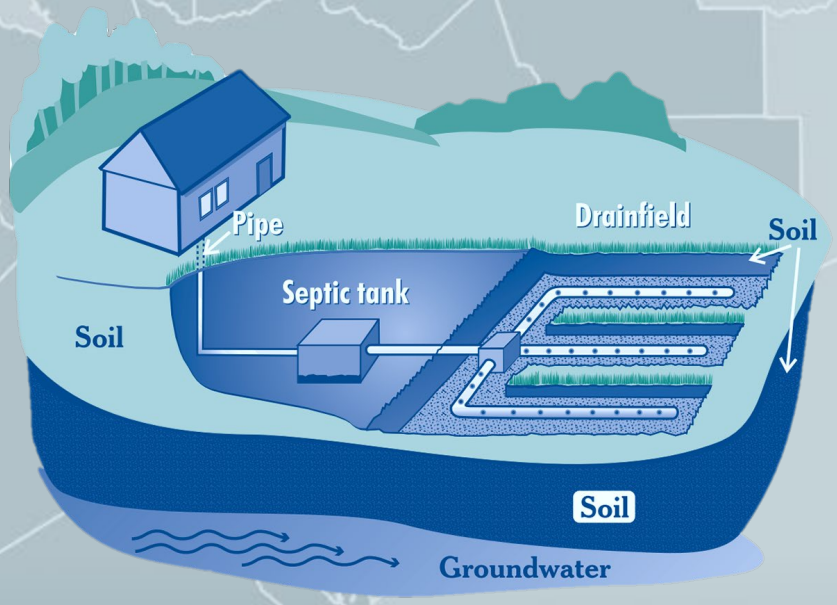
Brian Sims, Senior Planner

August 26, 2021

Introduction to On-Site Sewage Facilities

On-Site Sewage Facilities (OSSFs) treat up to 5,000 gallons/day of residential or commercial wastewater "on-site"

- Utilized in areas where connection to a residential sanitary sewer collection system is not available.
- Refers to both conventional septic systems and aerobic treatment unit.
- Provide effective and appropriate wastewater treatment if they are properly designed, installed, operated, and maintained



Source: epa.gov

OSSFs and Wastewater Treatment

OSSFs treat sewage and remove contaminants before they reach groundwater or surface water.

- Organic materials
- Nutrients
  - Phosphorus
  - Nitrogen
- Pathogens
  - Bacteria
  - Viruses
  - Parasites

Failing OSSFs and Water Quality Impairments

When OSSFs fail, wastewater does not receive adequate treatment

- Source of bacteria, other pathogens, and nutrients
- Can contaminate groundwater and surface water

Factors in system failure:

- Lack of maintenance
- System age
- Inappropriate system design
- Inappropriate soil type
- Hydraulic overload
- Alteration of the drainfield

"Grandfathered" systems (installed before permit requirements were in place) are often not as efficient as new systems and are more prone to failure.

Failing OSSFs and Water Quality Impairments (cont.)

- Malfunctioning systems can contribute significant nutrient and bacteria loads to waterways, particularly those in close proximity (<500 ft)

- To evaluate OSSFs as a source of pollutants, it is necessary to know the distribution and failure rates of malfunctioning systems
  - In many cases, this has to be estimated
  - If local data is not available, literature values may be used

Failing OSSFs and Water Quality Impairments (cont.)

- **OSSF Failure Rates**
  - EPA cites 10 – 20% failure rate nationwide
  - Estimated at 12% in Texas
    - Varies by location, socioeconomic factors, etc.
    - Local knowledge (Authorized Agents, local stakeholders, etc.) is very important for accurately estimating failure rates
      - **EXAMPLE:** OSSF Failure Rate estimated at 50% for Westfield Estates Watershed Protection Plan due to
        - age of systems,
        - history of non-compliance with maintenance, and
        - local enforcement data from Authorized Agent

Failing OSSFs and Water Quality Impairments (cont.)

How much bacteria comes from a failing OSSF?

E. coli concentration of a failing OSSF = 1.0 x 10^7 cfu/100 mL
Sewage discharge rate = 70 gallons/person/day
Household Occupancy = 2.86 persons/household
Conversion Factor (CF) = 3785.4 mL/gallon

Potential Daily OSSF Load Per Day $= \frac{1.0\ x\ 10^7 cfu\ E.coli}{100\ mL} \times \frac{70\ gal}{person \times day^{-1}} \times \frac{2.86\ persons}{household} \times \frac{3785.4\ mL}{gal}$

= 7.58 X 10^{10} cfu *E. coli* per household/day

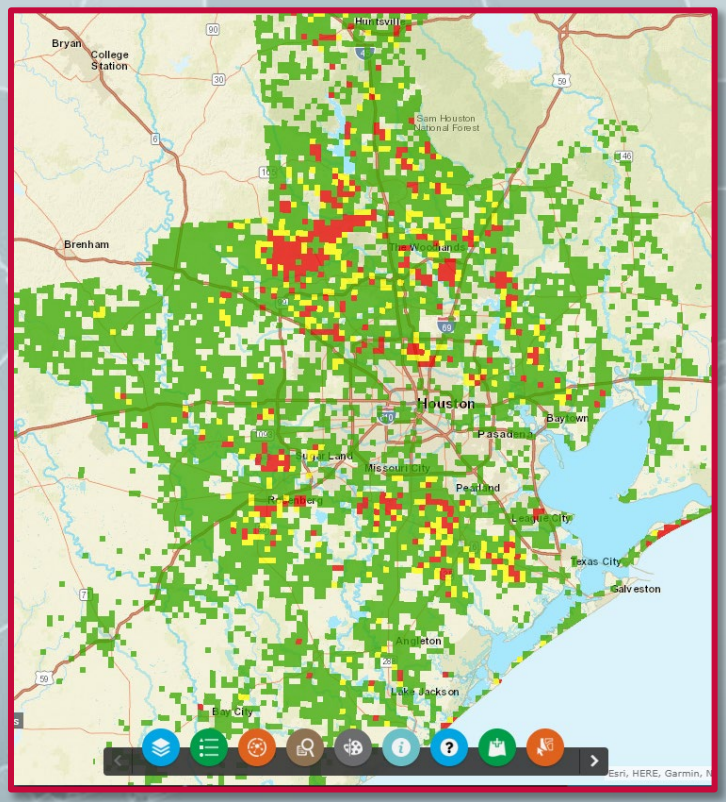
75,800,000,000 bacteria per household per day

To determine the total load for a watershed, you can multiply this value by the total number of households and the estimated failure rate

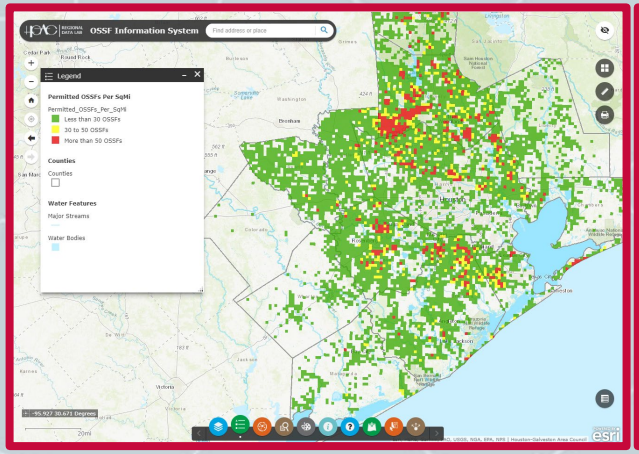
OSSFs Locations in the Region

- **H-GAC's OSSF Mapping Tool**
  - Online database and GIS mapping of OSSF permits in the 13-County Region
  - Compilation and analysis of OSSF permitting data submitted to H-GAC by Authorized Agents
    - 111,021 permitted OSSFs
    - 199,006 unpermitted OSSFs (estimated)
    - 310,027 total OSSFs (estimated)

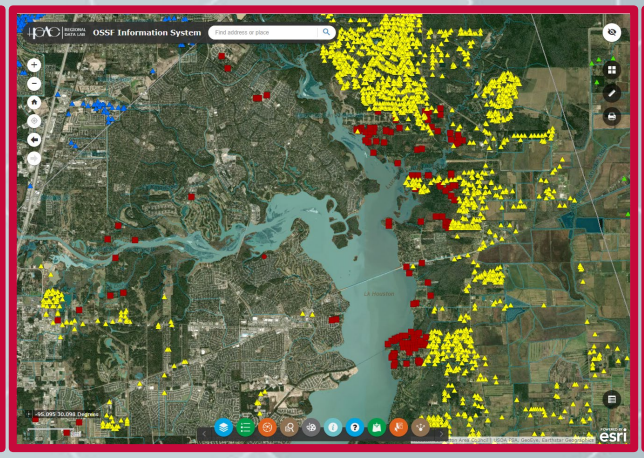
http://datalab.h-gac.com/ossf/



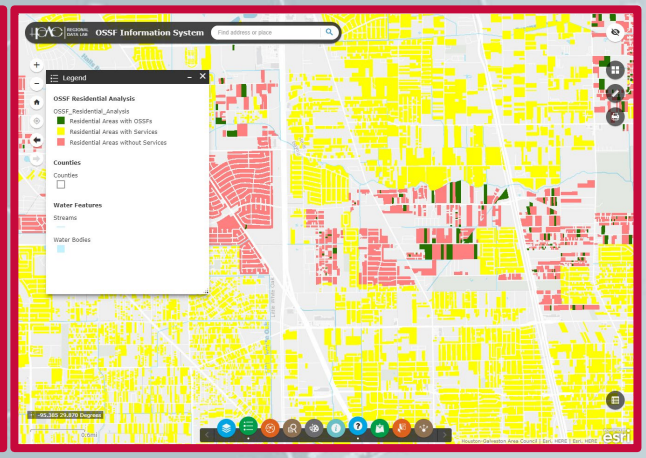
H-GAC's Online Information System



- Able to examine concentration of OSSFs (number of systems per square mile)
- Able to examine systems by age (based on permit date)



- Able to examine location of individual OSSFs based upon GPS coordinates
- Can measure proximity to water body



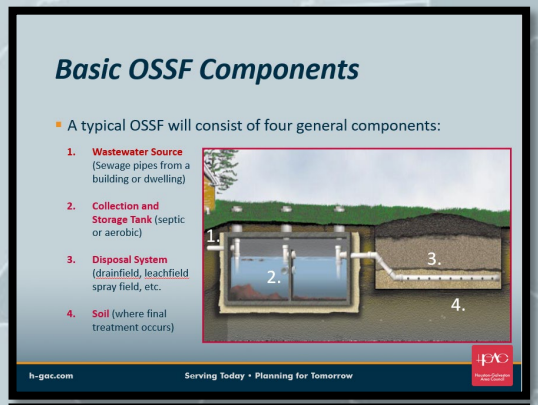
- Able to estimate the number and locations of unpermitted systems based upon parcel data for areas:
  - where there are no permitted systems
  - that are outside of a service area boundary for a permitted wastewater treatment facility

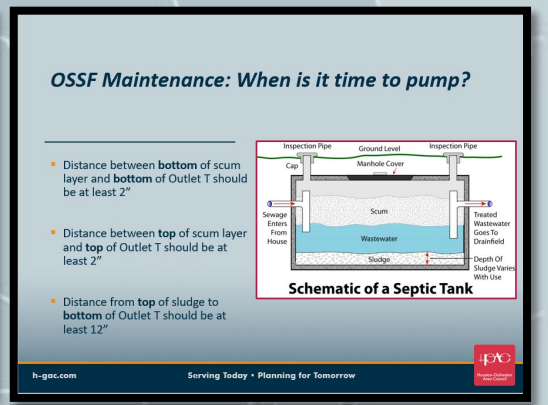
Reducing Pollution from OSSFs

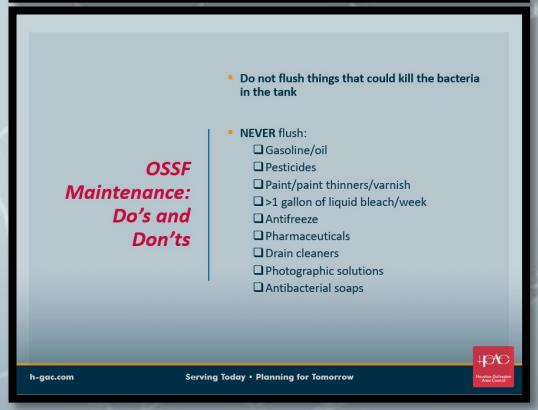
- Options to reduce pollution from failing or malfunctioning OSSFs include:
  - Maintenance or repair
  - Installation of new OSSFs (when feasible)
  - Installation of low-flow devices to reduce influent volumes
  - Ongoing maintenance contracts
  - Abandonment and connection to residential sanitary sewer system
  - Homeowner education

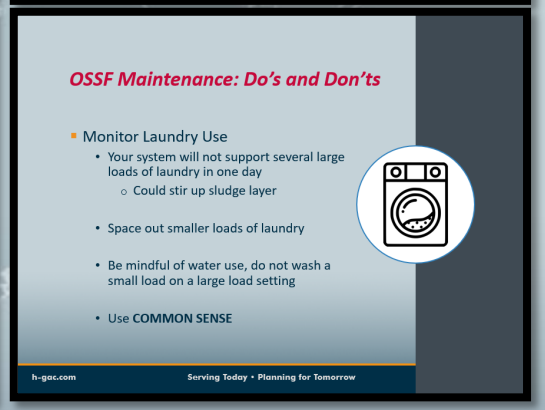
H-GAC OSSF Educational Courses

- **Homeowner Education Course**
- 2-hour course
- Offered throughout the H-GAC region through watershed-based programs
- Topics include:
  - Basics of OSSF operations and maintenance
  - Guidance to assist homeowners with maintaining conventional and aerobic OSSFs
  - Course does **NOT** authorize a homeowner to maintain their owner system in lieu of a maintenance contract



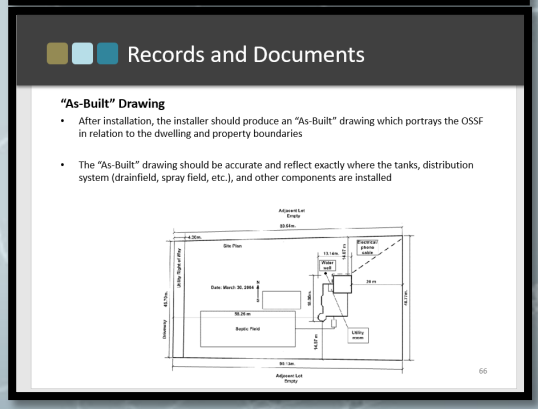


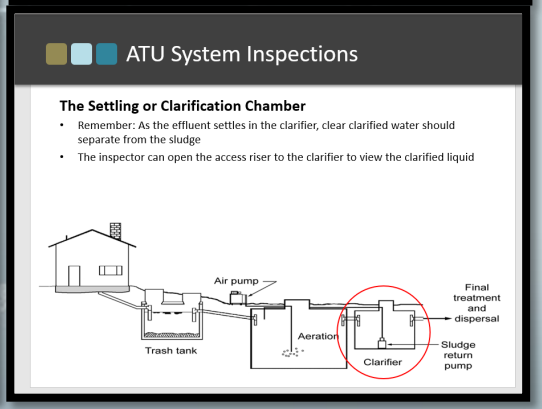




H-GAC OSSF Educational Courses (cont.)

- **Real Estate Visual Inspection Training Course**
- 6-hour course
- Approved by the Texas Real Estate Commission for Continuing Education credits
- Offered throughout the H-GAC region
- Topics Include:
  - Basics of OSSF operations and maintenance
  - Different types of OSSFs
  - Rules and Regulations
  - Safety
  - Records and Documents
  - Visually inspecting conventional, low-pressure dosing, and aerobic treatment unit systems
- Includes a field portion to visually inspect an OSSF





H-GAC OSSF Educational Courses (cont.)

- Due to COVID-19 and social distancing requirements, no OSSF Educational Courses were offered during 2020 – 2021.
- H-GAC plans to develop the **Homeowner Education Course** for a virtual environment so remote-learning options can be available.
- Virtual learning opportunities will likely not be available in the immediate future for the **Real Estate Visual Inspection Training Course** since that course is specifically designed to include an in-person field component (the inspection of an actual functioning system).
    - To be reevaluated as the COVID-19 threat level changes

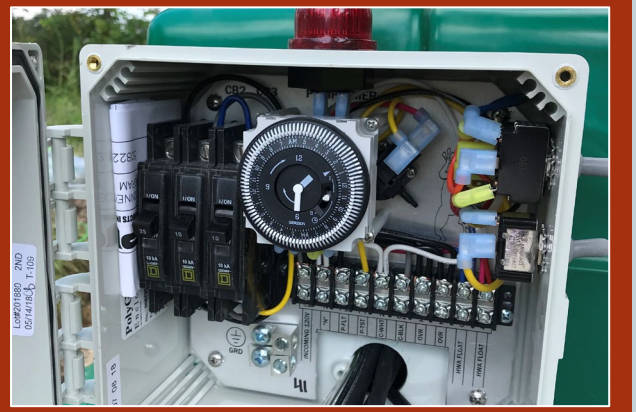
Questions? Comments?

CONTACT INFORMATION

Brian Sims
Senior Planner
Houston-Galveston Area Council

Phone: (713)-993-2438
Email: brian.sims@h-gac.com





H-GAC's Efforts to Improve the Region's Water Quality

Septic System Repair and Replacement

Daniel Albanese, Planner

August 26, 2021

Project Description

Provides assistance to low-income homeowners to repair or replace malfunctioning or failing on-site sewage facilities (OSSFs)

Failing conventional system

New aerobic OSSF

Applicant Qualifications

- In order to qualify, applicants must:
  - own and reside in the home
  - reside in one of the eligible counties
  - have a combined household income at or below 80% of the median income for the county
  - have a failed or malfunctioning OSSF

Pipe discharging to field

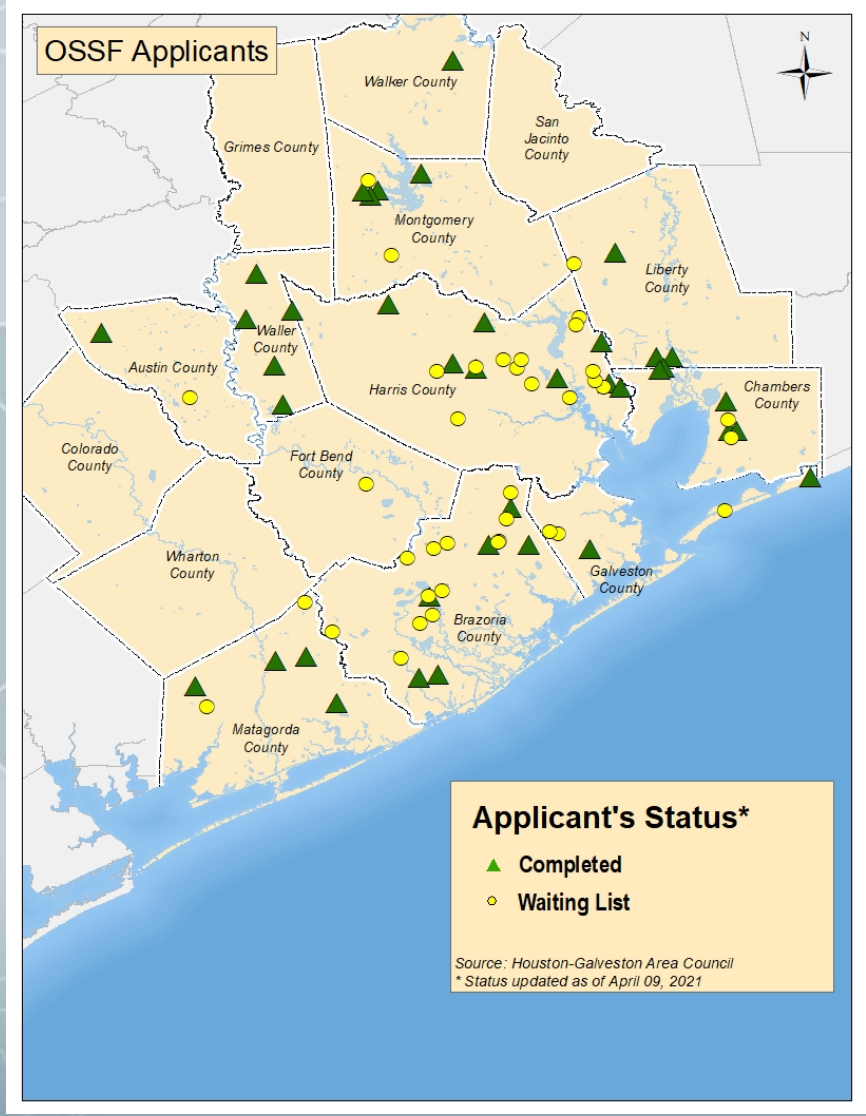
Installation of new spray field

Source of Funding

- Funding for this project is being provided by both TCEQ and the Harris County District Attorney's Office

SEP History

- $339,926.00 in funding utilized to date
- 39 applicants have qualified and are on the waiting list
- 14 OSSF repairs
- 24 replacement Aerobic OSSFs installed
- 2 replacements upcoming
- Pump-outs for seven homeowners in Bailey's Prairie (Brazoria County)



Failing OSSFs

Recent Project Success

- **Installation of new aerobic OSSF in Bay City (Matagorda County) – October 2020**
  - Funded by T.C.E.Q
- **Installation of new aerobic OSSF in Industry (Austin County) – January 2021**
  - Funded by T.C.E.Q

Next Steps

- Continue marketing SEP program to potential contributors
- Continue seeking qualified applicants
  - Local Authorized Agents and Designated Representatives
  - Referrals from local governmental officials and agencies
  - Public Outreach events
  - Word-of-mouth from previous program recipients
- Continue identifying qualified vendors

Quotes from Project Recipients

"I really appreciate your help and assistance in helping my mother out. Thank you so much! And glad to know that there are people and organizations that help their citizens and people in these situations. Just to let you know people do appreciate your consideration and help! You don't know how much…. I just want you to know you make a huge difference in people's lives."

- Resident, Baytown

For More Information

For more information regarding H-GAC's SEP for Homeowner Wastewater Assistance, please contact:

Daniel Albanese
Program Support Specialist
Houston-Galveston Area Council
Daniel.Albanese@H-GAC.com
832-681-2692

H-GAC's Efforts to Improve the Region's Water Quality

Non-point Source Education: Coastal Communities Toolbox, Interactive Exhibits, and More

Kendall Guidroz, Planner

August 26, 2021

The Coastal Communities project is funded in part by the TCEQ through a grant from the United State Environmental Protection Agency

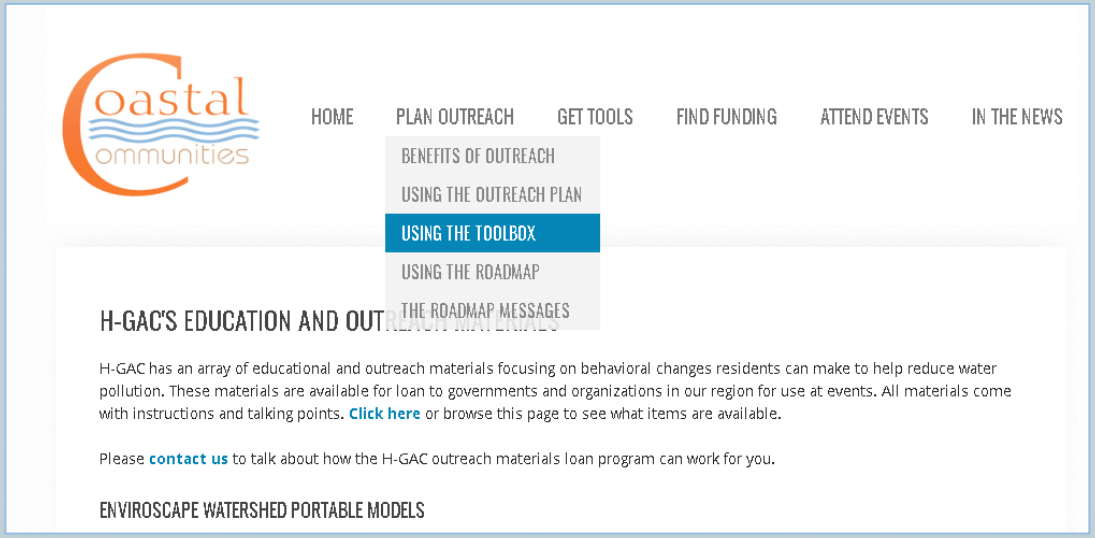
Coastal Communities Project

- What?
  - Water Quality Outreach & Education resources
- Who?
  - Our smaller coastal communities
- Why?
  - To remove barriers for city staff
- How?
  - A One-Stop-Shop for resources

www.coastalcommunitiestx.com

Outreach Toolbox & Roadmap

- Project website
- Roadmap messaging
- H-GAC & partner resources
- Model ordinances
- Links to funding, training, and meeting opportunities

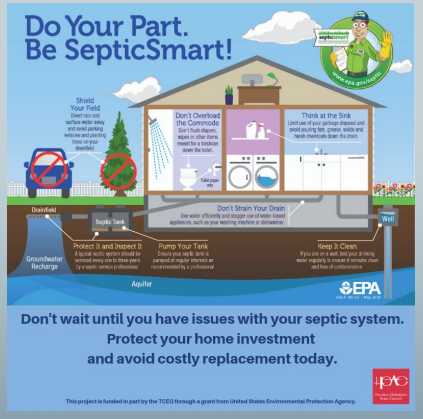


www.coastalcommunitiestx.com

Outreach Toolbox & Roadmap

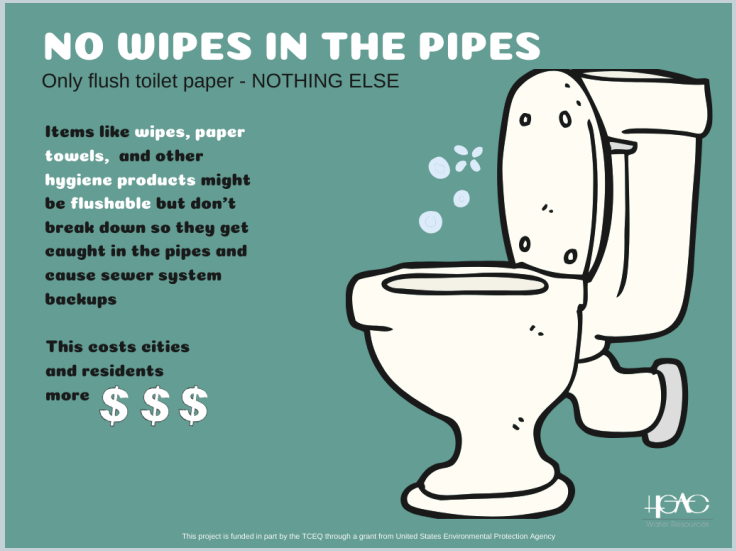
Four Focus Behaviors

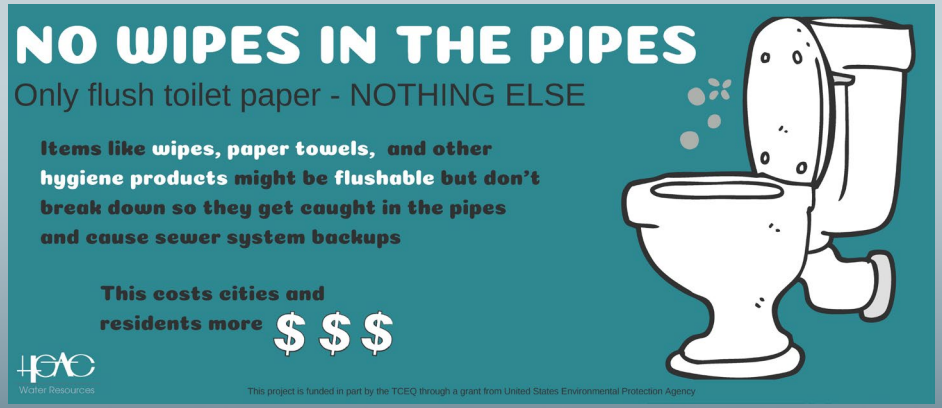
- Pet Waste Disposal
- Disposal of Fats, Oils, & Grease (FOG)
- Litter & Illegal Dumping
- Maintenance of On-Site Sewage Facilities (OSSFs)



The Roadmap Messaging

The Roadmap Messaging (cont.)





The Roadmap Messaging (cont.)

Expanding the Toolbox

- Expanding the Resources Expanding the Toolbox Resources
  - Engaging more communities
  - Working with partners on a Community-Based Social Marketing Pilot Project
    - Combatting improper FOG disposal in apartments

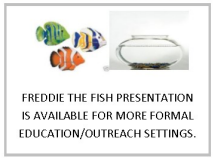
Hands-on Exhibits & Posters

LOW IMPACT DESIGN DISPLAY AND MATERIALS (FOCUS ON STORMWATER)

A variety of other brochures created by partner organizations may be available. Availability of reports and other documents should be discussed with project managers.

PITCH THE POOP INTERACTIVE GAME AND MATERIALS (FOCUS ON BACTERIA)

PLEDGE SHEETS FOR ALL THREE DISPLAYS

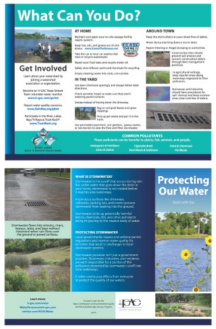


FREDDIE THE FISH PRESENTATION IS AVAILABLE FOR MORE FORMAL EDUCATION/OUTREACH SETTINGS.

DEFEAT THE GREASE MONSTER DISPLAY AND MATERIALS (FOCUS ON FATS, OILS, GREASE DISPOSAL)

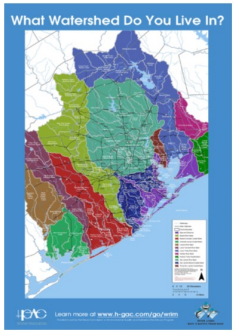
H-GAC OUTREACH MATERIALS

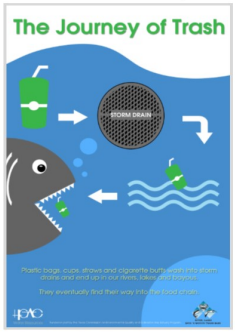
MISCELLANEOUS INFORMATIONAL POSTERS AVAILABLE LAMINATED AND/OR COROPLAST and PDF FILES for PRINTING, EXCEPT TIMELINE)



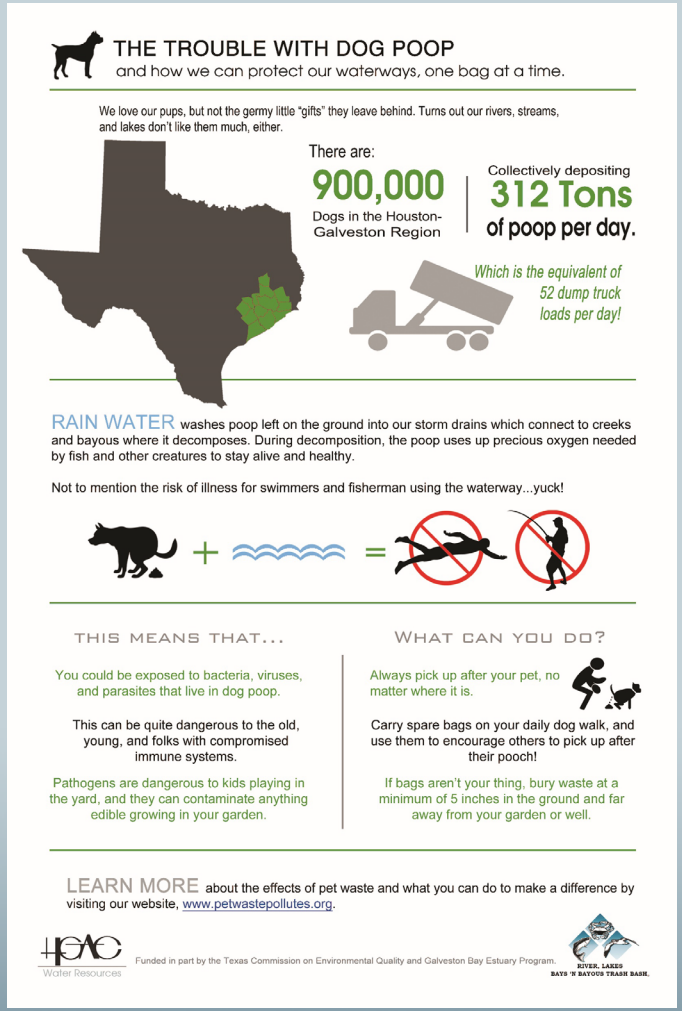
WATER QUALITY BROCHURE (LEFT)

TRASH BASH EVERGREEN BROCHURE (BELOW)





Hands-on Exhibits & Posters



Hands-on Exhibits & Posters (cont.)

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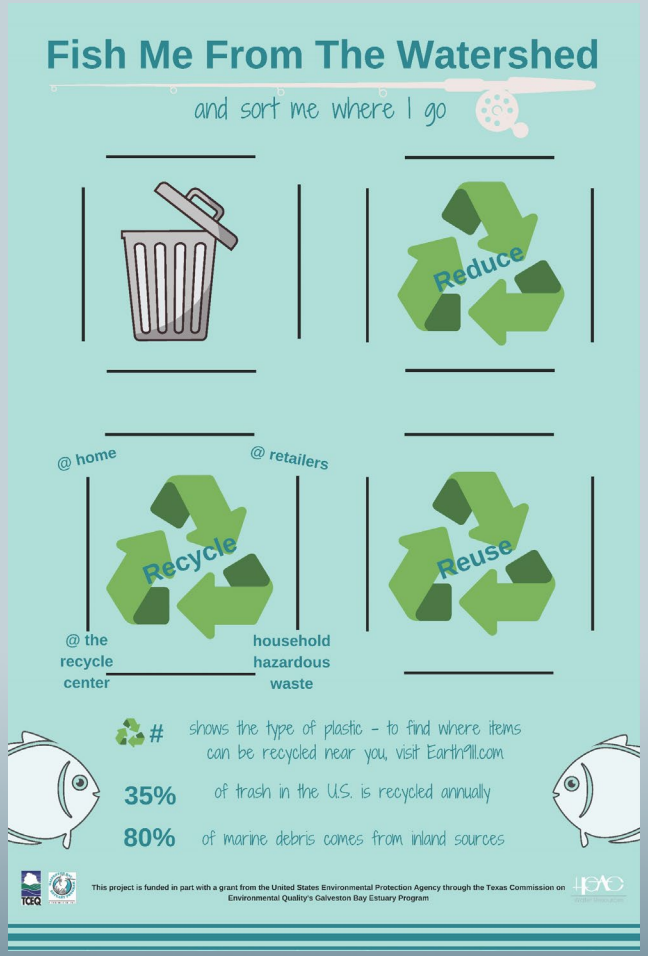

Trash Free Texas

- A Trash Free Waters project
- Key Goals:
  - Add "Adopt-A-Spots
  - Support local cleanup efforts
  - Help restaurants reduce single-use plastics

TRASH FREE TEXAS

www.trashfreetexas.org
www.h-gac.com/trash-free-texas

Texas Stream Team

- Citizen Science volunteer water quality monitoring
- 3 Phases of Training
- Part of a state-wide program
- Trainings on hold

Contact:
stream.team@h-gac.com

The Meadows Center for Water and the Environment
Texas State University
Texas Stream Team

h-gac.com/Texas-stream-team

Contact Information

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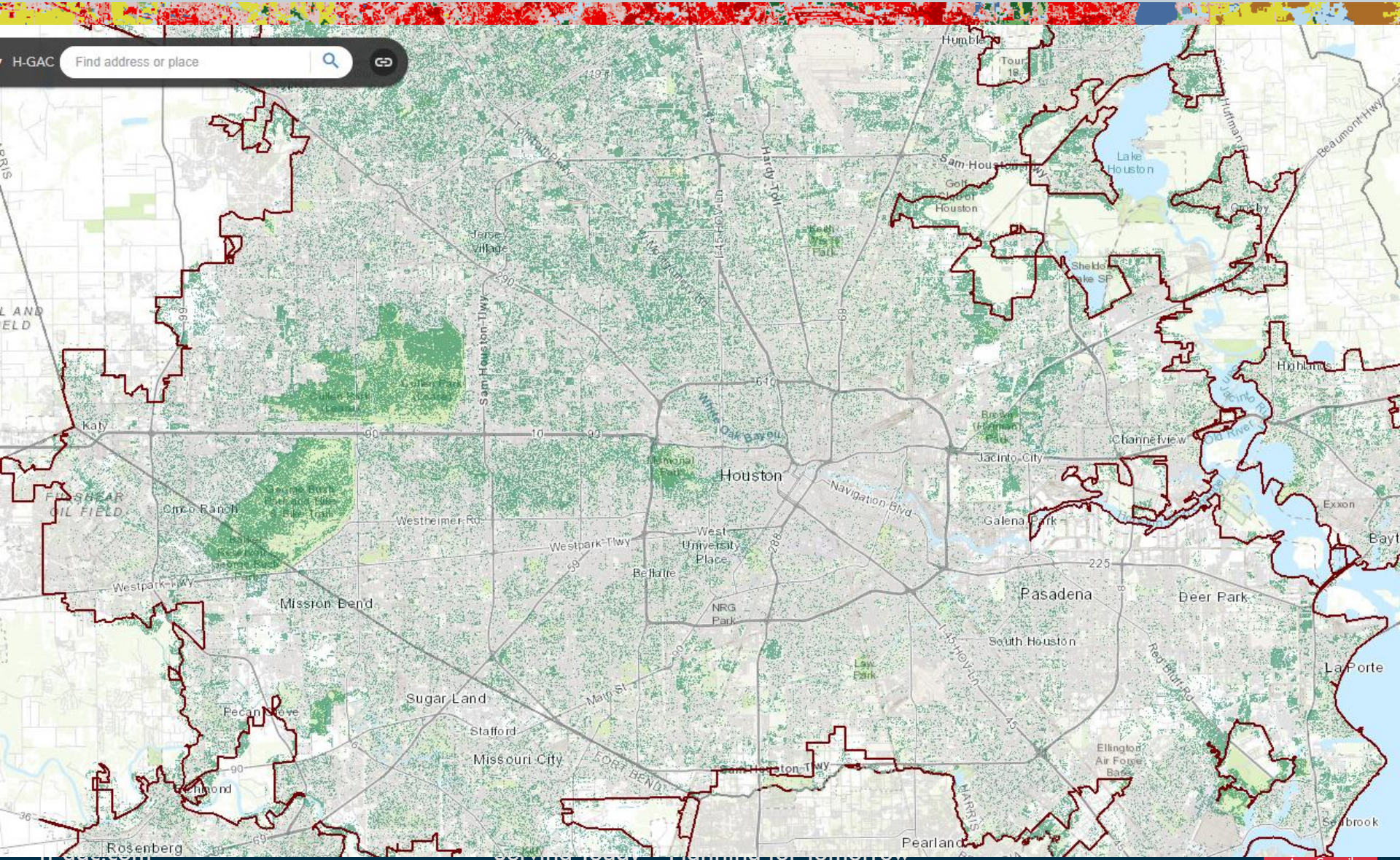
H-GAC's Efforts to Improve the Region's Water Quality

Urban Forestry and Riparian Cover

Justin Bower, Principal Planner

August 26, 2021

The Region's Urban Forests



Houston's Urban Forest

- Ecosystem services beyond aesthetics
  - Heat reduction
  - Flood mitigation
  - Health benefits
  - Water/air quality improvement
  - Biodiversity/habitat
  - Carbon reduction, etc.
- Focus of many local efforts

H-GAC's Role

- Regional Coordination
- Regional Support
- Identifying/pursuing funding
- Data Analyses
- Potential funding role

- Examples
  - Houston Area Urban Forests
  - City of Houston grants
  - Cypress Creek CSP

Building Riparian Function

- Streamside areas are last line of defense
- Multiple benefits; flood, quality, habitat, etc.
- Applicable to urban, suburban, rural land uses
- Many existing programs
- Examples
  - Riparian Tool
  - Focus in WPPs, etc.

For more information, contact:

Justin Bower

Principal Planner, H-GAC

713-499-6653

justin.bower@h-gac.com

3555 Timmons Lane, Suite 120,
Houston, TX 77077

H-GAC's Efforts to Improve the Region's Water Quality

Green Infrastructure: Designing for Impact

Steven Johnston, Senior Planner

August 26, 2021

Why H-GAC?

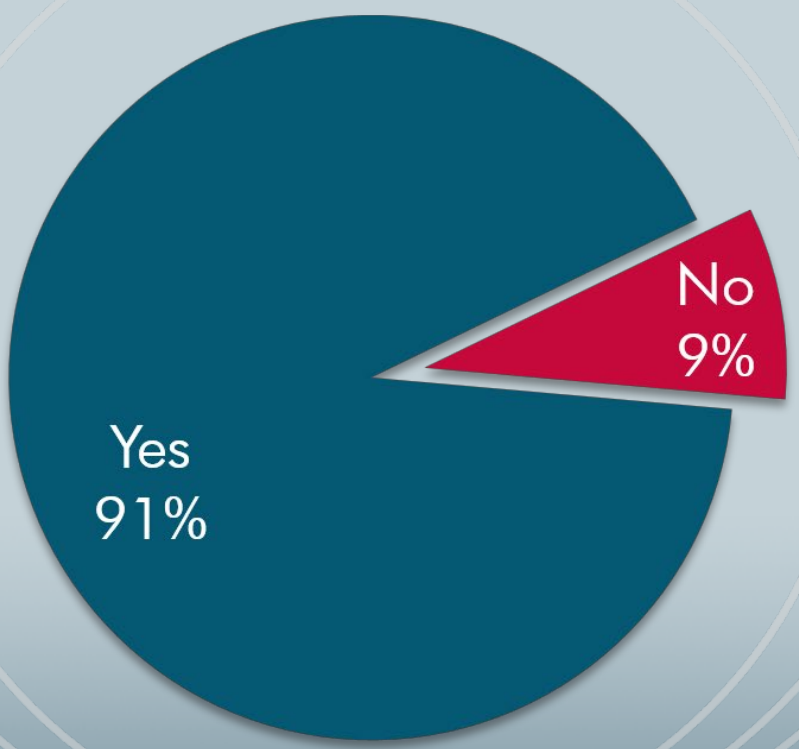
RFMC
Regional Flood Management Council

BIG
BACTERIA IMPLEMENTATION GROUP

www.h-gac.com/go/LID

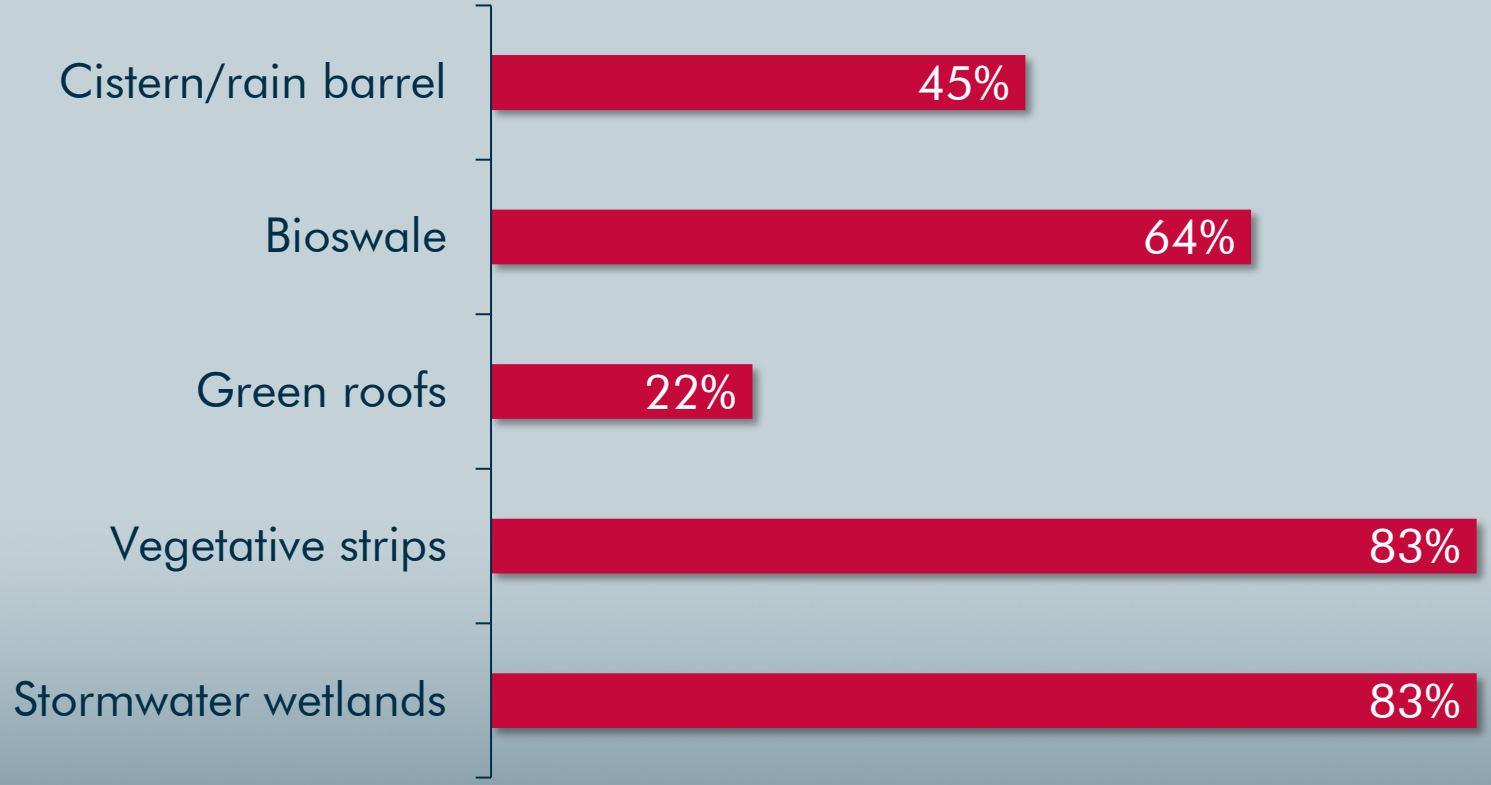
LID/Green Infrastructure
(Survey)

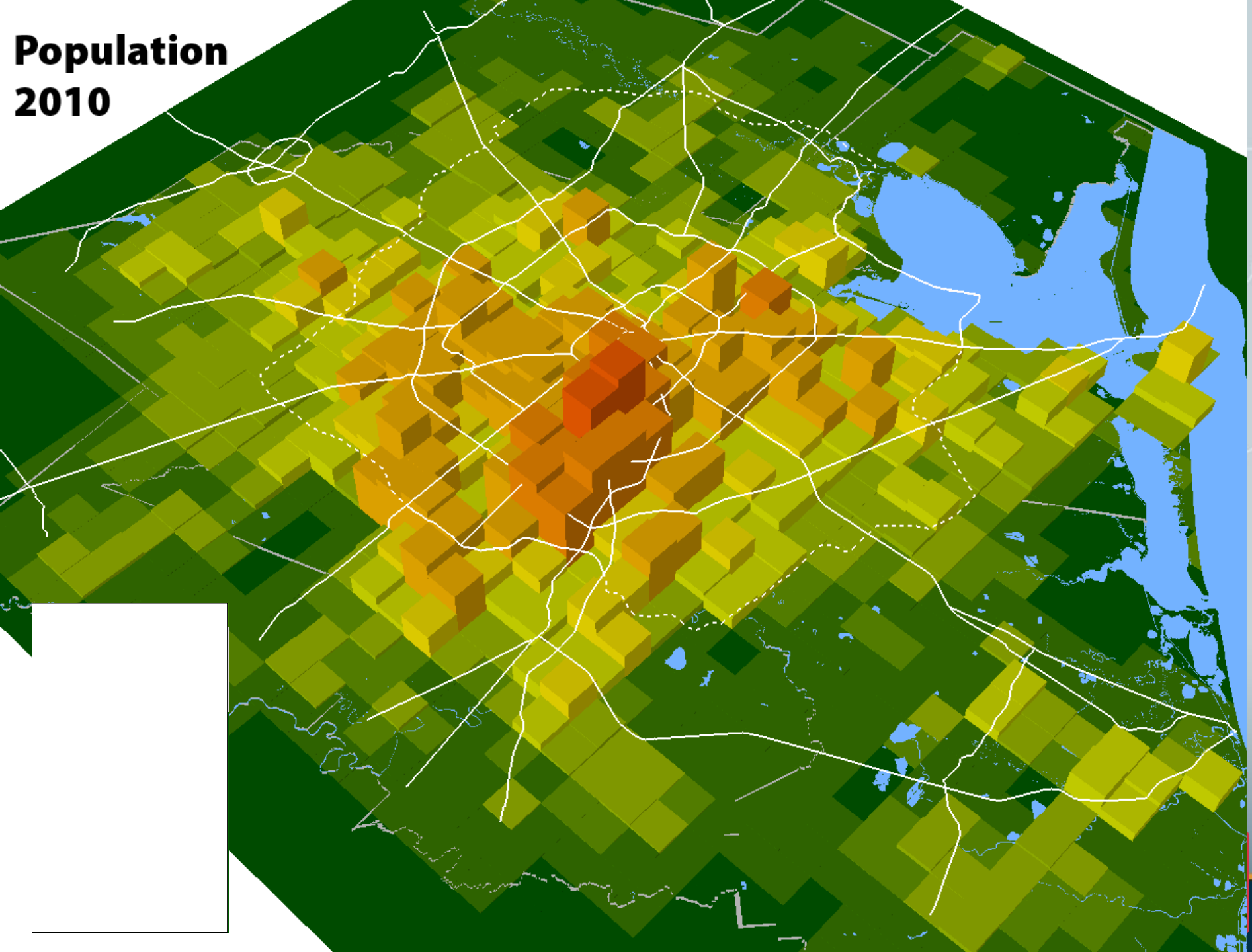
Are your familiar with the terms Low Impact Development (LID) or Green Infrastructure?



LID Desirability and Feasibility
(Survey)

Which LID or Green Infrastructure solutions do you think are most feasible or desirable?

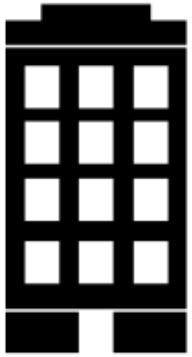



Population
2010

Development Impacts: 2040

6M Parking Spaces

680M SQFT



Non-Residential

3.5B SQFT Residential

Development Impacts

1.4M More Single-Family Units

390

CINCO RANCHES

Source: Toll Brothers

Development Impacts

6M Parking Spaces

230

NRG Park Parking Lots

WHAT is Green Infrastructure?

Comprehensive Stormwater Management Method

HOW does Green Infrastructure work?

CAPTURES and **DISTRIBUTES** stormwater runoff throughout the site as close to the **SOURCE** as possible

WHERE can Green Infrastructure be used?

EVERYWHERE

New Development, Redevelopment, Parking Lots, and Roadways

What does it look like?

What does it look like?

What does it look like?

Benefits


Improved Water Quality
Cost-Effective
More Space For More Stuff
Reduce Potential Flood Impacts
Multi-Functional
Increased Property Values

Resources Available

Designing for Impact

Regional Guide for Low Impact Development

- LID Overview
- Barriers/Solutions
- List of Best Practices
- Cost/Benefit Analysis: LID v. Conventional
- Local Case Studies

Case Studies

Designing for Impact
Regional Guide for Green Infrastructure

Barriers

Regulatory

Wide Min. Roadway Widths
- Solution: Narrower Roadway Designs

Curb + Gutter Requirements
- Solution: More Flexible Standards

Excessive Impervious Cover
- Solution: Efficient Site Design

Lack of Incentives
- Solution: Offer Incentives for LID

Perceptual

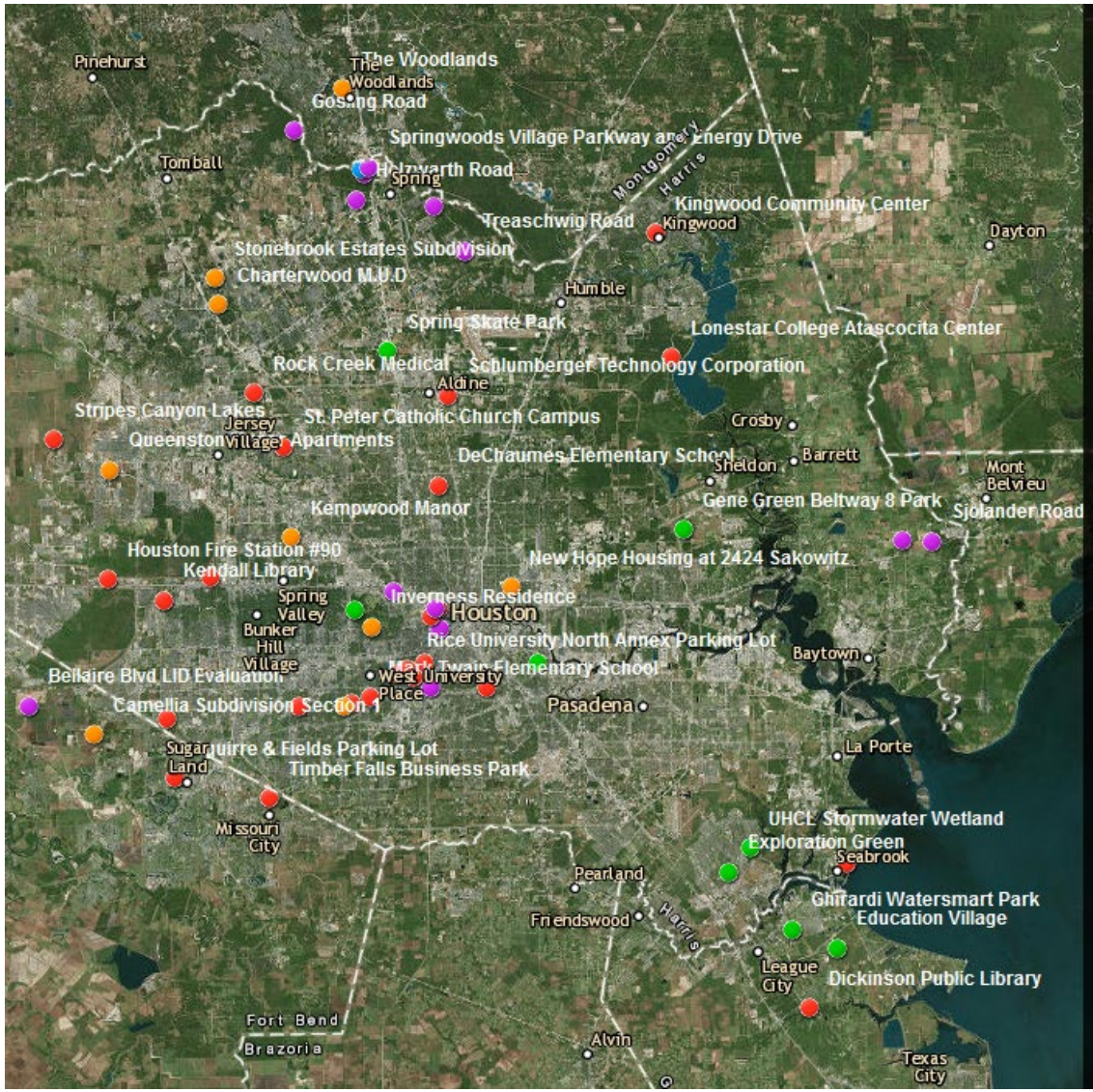
Is Cost Prohibitive
- Reality: Reduces Costs + Adds Value

Don't Know What it Is
- Solution: Increase Awareness w/ Educ.

Is Too Difficult to Maintain
- Reality: Maintenance Not Burdensome

Clay Soils Prevent its use
- Reality: FALSE!

Web Page – Local Examples



Designing for Impact

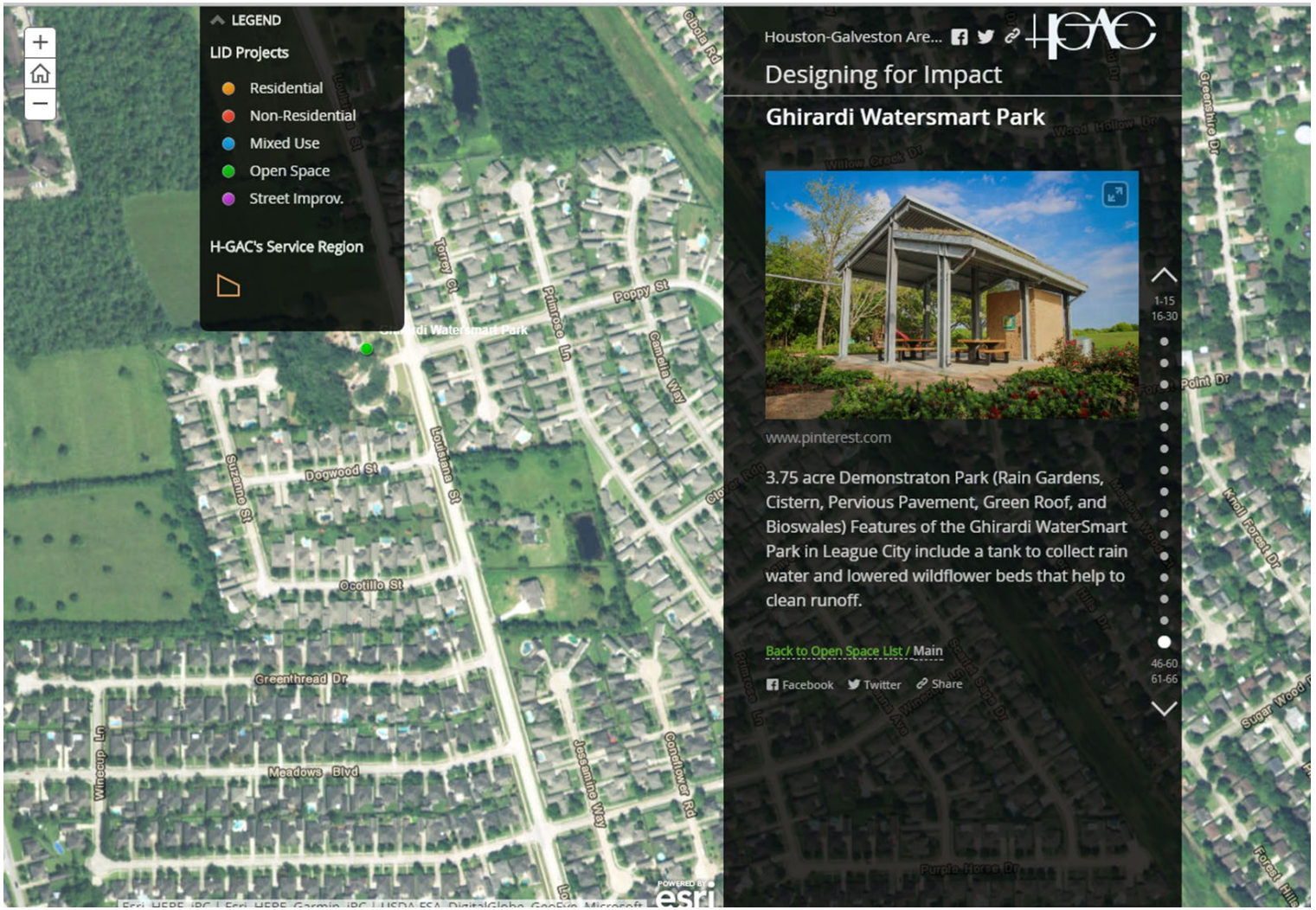
As part of Designing for Impact, H-GAC has created a mapping application that highlights various Low Impact Development (LID) projects across H-GAC's 13 county region. Click the sites on the map to see a project's location, photos, features and benefits. Projects are grouped based on development type:

- Residential Development Projects (11 projects)
- Non-Residential Development Projects (25 projects)
- Mixed Use Development Projects (1 project)
- Open Space Development Projects (8 projects)
- Street Improvements (14 projects)

Submit Your LID Project

Ghirardi Watersmart Park

League City, TX



What's Next?

- Future Workshops
- Efficacy Study
  - Project to begin in September 2022

Steven Johnston
Senior Planner
Houston-Galveston Area Council
steven.johnston@h-gac.com

DESIGNING FOR IMPACT

https://www.h-gac.com/low-impact-development

H-GAC's Efforts to Improve the Region's Water Quality

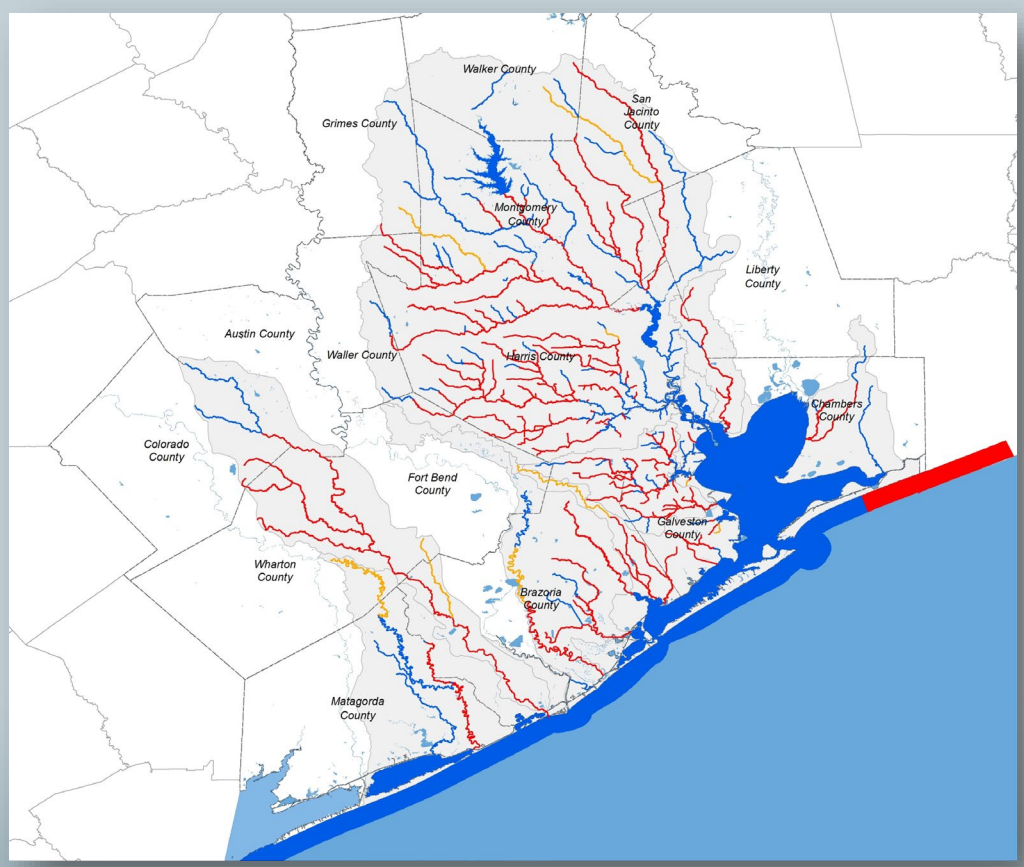
H-GAC Bacteria Targeted Monitoring Project

Jessica Casillas, Planner

August 26, 2021

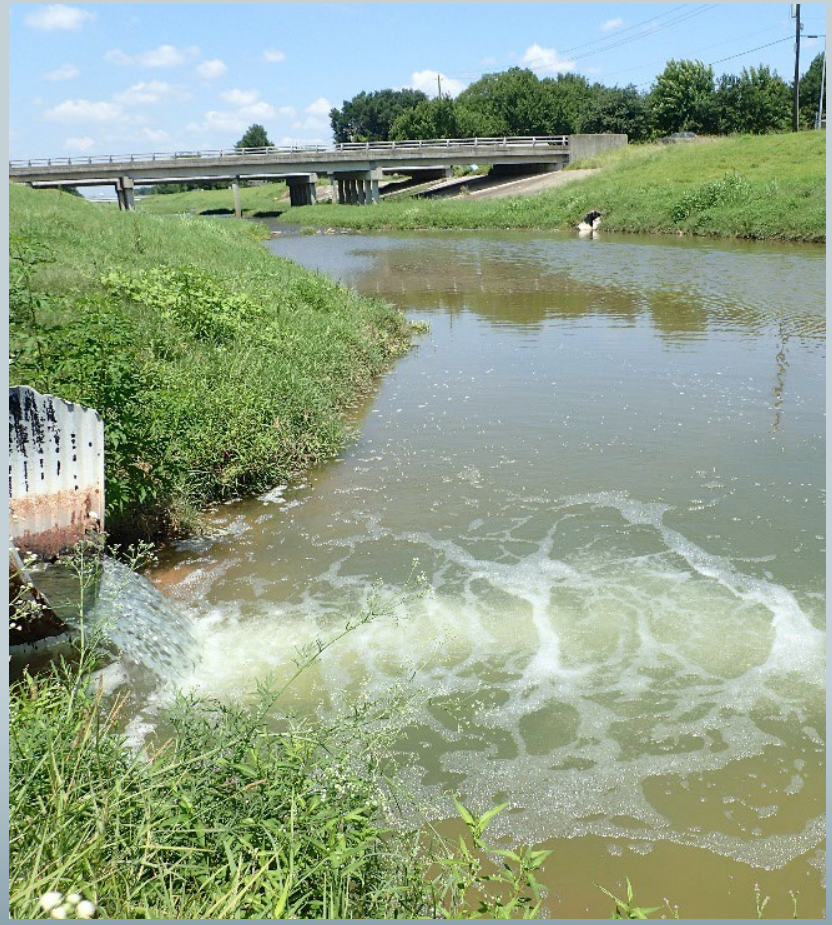
H-GAC Targeted Monitoring

- Bacteria is the most prevalent pollutant
- ~ 80% of the region's streams fail to meet state water quality standards



H-GAC Targeted Monitoring

- PURPOSE
  - Identify bacteria sources
  - Report findings to appropriate jurisdictions for problem elimination

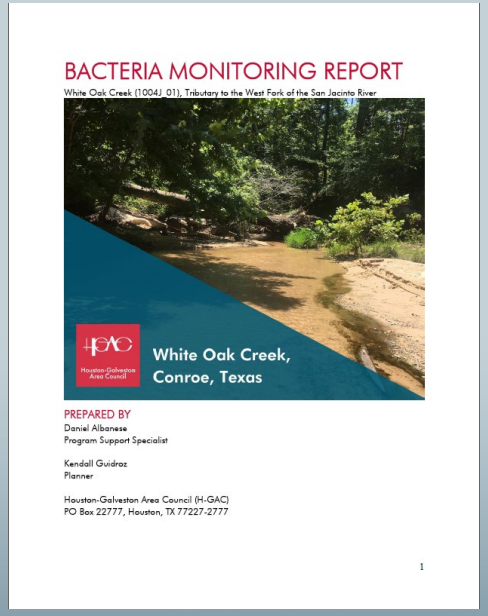


H-GAC Targeted Monitoring

Phase 1 - Data Analysis → **Phase 2 - Monitoring** → **Phase 3 - Reporting**

Geomean Ranking**	AU ID	AU Name	Parameter
30.65	1017_04	Whiteoak Bayou Above Tidal	E. Coli
29.03	1007T_01	Bintliff Ditch	E. Coli
28.63	1007I_01	Plum Creek Above Tidal	E. Coli
25.27	1004J_01	White Oak Creek	E. Coli
22.51	1017E_01	Unnamed Tributary of White Oak Bayou	E. Coli
19.53	1013C_01	Unnamed Non-Tidal Tributary of Buffalo Bayou Tidal	E. Coli
17.60	1007K_01	Country Club Bayou Above Tidal	E. Coli
17.47	1007H_01	Pine Gully Above Tidal	E. Coli
17.02	1007F_01	Berry Bayou Above Tidal	E. Coli
16.78	1016D_01	Unnamed Tributary of Greens Bayou	E. Coli
15.85	1103G_01	Unnamed Tributary of Gum Bayou	Enterococci
15.11	1013A_01	Little White Oak Bayou	E. Coli
14.53	1007R_04	Hunting Bayou Above Tidal	E. Coli
13.75	1007U_01	Mimosa Ditch	E. Coli
12.67	1007B_01	Brays Bayou Above Tidal	E. Coli
12.34	0901A_01	Cary Bayou immediately upstream of Raccoon Drive bridge in Baytown	Enterococci
12.24	1007R_01	Hunting Bayou Above Tidal	E. Coli
12.22	1014O_01	Spring Branch	E. Coli
11.67	1016C_01	Unnamed Tributary of Greens Bayou	E. Coli
11.57	1014M_01	Newman Branch (Neimans Bayou)	E. Coli
9.86	1017_03	Whiteoak Bayou Above Tidal	E. Coli
9.48	2432A_02	Mustang Bayou	E. Coli
9.44	1101C_01	Cow Bayou	Enterococci
8.29	2424A_05	Highland Bayou	Enterococci
7.91	1007S_01	Poor Farm Ditch	E. Coli
7.86	1017B_02	Cole Creek	E. Coli
7.81	1007E_01	Willow Waterhole Bayou Above Tidal	E. Coli
7.69	1007G_01	Kuhlman Gully Above Tidal	E. Coli
7.61	1007_05	Houston Ship Channel/Buffalo Bayou Tidal	Enterococci
7.58	1007D_03	Sims Bayou Above Tidal	E. Coli
7.10	1017D_01	Unnamed Tributary of Whiteoak Bayou	E. Coli
6.58	1007O_01	Unnamed Tributary of Buffalo Bayou	E. Coli
6.57	1009_04	Cypress Creek	E. Coli
6.37	1007D_02	Sims Bayou Above Tidal	E. Coli
6.21	1017A_01	Brickhouse Gully/Bayou	E. Coli
6.18	1006J_01	Unnamed Tributary of Halls Bayou	E. Coli
6.04	1006D_02	Halls Bayou	E. Coli
5.78	1103F_01	Unnamed Tributary of Dickinson Bayou Tidal	Enterococci
5.76	1103C_01	Geisler Bayou	Enterococci
5.70	1006_05	Houston Ship Channel Tidal	Enterococci
5.70	1013_01	Buffalo Bayou Tidal	Enterococci
5.65	1014N_01	Rummel Creek	E. Coli
5.60	1007C_01	Keegans Bayou Above Tidal	E. Coli

Photo credits: Environmental Institute of Houston, University of Houston-Clear Lake.



BACTERIA MONITORING REPORT

White Oak Creek (1004J_01), Tributary to the West Fork of the San Jacinto River

White Oak Creek, Conroe, Texas

PREPARED BY

Daniel Albanese
Program Support Specialist

Kendall Guidroz
Planner

Houston-Galveston Area Council (H-GAC)
PO Box 22777, Houston, TX 77227-2777

1

H-GAC Targeted Monitoring

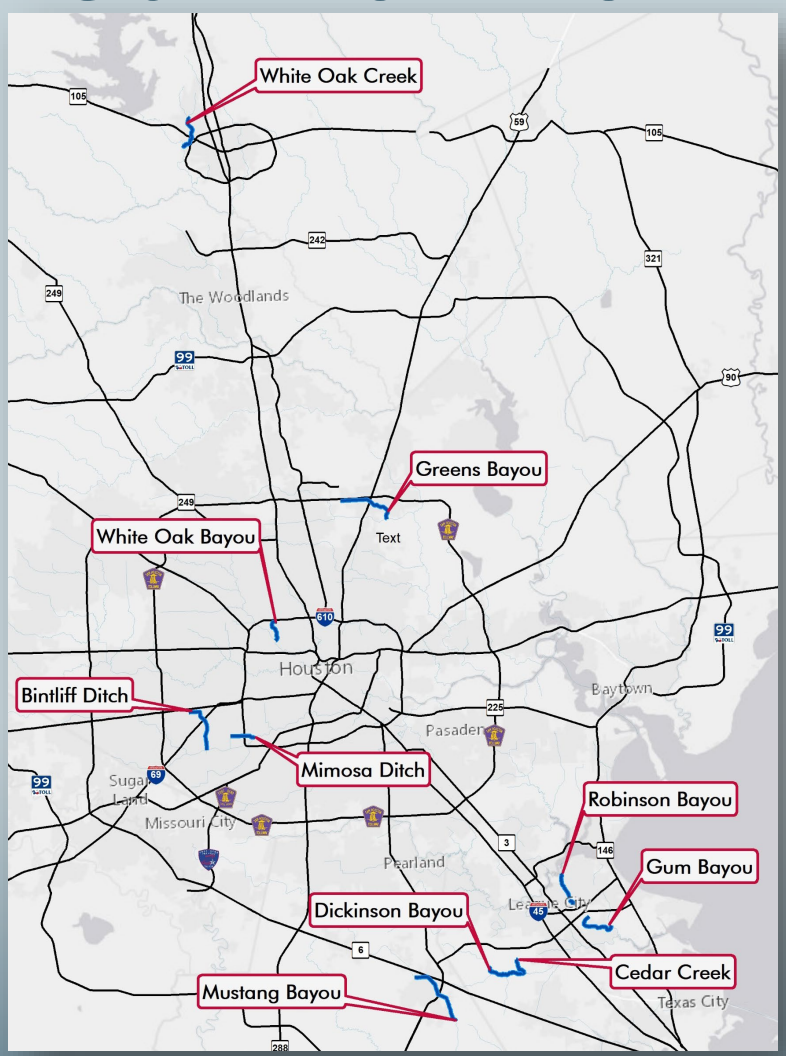
- **Phase 1 - DATA ANALYSIS**
  - Identify assessment units and monitoring stations with the highest bacterial concentrations
  - Calculate geometric means
  - Categorize catchment areas as urban, suburban, or rural
  - Work Group (Dec 10, 2019)

H-GAC Targeted Monitoring

Predominant Land Cover Type	AU ID	AU Name	Relative Bacteria Geomean	AU Length (miles)
Urban	1007T_01	Bintliff Ditch	24.46	3.9
Urban	1017E_01	Unnamed tributary of White Oak Bayou	17.22	1.92
Urban	1007U_01	Mimosa Ditch	15.37	1.9
Urban	1016D_01	Unnamed Tributary of Greens Bayou	15.11	4.49
Suburban	1004J_01	White Oak Creek	26.39	2.96
Suburban	1103G_01	Unnamed Tributary of Gum Bayou	15.26	3.29
Suburban	2432A_02	Mustang Bayou	11.68	5.08
Suburban	1101D_01	Robinson Bayou (tributary of Clear Creek)	6.62	2.7
Rural	1104_01	Dickinson Bayou Above Tidal	14.11	3.43
Rural	1103E_01	Cedar Creek (tributary of Dickinson Bayou)	1.96	1.31

H-GAC Targeted Monitoring

- Four* AUs within City of Houston jurisdiction
  - *Greens Bayou partially within boundary
- Robinson Bayou and Cedar Creek within City of League City
- Gum Bayou within Dickinson
- Mustang Bayou mostly within City of Alvin
- White Oak Creek within City of Conroe jurisdiction



H-GAC Targeted Monitoring

- **Phase 2 – MONITORING**
  - Intensive desktop review
  - Windshield survey
    - Samples collected at major crossings
  - Field Investigation
    - Dry weather monitoring
    - Permitted flows sampled upstream and downstream
    - Unpermitted flows/tributaries sampled at source
  - NELAP testing

Photo credits: Environmental Institute of Houston, University of Houston-Clear Lake.

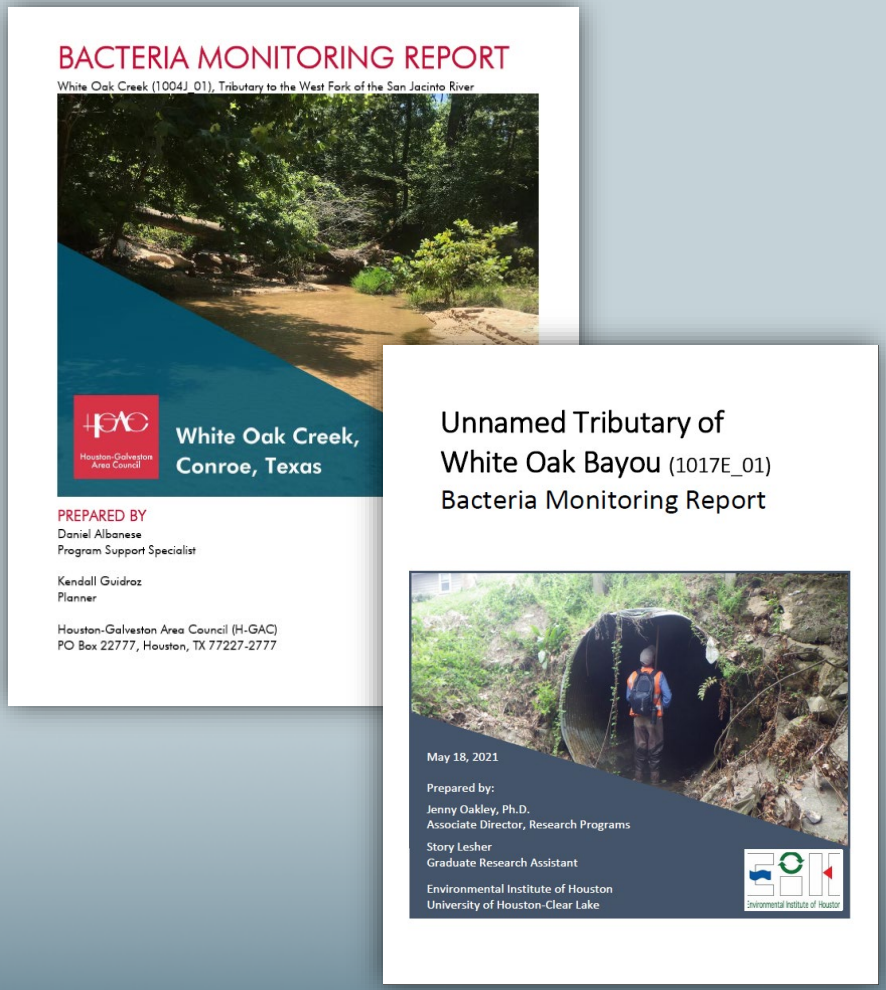
H-GAC Targeted Monitoring

- **Phase 3 - REPORTING**
  - Report findings to local authorities
  - Recommendations to the Bacteria Implementation Group (BIG)
  - Work with appropriate jurisdictions to implement bacteria reduction measures
  - Follow-up monitoring and analysis as needed

H-GAC Targeted Monitoring

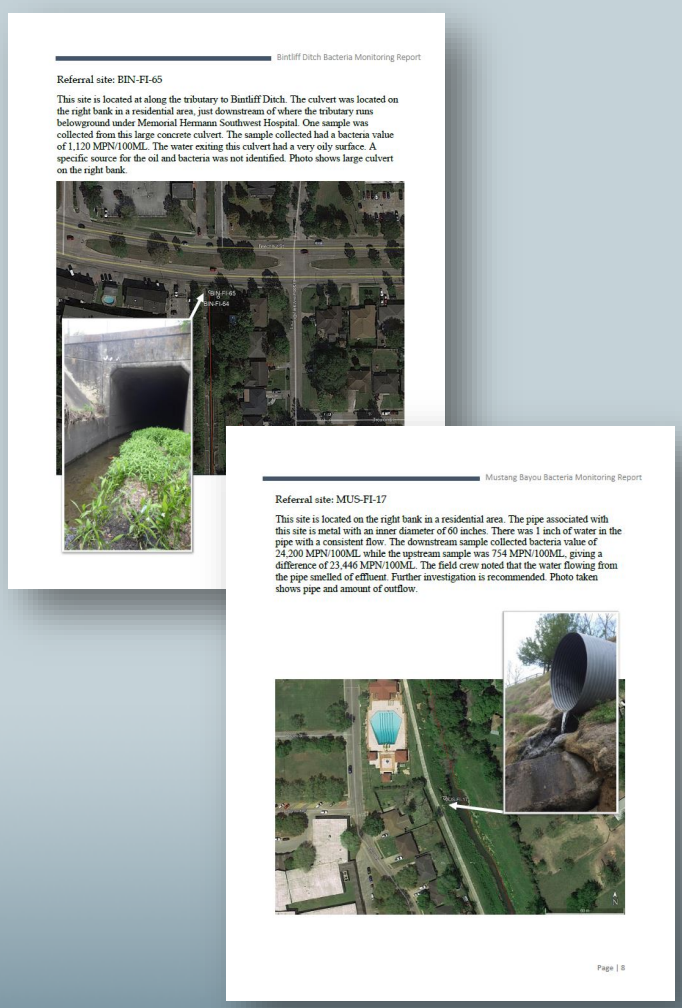
- **Progress**
  - TCEQ Approval on Oct 2020
  - Windshield Surveys Conducted Jan – March 2021
  - Field Investigations Conducted March – April 2021
  - City of Houston Referrals (Summer 2021)
  - City of League City Referrals (Summer 2021)
  - Reports submitted to TCEQ (Aug 2021)

H-GAC Targeted Monitoring



AU ID	AU Name	Windshield Survey Sample Count	Field Investigation Sample Count	Referral Sites
1007T_01	Bintliff Ditch	13	76	8
1017E_01	Unnamed tributary of White Oak Bayou	13	26	3*
1007U_01	Mimosa Ditch	7	26	4
1016D_01	Unnamed Tributary of Greens Bayou	11	47	5
1004J_01	White Oak Creek	9	29	3*
1103G_01	Unnamed Tributary of Gum Bayou	8	22	4
2432A_02	Mustang Bayou	16	39	10
1101D_01	Robinson Bayou (tributary of Clear Creek)	10	53	9
1104_01	Dickinson Bayou Above Tidal	4	13	5
1103E_01	Cedar Creek (tributary of Dickinson Bayou)	1	12	1

H-GAC Targeted Monitoring



AU ID	AU Name	Field Investigation Sample Count	Referral Sites	Percent of Samples > State Standard
1007T_01	Bintliff Ditch	76	8	93%
1017E_01	Unnamed tributary of White Oak Bayou	26	3*	70%
1007U_01	Mimosa Ditch	26	4	23%
1016D_01	Unnamed Tributary of Greens Bayou	47	5	85%
1004J_01	White Oak Creek	29	3*	89%
1103G_01	Unnamed Tributary of Gum Bayou	22	4	52%
2432A_02	Mustang Bayou	39	10	79%
1101D_01	Robinson Bayou (tributary of Clear Creek)	53	9	43%
1104_01	Dickinson Bayou Above Tidal	13	5	69%
1103E_01	Cedar Creek (tributary of Dickinson Bayou)	12	1	100%

H-GAC Targeted Monitoring

QUESTIONS?

Jessie Casillas

Planner

Houston-Galveston Area Council

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Direct | 713-993-4594

Project funded by TCEQ Clean Rivers Program.

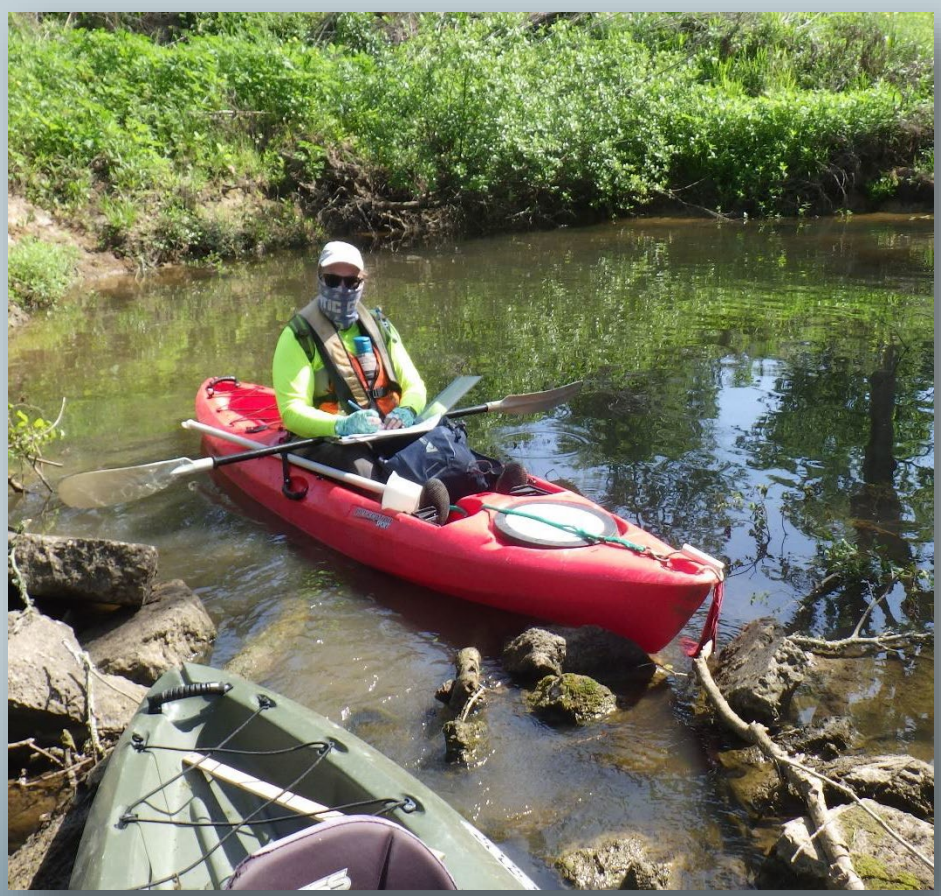

Photo credits: Environmental Institute of Houston, University of Houston-Clear Lake.

Breakout Sessions Will Begin Now

Discussions will begin after a 5-minute break