



QUIDDITY  
ENGINEERING

# Recipe for Success!

## A Joint Stormwater Management Program Story



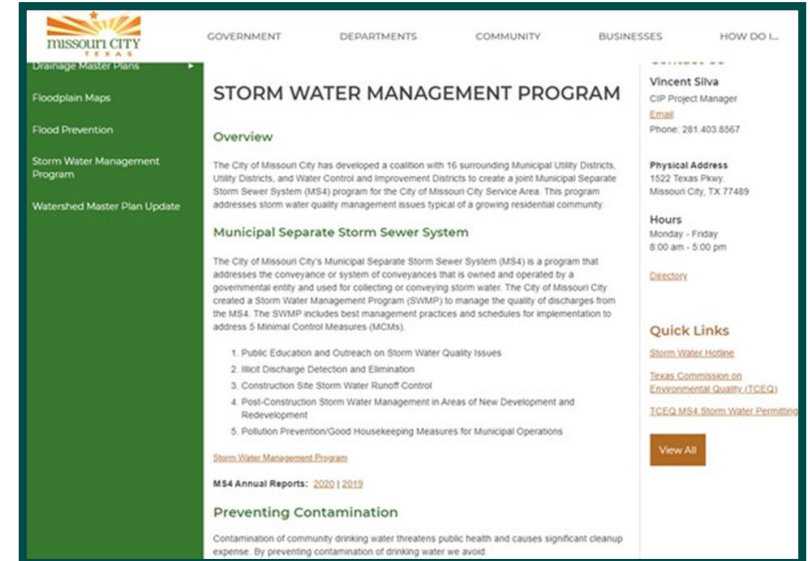
QUIDDITY

Liz Stone, CPESC

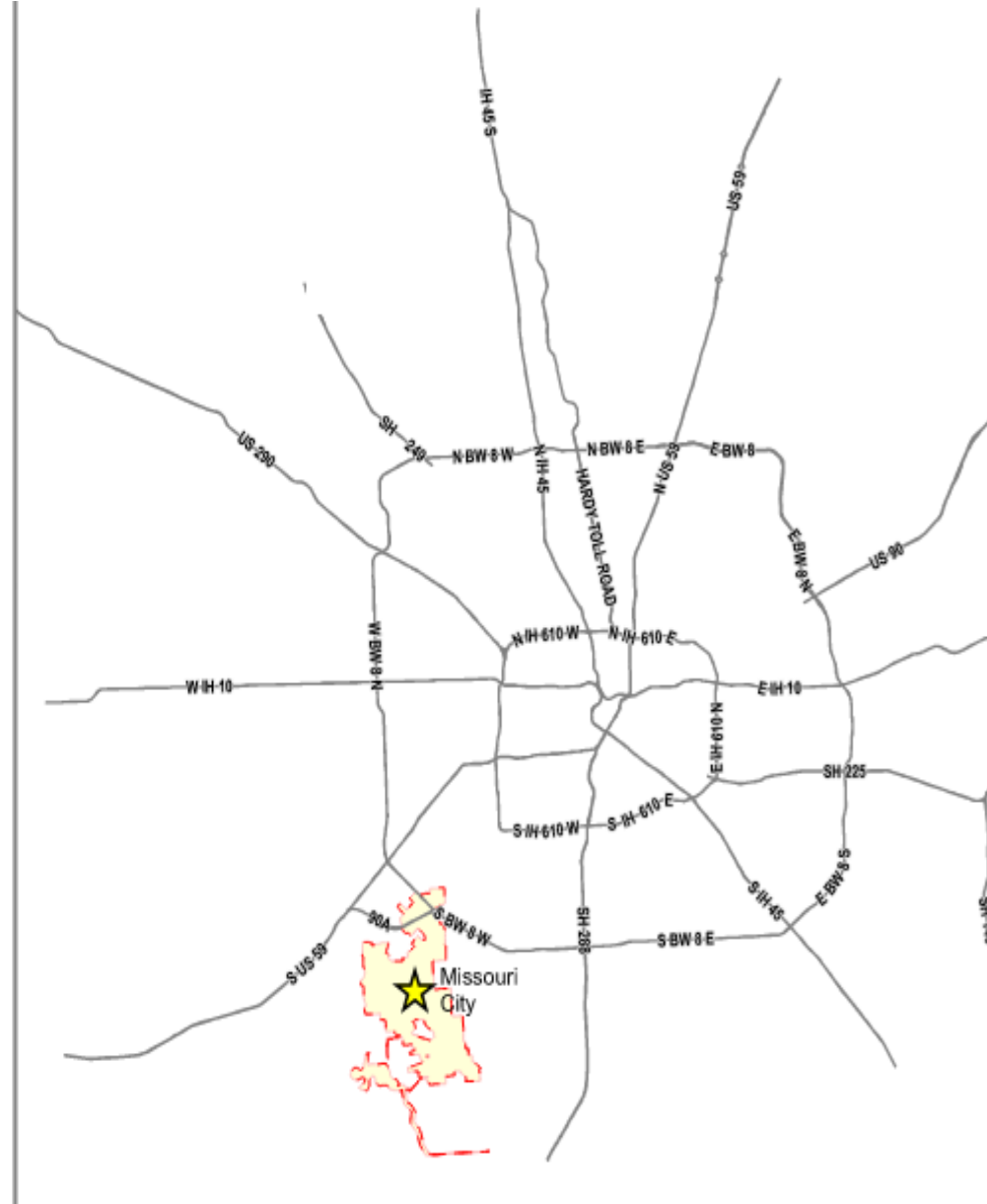
Camila Biaggi, ENV SP, CFM

# City of Missouri City and 16 Joint Phase II MS4s SWMP

- Phase II MS4 Permittees
- Share 1 SWMP
- COMC is SWMP Administrator (responsible for Annual Report submittal, training, main communicator, and documentation control)
- Level 3 (COMC) and Level 2 (Non-trad. Small MS4s)



# Greater Houston Area - Missouri City



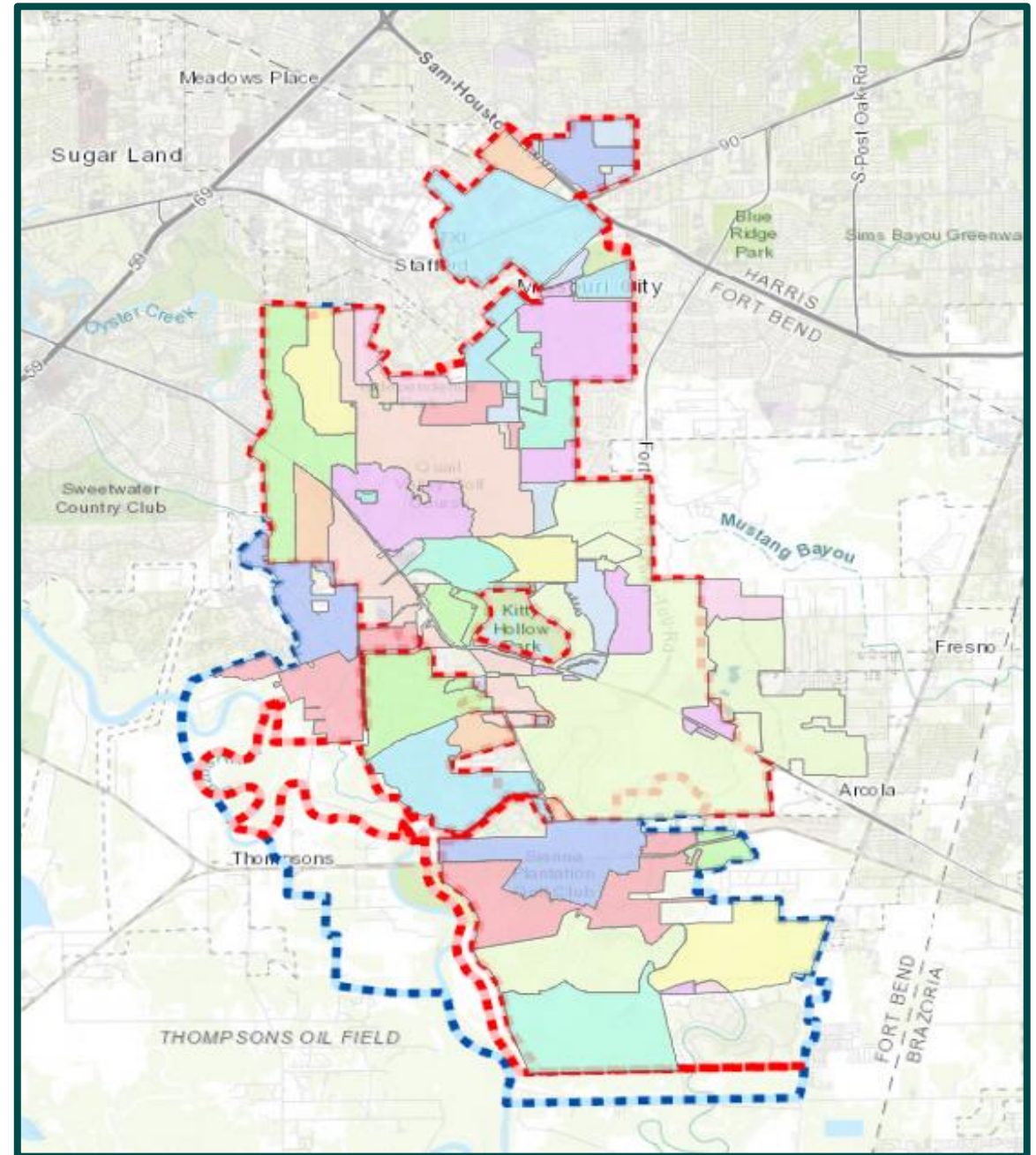
# Missouri City MS4

- Located primarily in Fort Bend County, but a small portion in Harris County



# Joint MS4's

- Located primarily in FBC, but a small portion in HC
- Approx. 36 MUDs in City Limits/ETJ
- 16 MUDs share the SMMP
- And until end of 2023 have area to annex (1+ MUD)



**STORM WATER MANAGEMENT  
INTERLOCAL COOPERATION AGREEMENT**

**THE STATE OF TEXAS**       §  
  §  
**COUNTY OF FORT BEND**     §

This Interlocal Cooperation Agreement (the "Agreement") is made and entered into by and between the City of Missouri City, Texas ("Missouri City" or the "City"), a Texas home-rule municipal corporation, and Harris County Water Control & Improvement District-Fondren Road, Harris County Municipal Utility District #122, Southwest Harris County Municipal Utility District #1, Blue Ridge West Municipal Utility District, First Colony Municipal Utility District #9, Quail Valley Utility District, Meadowcreek Municipal Utility District, Thunderbird Utility District, Palmer Plantation Municipal Utility District #1, Palmer Plantation Municipal Utility District #2, Fort Bend County Municipal Utility District #26, Fort Bend County Municipal Utility District #42, Fort Bend County Municipal Utility District #46, Fort Bend Municipal Utility District #47, Fort Bend County Municipal Utility District #48, Fort Bend County Municipal Utility District #49, Fort Bend County Municipal Utility District #115 and First Colony Levee Improvement District (the "Districts"), (collectively, "the Parties"), acting by and through their authorized representatives.

**Recitals**

**Whereas**, pursuant to the Interlocal Cooperation Act, Texas Government Code, Chapter 791 (the "Act"), as amended, cities, counties, special districts, and other legally constituted political subdivisions of the State of Texas are authorized to enter into interlocal contracts and agreements with each other regarding governmental functions and services as set forth in the Act; and

**Whereas**, Missouri City has coordinated the development of a Storm Water Management Program ("SWMP") with certain political subdivisions to gather data and information, to perform analyses, and to develop programs to address storm water quality issues, including the control of municipal separate storm sewer system discharges; and

**Whereas**, the Parties to this Agreement understand that entering into this Agreement in no way obligates any Party to participate in any joint project without the express approval of such Party;

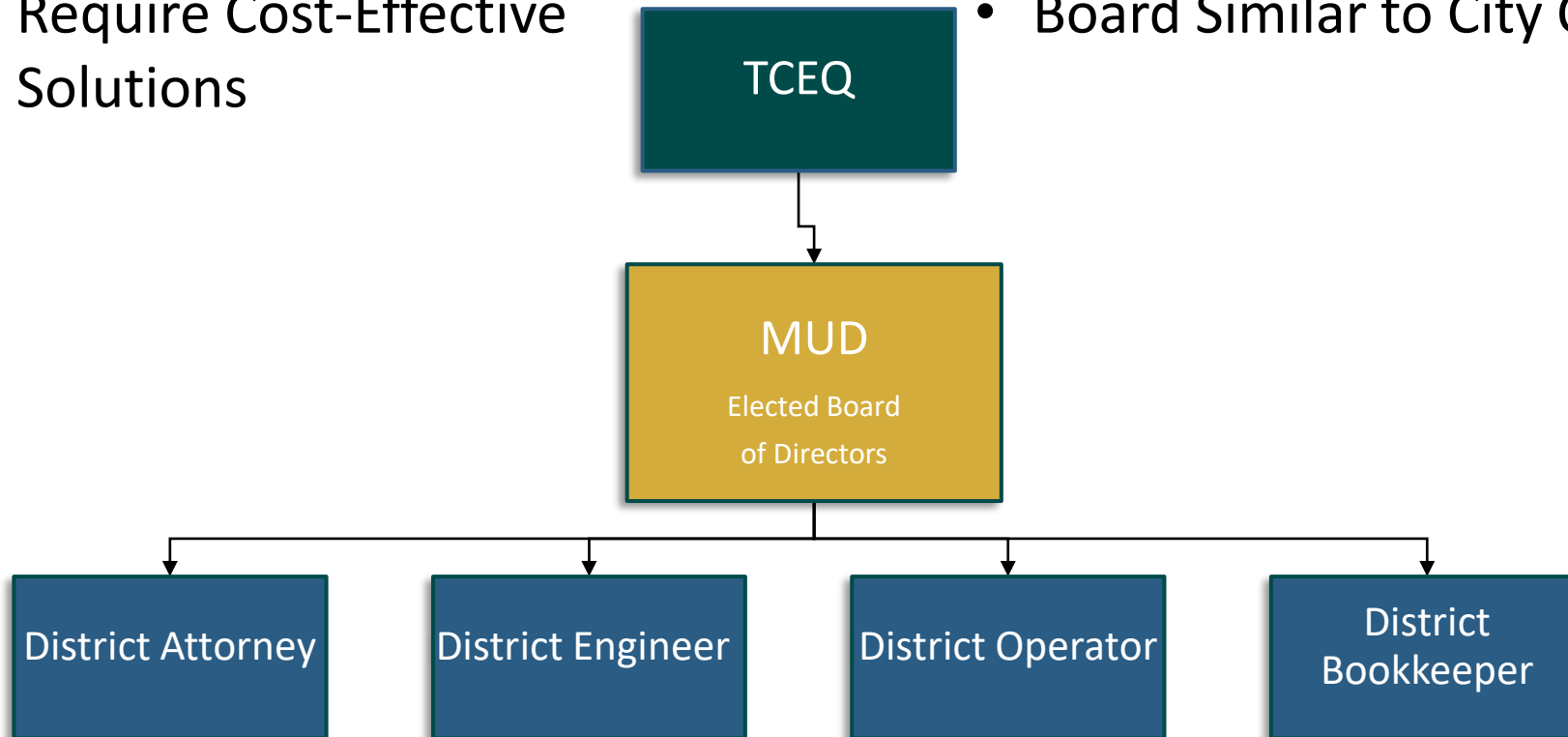
**NOW, THEREFORE**, pursuant to Chapter 791, Texas Government Code and as otherwise authorized and permitted by the laws of the State of Texas, for and in consideration of the covenants, conditions and undertakings hereinafter described, and subject to each and every term and condition of this Agreement, the Parties contract, covenant and agree as follows:

**City of Missouri City**

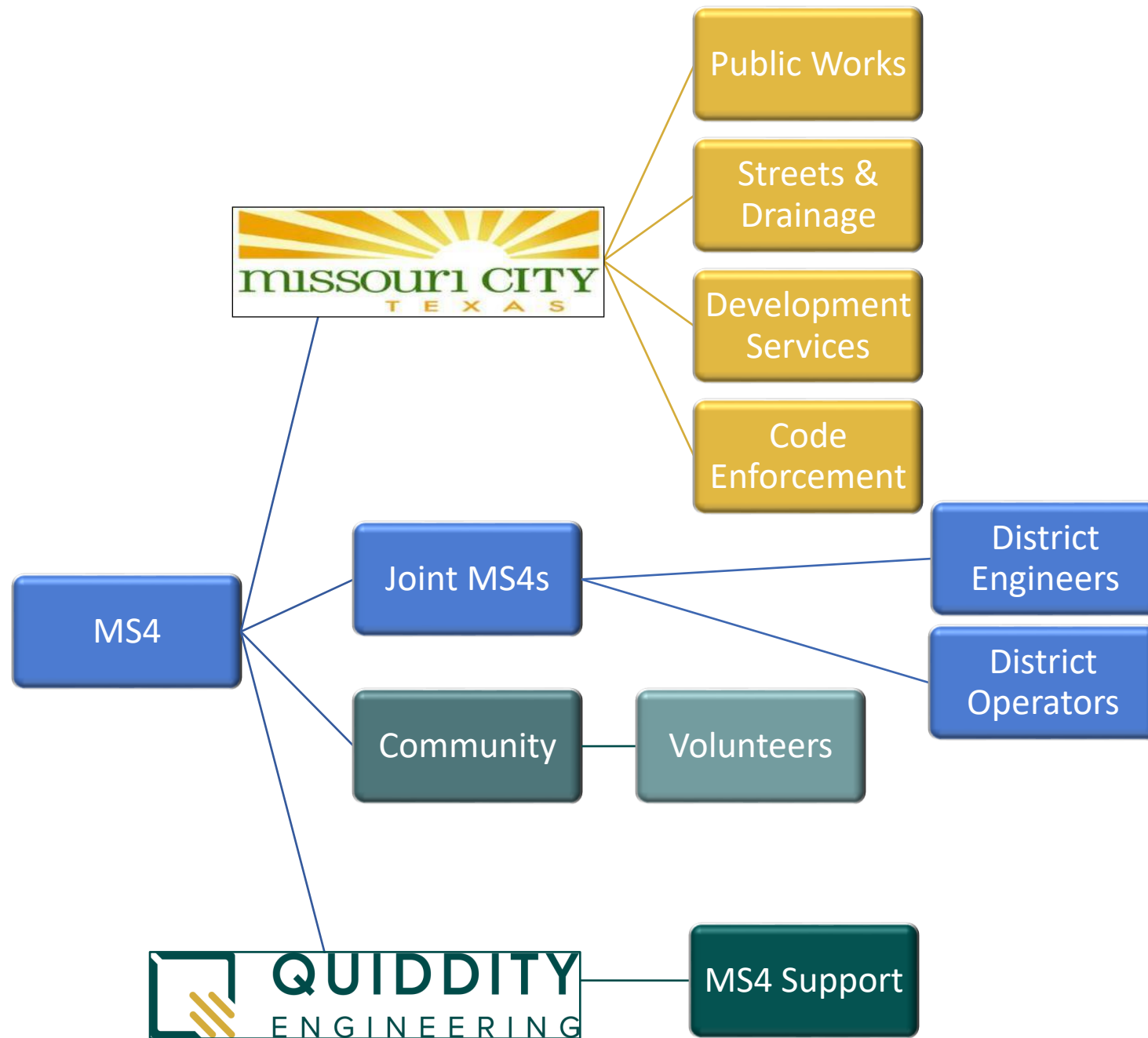
- First Colony MUD No. 9
- Fort Bend County MUD No. 26
- Fort Bend County MUD No. 42
- Fort Bend County MUD No. 46
- Fort Bend County MUD No. 47
- Fort Bend County MUD No. 48
- Fort Bend County MUD No. 49
- Fort Bend County MUD No. 115
- Harris County MUD No. 122
- Harris County WC&ID - Fondren Road
- Meadowcreek MUD
- Palmer Plantation MUD No. 1
- Palmer Plantation MUD No. 2
- Quail Valley Utility District
- Thunderbird Utility District
- Blue Ridge West MUD

# MUD Organization Chart MS4

- Have Limited Manpower
- Resources are Restricted
- Budgets are Constrained
- Enforcement Ability is Limited
- Require Cost-Effective Solutions
- Provide Practical Options
- Innovation Implementation Measures
- Typically, No “Employees”
- Comprised of Prof. Consultants
- Board Similar to City Council



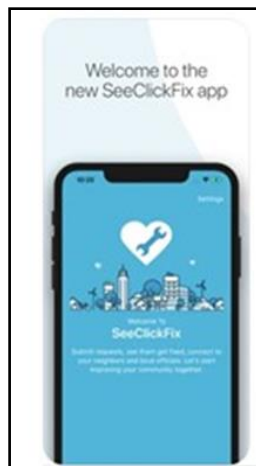




# Roles & Responsibilities

## City of Missouri City – Program Administrator

- Daily Program Administration
- Daily Operation (COMC Facilities)
- Implement BMPs
- Address Illicit Discharges
- Perform Inspections
- Enforce & Assess Violations
- Respond to Complaints
- Documentation Control



## Joint MS4s –

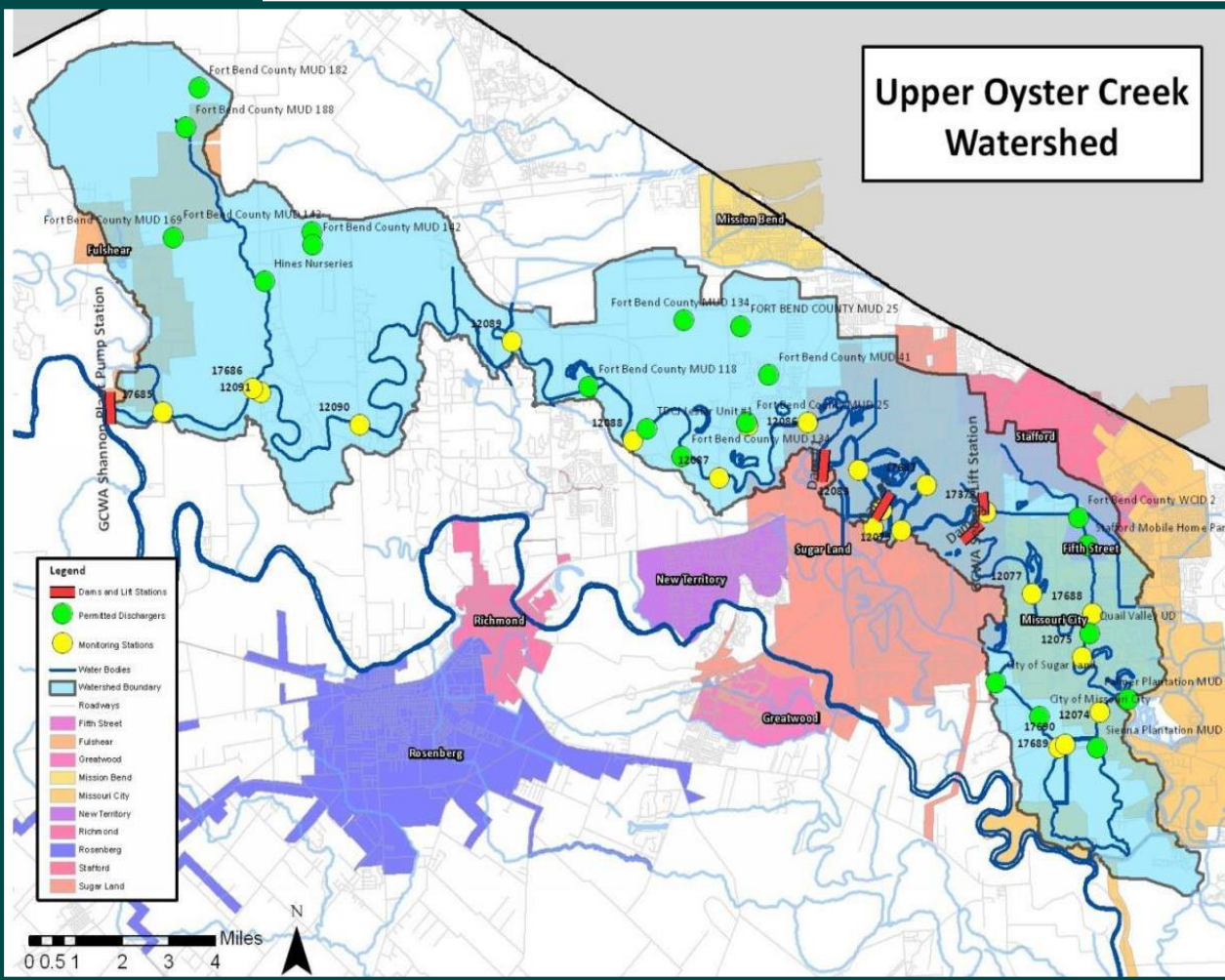
### Assist with Program Administration

- Daily Operation (District Facilities)
- Assist with Implementation of BMPs
- Provide Updates and Documentation to City
- Perform Inspections (District Facilities)
- Respond to Complaints (District Facilities)

## Quiddity Engineering – Resource Manager

- Assist with Implementation of BMPs
- Technical Resource
- QA/QC Annual Reports
- SWMP Development

# Total Maximum Daily Loads (TMDLs)



$$\text{TMDL} = \Sigma \text{WLA} + \Sigma \text{LA} + \text{MOS}$$

- TMDL** = Total Maximum Daily Load
- WLA** = Sum of Waste Load Allocation
- LA** = Sum of Load Allocations
- MOS** = Margin of Safety

# Stormwater Management Program & I-Plan

Minimum Control Measures	Best Management Practices	Duration	Start	Finish	Permit Year 3 (2020 - 2021)											
					Months											
					Oct	Nov	Dec	20-Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>1. Public Education, Outreach, and Involvement</b>																
1.3.1	Utilize MS4 Website	365 Days	Oct	Sept	X	X	X	X	X	X	X	X	X	X	X	X
1.3.2	Educational Information	365 Days	Oct	Sept	X	X	X	X	X	X	X	X	X	X	X	X
1.4.1	Recycling Program/Trash Clean-up	365 Days	Oct	Sept	X	X	X	X	X	X	X	X	X	X	X	X
1.4.2	Storm Drain Marking by Volunteers	365 Days	Oct	Sept	X	X	X	X	X	X	X	X	X	X	X	X
1.4.3	Storm Drain Marking by Developers	365 Days	Oct	Sept	X	X	X	X	X	X	X	X	X	X	X	X
1.4.4	Stakeholder Group	90 Days	Jul	Sept												
1.4.5	Opportunity for Public Comment	365 Days	Oct	Sept	X	X	X	X	X							
<b>2. Illicit Discharge Detection and Elimination</b>																
2.3.1	Maps of Outfalls and Surface Waters	180 Days	Jan	Jun				X	X							
2.4.1	Training for Illicit Discharge Detection and Elimination	90 Days	Jan	Dec	X	X	X	X	X							
2.5.1	Public Reporting using Hotline & Website	365 Days	Oct	Sept	X	X	X	X	X							
2.6.1	Responding to Illicit Discharge and Spills	365 Days	Oct	Sept	X	X	X	X	X							
2.7.1	Source Investigation of Illicit Discharges	365 Days	Oct	Sept	X	X	X	X	X							
2.7.2	List of Businesses	90 Days	Oct	Dec	X	X	X	X	X							
2.8.1	Source Elimination of Illicit Discharge	365 Days	Oct	Sept	X	X	X	X	X							
2.8.2	Follow-up Investigation	365 Days	Oct	Sept	X	X	X	X	X							
2.9.1	Evaluation of Ordinance for Illicit Discharge Detection & Elimination	90 Days	Jan	Mar				X	X							
2.10.1	Septic System Identification & Inspection	365 Days	Oct	Sept	X	X	X	X	X							
2.11.1	Feral Hog Management	365 Days	Oct	Sept	X	X	X	X	X							
<b>3. Construction Site Storm Water Runoff Control</b>																
3.3.1	Evaluation of Ordinance for Construction Site Storm Water Runoff Control	90 Days	Jan	Mar				X	X							
3.4.1	Construction Site Plan Review	365 Days	Oct	Sept	X	X	X	X	X							
3.5.1	Construction Site Inspection & Enforcement	365 Days	Oct	Sept	X	X	X	X	X							
3.6.1	Training for Construction Site Storm Water Runoff Control	90 Days	Oct	Dec	X	X	X	X	X							
3.7.1	Inventory of Construction Sites	365 Days	Oct	Sept	X	X	X	X	X							
3.8.1	Guidance Manual for Construction Site Storm Water Runoff Control	365 Days	Oct	Sept	X	X	X	X	X							
<b>4. Post-Construction Storm Water Management in New Development and Redevelopment</b>																
4.3.1	Evaluation of Ordinance to Address Post-Construction Runoff	90 Days	Jan	Mar				X	X							
4.4.1	Guidance Manual for Post-Construction Storm Water Controls	365 Days	Oct	Sept	X	X	X	X	X							
4.5.1	Inspection Program for Post-Construction Storm Water Controls	365 Days	Oct	Sept	X	X	X	X	X							
4.6.1	Training for Post-Construction Storm Water Controls	90 Days	Oct	Dec	X	X	X	X	X							
4.7.1	Low Impact Design	365 Days	Oct	Sept	X	X	X	X	X							
<b>5. Pollution Prevention/Good Housekeeping for Municipal Operations</b>																
5.3.1	Inventory of Facilities & Storm Water Structural Controls	180 Days	Apr	Sept												
5.4.1	Training for Pollution Prevention & Good Housekeeping	90 Days	Oct	Dec	X	X	X	X	X							
5.5.1	Disposal of Waste	90 Days	Jan	Mar				X	X							
5.5.2	Availability of Spill Response Kits	180 Days	Apr	Sept												
5.6.1	Contractor Oversight	365 Days	Oct	Sept	X	X	X	X	X							
5.7.1	Municipal Operation & Maintenance Activities	90 Days	Jan	Mar				X	X							
5.7.2	Sanitary Sewer System Evaluation	180 Days	Apr	Sept												
5.7.3	O&M Program to Remove Pollutants in Storm Drains	365 Days	Oct	Sept	X	X	X	X	X							
5.7.4	List of Potential Problem Areas	90 Days	Jan	Mar				X	X							
5.7.5	Map all Facilities & Storm Water Structural Controls	180 Days	Jan	Jun				X	X							
5.7.6	Inspections & Assessments on Facilities	180 Days	Apr	Sept												
5.7.7	Evaluation of Standard Operating Procedures for Facilities	90 Days	Jul	Sept												
5.7.8	Storm Water Controls for High Priority Facilities	90 Days	Jul	Sept												



Approved January 15, 2014

Implementation Plan for  
Two Total Maximum Daily  
Loads for Dissolved Oxygen  
and  
One Total Maximum Daily  
Load for Bacteria in  
Upper Oyster Creek

Segment 1245, Upper Oyster Creek

If you're on a sanitary sewer system...

What you flush from your home affects the streams, lakes, and coastal waters in our community.

Don't pour household products such as cleansers, beauty products, medicine, auto fluids, paint, and lawn care products down the drain.

Wastewater treatment facilities are designed to treat organic materials, not hazardous chemicals.

Don't put excess household grease (meat fats, cooking oil, butter and margarine, etc.), diapers, condoms, and personal hygiene products down a drain or flush them.

These materials can clog pipes, and cause raw sewage to overflow in your home or yard, or in public areas.

When the waste water flushed from your toilet or drained from your household sinks, washing machine, or dishwasher leaves your home, it flows through your community's sanitary sewer system to a wastewater treatment facility.

The wastewater is treated by the wastewater treatment facility to reduce or remove pollutants.



For more information, contact:  
Visit us at : <http://www.missouricitytx.gov>

U.S. Environmental Protection Agency,  
[www.epa.gov/owm](http://www.epa.gov/owm)



## HELP PREVENT STORMWATER POLLUTION

### PROPERLY HANDLE YOUR POOL



Only drain your pool when you need to, and it is chemical free

Properly store your pool/ spa chemicals in a covered area to prevent leaks and spills from being exposed to storm water

Drain your pool into the sanitary sewer system, not the storm drains



## Mantenimiento de Tanque Séptico

### Soluciones para la Contaminación de Agua de Tormenta...

#### Cosas para mantener en mente:

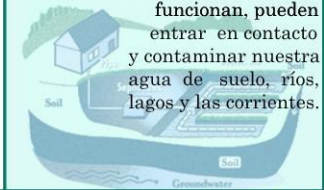
Inspeccione su sistema (cada 1 a 3 años) y bombee su tanque (como sea necesario, generalmente cada 5 años).

No se deshaga de desechos peligrosos en fregaderos o taza de baño. Descargue sólo desecho humano y de mascota, malgaste de agua y papel de baño en tanques sépticos.

Plante césped solamente sobre o cerca de su sistema séptico. Las raíces de árboles o arbustos quizás tapen y dañen el área de desagüero.

No conduzca ni estacione vehículos en ninguna parte de su sistema séptico. Eso puede comprimir la tierra en su área de desagüero o dañar tubos, tanques, u otros componentes del sistema séptico.

Una de las fuentes potenciales de contaminación de agua, es el mal funcionamiento de sistemas sépticos privados. Agua que descarga bacterias dañinas por sistemas sépticos que no funcionan, pueden entrar en contacto y contaminar nuestra agua de suelo, ríos, lagos y las corrientes.



Para mas información, contacte: U.S. Environmental Protection Agency,  
Visitenos en : <http://www.missouricitytx.gov> [www.epa.gov/owm](http://www.epa.gov/owm)



## MCTX ANIMAL SERVICES: REGISTER AND MICROCHIP YOUR PETS WITH THE CITY

Per City ordinance, all dogs and cats over the age of four (4) months must be vaccinated every year for rabies and be registered with Missouri City Animal Services. Pet registration is now available online; please email [animalservices@missouricitytx.gov](mailto:animalservices@missouricitytx.gov) to initiate the process. Residents can also microchip their pets at the Animal Shelter, located at 1923 Scanlin Road. Interested residents must make an appointment by calling 281-403-8707.



## DO YOUR PART TO HELP YOUR COMMUNITY

**DON'T FLUSH THESE DOWN THE TOILET**  
WIPES (EVEN "FLUSHABLE")  
PAPER TOWELS  
RAGS

**DON'T POUR THESE DOWN THE DRAIN**  
FATS  
OILS  
GREASE

### KEEP PIPES FLOWING!

These items may block your household pipes and can cause major issues with your community's sanitary services. This can lead to costly repairs. Instead, throw these items in the trash for proper disposal.



## HELP PREVENT STORMWATER POLLUTION

### PICK UP AFTER YOUR PET

PICK UP THE POOP EVERY TIME, EVERYWHERE



Leaving pet waste on the ground allows harmful bacteria and nutrients to wash into the storm drain, eventually making its way to local bodies of water

THIS CONTAMINATION INCREASES PUBLIC HEALTH RISK

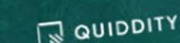


## HELP STOP ILLEGAL DUMPING

- Environmental Hazard
- Public Health Concerns
- Impacts Community & Quality of Life



REPORT ILLEGAL DUMPING TO YOUR MUNICIPALITY





### MISSOURI CITY PUBLIC WORKS:

# CITY STREET SWEEPER

Spring is in the air and it is time to rake the leaves in your yards so they don't end up in the street, clogging storm drains!

The primary function of street sweepers is to remove silt and small debris from the gutter lines of the roadways, as this can restrict rain runoff and cause maintenance issues.

Here are some need-to-know facts about the Street Sweeper Program:

- Residents should bag yard debris (such as leaves) and large trash, as these items can clog the vacuum system of the street sweeper. Technicians must stop sweeping to clear vacuum lines, causing less efficiency and more down time.
- The City of Missouri City currently makes three passes per year down every concrete street within the City limits, excluding private streets.
- Street sweepers are not designed to clean large amounts of yard debris and trash from the roadway.
- Leaves, sticks, yard clippings, etc. are considered solid waste under Missouri City Code of Ordinances Section 78-1.
- Under Section 78-4, it is unlawful to allow solid waste to be thrown, placed or allowed to be released into the storm water system, drainage ways, or upon the sidewalks or City streets.
- It is the responsibility of the property owner to ensure that solid waste is collected and disposed of properly.





**Phase II (Small) MS4 Annual Report Form**  
**TPDES General Permit Number TXR040000**

**A. General Information**

Authorization Number: TXR040298-City of Missouri City and 16 Joint MS4 Districts  
(Authorization Numbers Provided in Section H)

Reporting Year (year will be either 1, 2, 3, 4, or 5): 4

Annual Reporting Year Option Selected by MS4:

Calendar Year: \_\_\_\_\_

Permit Year: \_\_\_\_\_

Fiscal Year: X Last day of fiscal year: September 30

Reporting period beginning date: (month/date/year) October 1, 2021

Reporting period end date: (month/date/year) September 30, 2022

MS4 Operator Level: 3

Name of MS4: MS4 Administrator - City of Missouri City MS4 (the names of the 16  
Joint MS4 Districts is Provided in Section H)

Contact Name: Vincent Silva Telephone Number: 281-403-8567

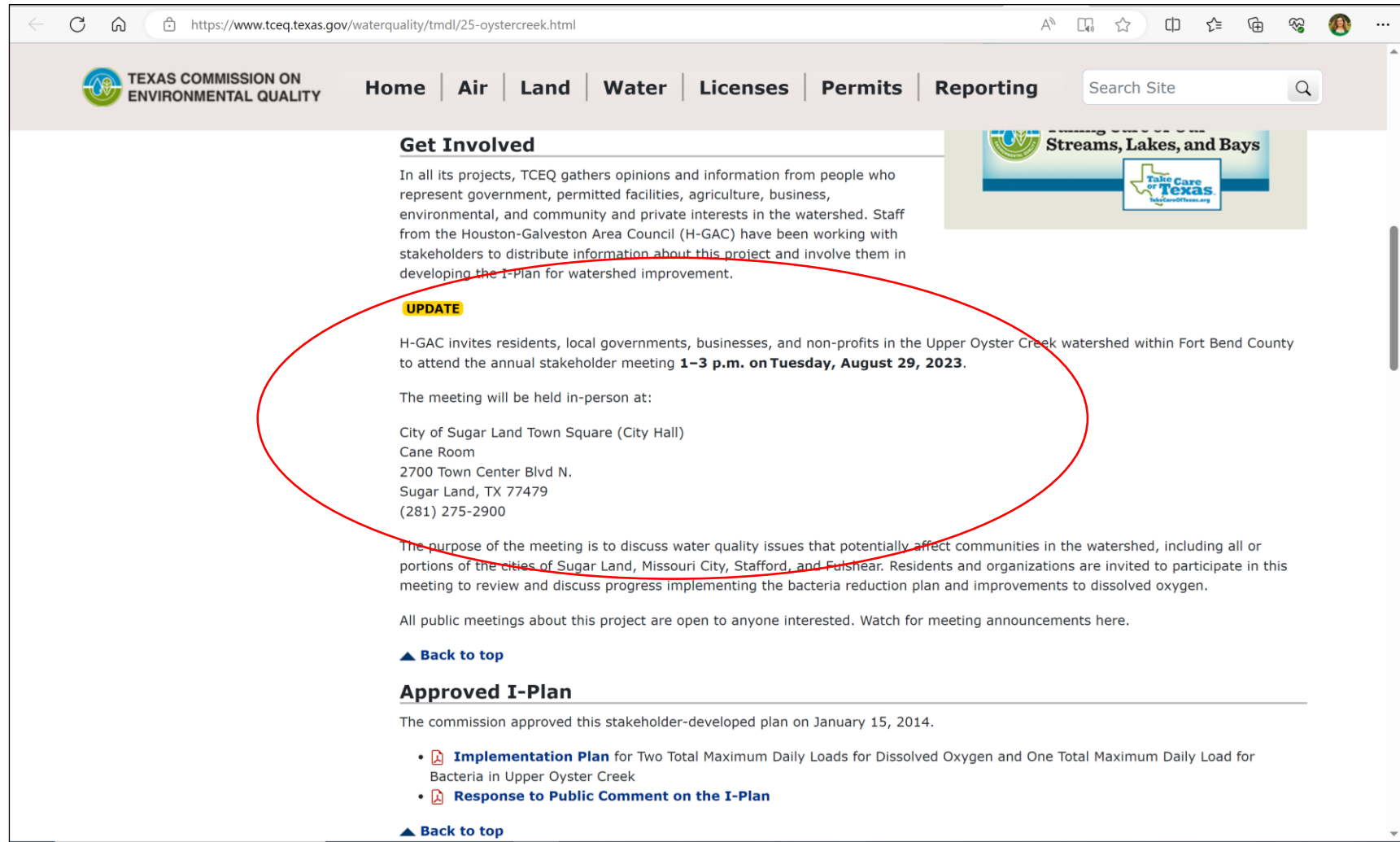
Mailing Address: 1522 Texas Parkway, Missouri City, TX 77489

E-mail Address: Vincent.Silva@missouricitytx.gov

A copy of the annual report was submitted to the TCEQ Region: YES X NO \_\_\_\_\_

Region the annual report was submitted to: TCEQ Region 12

# Upper Oyster Creek Stakeholder Upcoming Meeting



The screenshot shows a web browser window with the URL <https://www.tceq.texas.gov/waterquality/tmdl/25-oystercreek.html>. The page header includes the TCEQ logo and navigation links for Home, Air, Land, Water, Licenses, Permits, and Reporting. A search bar is located on the right. The main content area features a "Get Involved" section with a red oval highlighting the following text:

**UPDATE**

H-GAC invites residents, local governments, businesses, and non-profits in the Upper Oyster Creek watershed within Fort Bend County to attend the annual stakeholder meeting **1–3 p.m. on Tuesday, August 29, 2023.**

The meeting will be held in-person at:

City of Sugar Land Town Square (City Hall)  
Cane Room  
2700 Town Center Blvd N.  
Sugar Land, TX 77479  
(281) 275-2900

The purpose of the meeting is to discuss water quality issues that potentially affect communities in the watershed, including all or portions of the cities of Sugar Land, Missouri City, Stafford, and Patshear. Residents and organizations are invited to participate in this meeting to review and discuss progress implementing the bacteria reduction plan and improvements to dissolved oxygen.

All public meetings about this project are open to anyone interested. Watch for meeting announcements here.

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**Approved I-Plan**

The commission approved this stakeholder-developed plan on January 15, 2014.

- [Implementation Plan](#) for Two Total Maximum Daily Loads for Dissolved Oxygen and One Total Maximum Daily Load for Bacteria in Upper Oyster Creek
- [Response to Public Comment on the I-Plan](#)

[▲ Back to top](#)

<https://www.tceq.texas.gov/waterquality/tmdl/25-oystercreek.html>



# CONCLUSION

## Everyone Needs to Know the Purpose of the Program

- MUD Board of Directors/City Council
- District Engineer/District Operator
- Residents/Community Members

## Know Everyone's Roles and Responsibilities

- Ability to Address Questions/Concerns
- Implementation Measures Continuously Occur



From Rhode Island Dept. of Environmental Management

## Contact Us:

# Thank you!

**Vincent Silva, CIP**

[Vincent.Silva@missouricitytx.gov](mailto:Vincent.Silva@missouricitytx.gov)

281-403-8567



**Liz Stone, CPESC**

281-363-4039

[lstone@quiddity.com](mailto:lstone@quiddity.com)



**QUIDDITY**  
ENGINEERING

**Camila Biaggi, ENV SP, CFM**

346-231-0910

[cbiaggi@quiddity.com](mailto:cbiaggi@quiddity.com)



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