

Wrangling Trash from Waterways – Texas Style

May 28, 2021



North Central Texas
Council of Governments

**TRASH
FREE
TEXAS**



Agenda

- Welcome and Housekeeping
- Introduction to Trash Free Waters Program
- Why Address Floatables
- Poll Questions
- Speakers
 - Perry Harts, City of Frisco
 - Rick Masters, City of Pasadena
 - Wayne Tschirhart, San Antonio River Authority
- Q&A
- NCTCOG Resources
- Thank You & Conclusion

Welcome & Housekeeping

- Please keep your line on mute until the end of all the presentations.
- We will have an open Q&A session at the end of the presentations. Please type your question in the chat box or type in your request to speak.
- The webinar slides and recording will be posted on NCTCOG's Trash Free Waters project website at:
<https://nctcog.org/trashfreewaters>

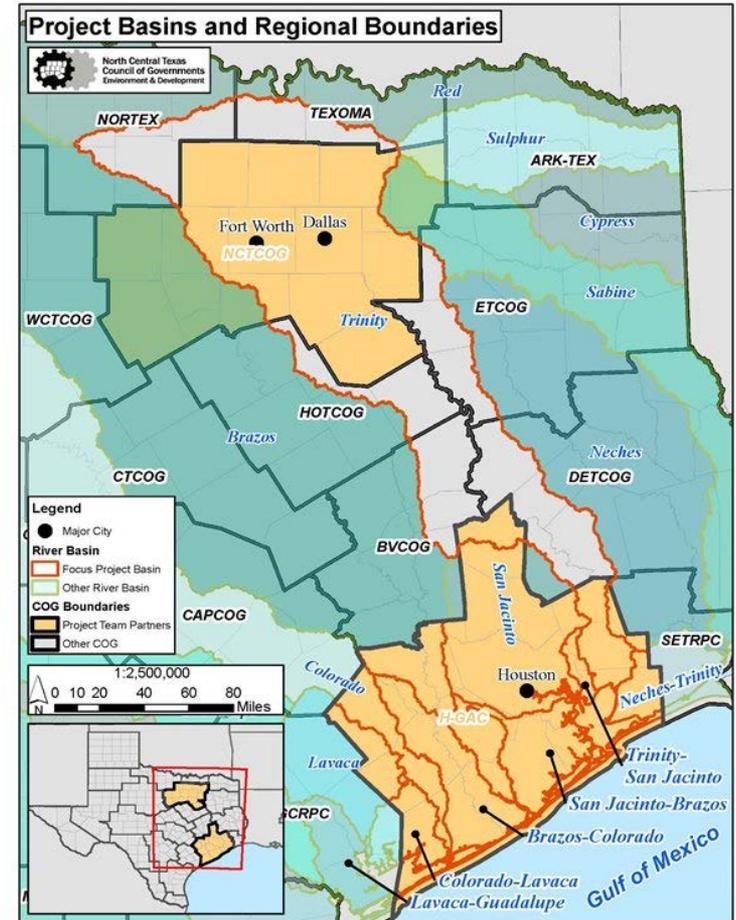


Trash Free Waters Project

Project Partners and Regions:



THE MEADOWS CENTER
FOR WATER AND THE ENVIRONMENT
TEXAS STATE UNIVERSITY





Trash Free Waters Project

Tasks and Goals of the Trash Free Waters Project:

- Promote the use of the Trash Free Texas (TFT) website statewide - www.trashfreetexas.org
 - Increase the Adopt-a-Spot cleanup locations on TFT from as many entities as possible
 - Publish a Local Government Trash Reduction and Educational Toolkit to TFT



Trash Free Waters Project

Tasks and Goals of the Trash Free Waters Project cont.:

- Reduce use of plastics, such as straws and utensils, at restaurants through a voluntary program
- Engage and Educate
 - Mayor's Challenges (Regional competitions on trash collection)
 - Cleanup events that include hobby groups, i.e. paddling and running groups
 - Newsletters and Webinars



Why Address Floatables?

- Approximately 362 million pieces of litter accumulate on Texas roads each year.
- 71% of litter consists of micro litter, which is two inches or smaller, such as cigarette butts, straws, and gum wrappers.
- Recyclables, such as beverage containers and paper, make up 25% of the litter on Texas roads. *Source: [Don't mess with Texas](#)
- Trash, packaging, and improperly disposed waste from sources on land accounts for 80% of the marine debris found on beaches during cleanups and surveys. * Source: [EPA Trash-Free Waters](#)

Why Address Floatables?

- It is costly...

\$50 Million Annually
to Prevent, Educate, Abate,
Enforce Litter and
Illegal Dumping Efforts in
just 9 Texas cities*

*Source: Texans for Clean Water. Study of nine cities in Texas, representing 25% of the state's population, documented expenditures of more than \$50 million annually on prevention, education, abatement, and enforcement efforts to address litter and illegal dumping in their communities and waterways (Burns & McDonnell, 2017).

- It is an eyesore...



Photo Source: Teresa Patterson, Trinity Coalition



Why Address Floatables?

- Increase flooding risk
- Water quality issues
- Stormwater permit requirements
 - Part of MCMs or floatables management program



Poll Questions

To participate in poll questions:

Online:

1. Go to Pollev.com
2. Enter NCTCOGENV444

Text:

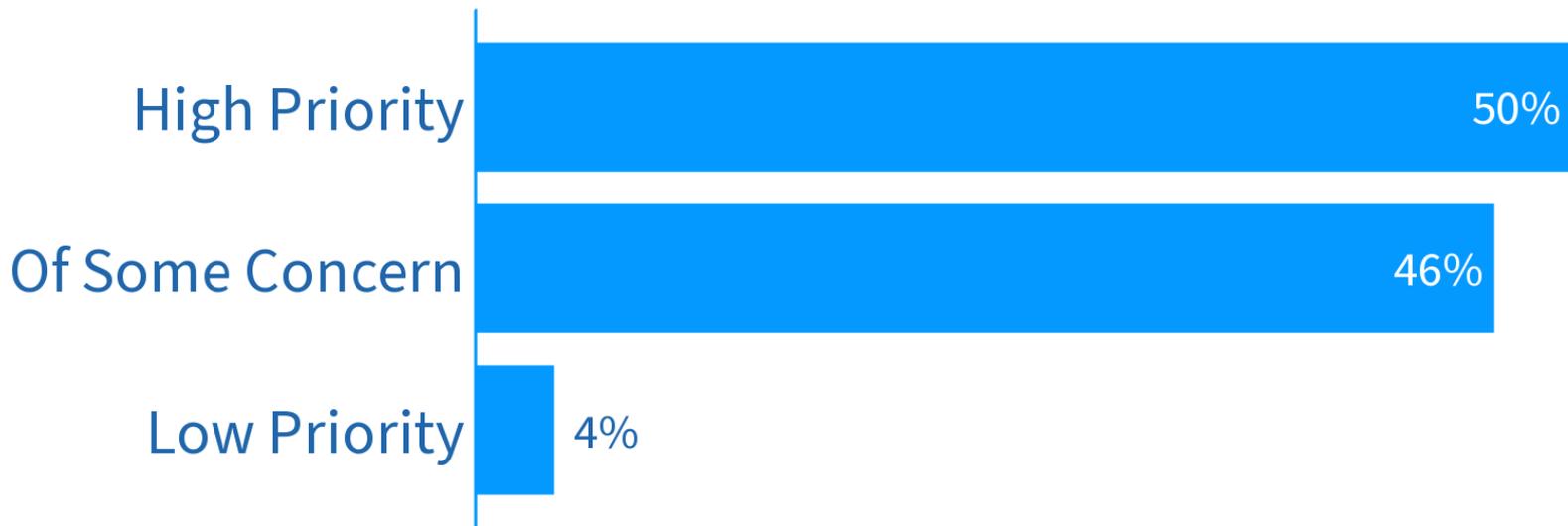
1. Text NTCCOGENV444 to 22333

Poll Question

When poll is active, respond at pollev.com/nctcogenv444

Text **NCTCOGENV444** to **22333** once to join

Where does addressing floatables fall as a priority for your municipality or organization?

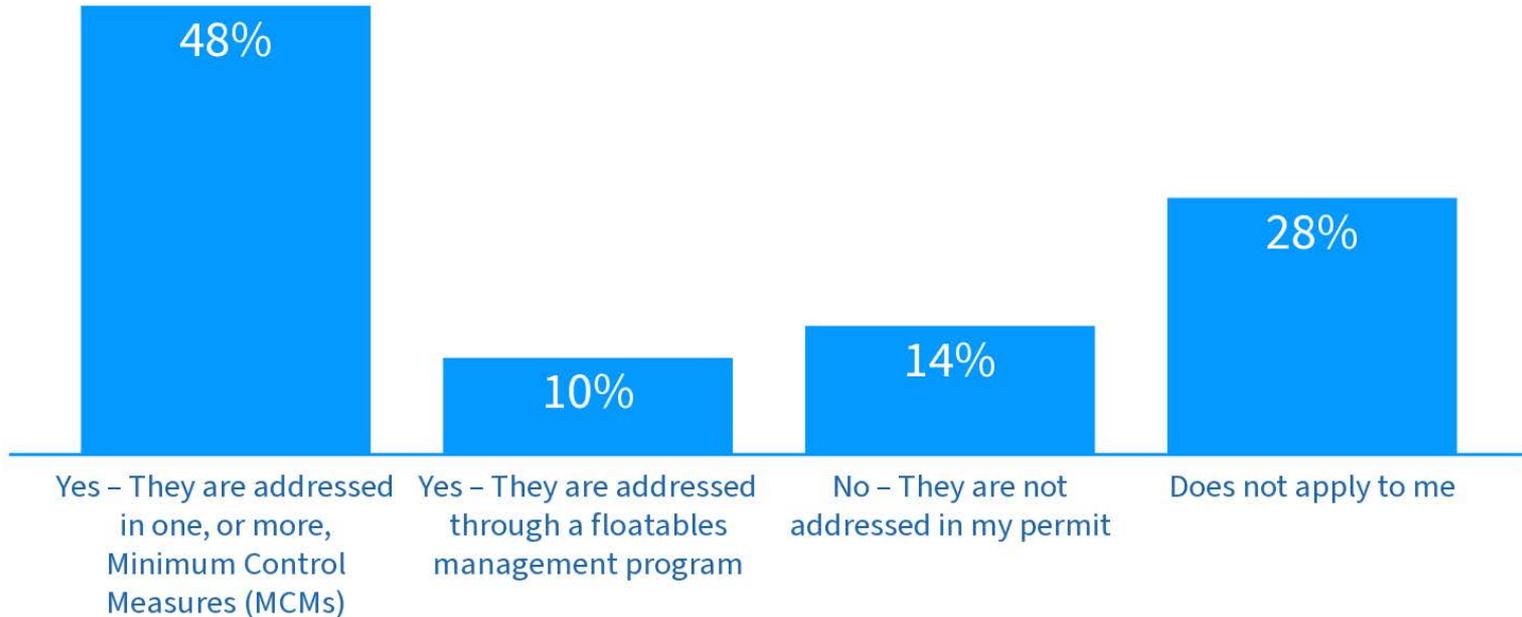


Poll Question

When poll is active, respond at pollev.com/nctcogenv444

Text **NCTCOGENV444** to **22333** once to join

Is addressing floatables in your Stormwater permit?





Speaker Bios

Perry Harts

Perry has 34 years of experience in municipal government in the north central Texas area. He has been with the City of Frisco since 1999. In 2010 he helped create the stormwater division which includes environmental compliance and infrastructure. He is currently the division manager. He is a Professional Engineer and Certified Professional in Stormwater Management (CPMSM).

Rick Masters

Rick is a Senior Environmental Scientist with the City of Pasadena. He has over 23 years of environmental, GIS and software development experience focused in the area of water quality which has included water chemistry, planning, database development and permitting at both the State and Federal levels. He is also the Project Manager of numerous database development projects and geographical information system (GIS) projects for Cities, Drainage Districts and Water Districts in and around southeast Texas. Rick has also worked with Orange and Hardin counties, the Texas Dept. Of Transportation, and City of Beaumont. He has a BAAS in Biology from Lamar University, is a Certified Flood Plain Manager, and is a Certified Professional in Stormwater Quality and Certified Professional in Erosion and Sediment Control.

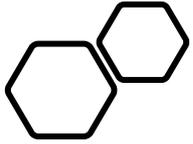
Wayne Tschirhart

Wayne is a Senior Technical Engineer for the San Antonio River Authority. His professional experience includes meteorological and oceanographic forecasting, hydrometeorological modeling, rainfall and SCADA telemetry, floodplain mapping, flood forecasting, and dam safety modeling over the last 40 years. Prior to working with SARA, he worked for the Guadalupe-Blanco River Authority, Texas Water Development Board, National Weather Service, and the U.S. Navy. He has a BS degree in Meteorology from Texas A&M and a BS degree in Civil Engineering from the University of Texas.



Perry Harts, PE, CPMSM City of Frisco

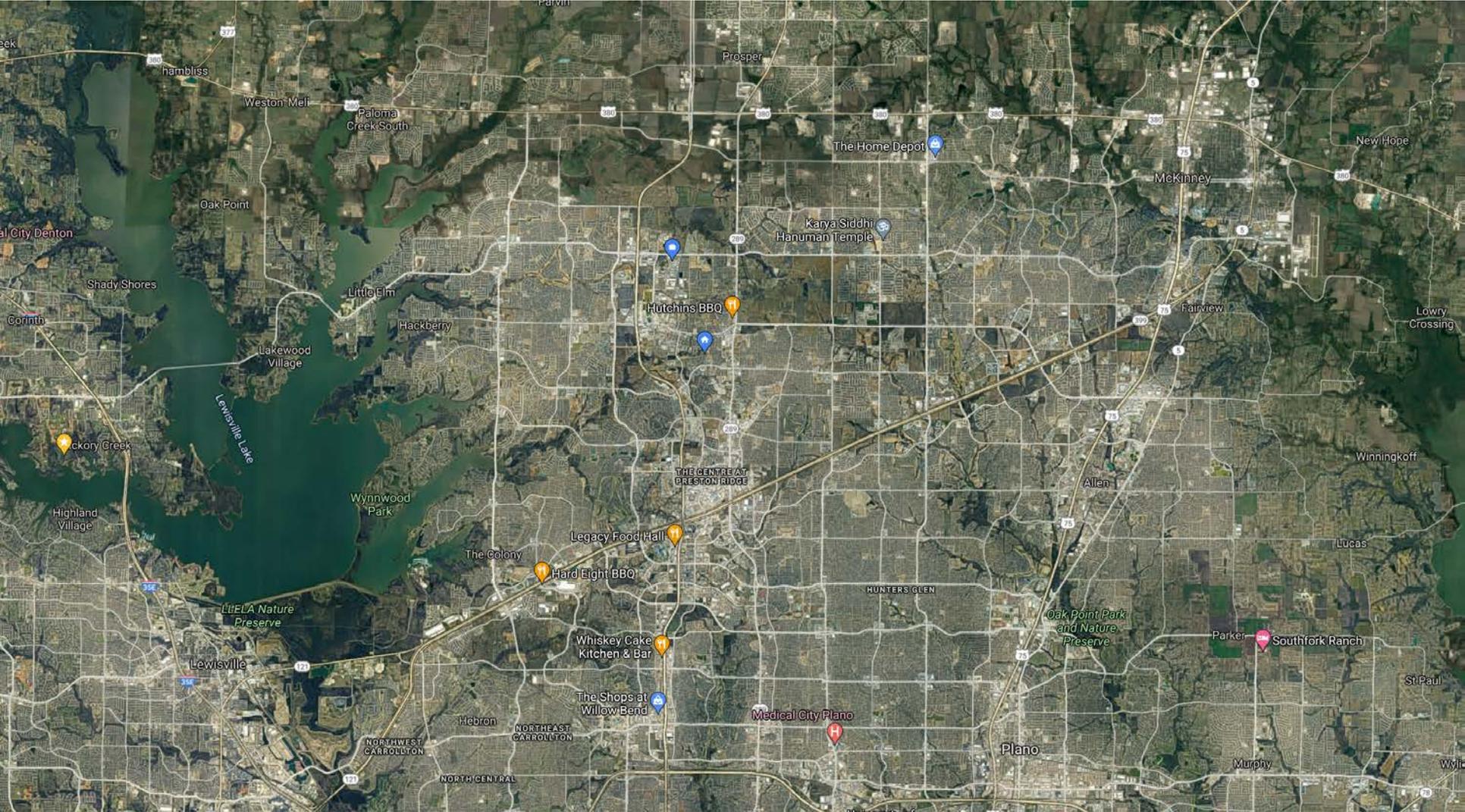


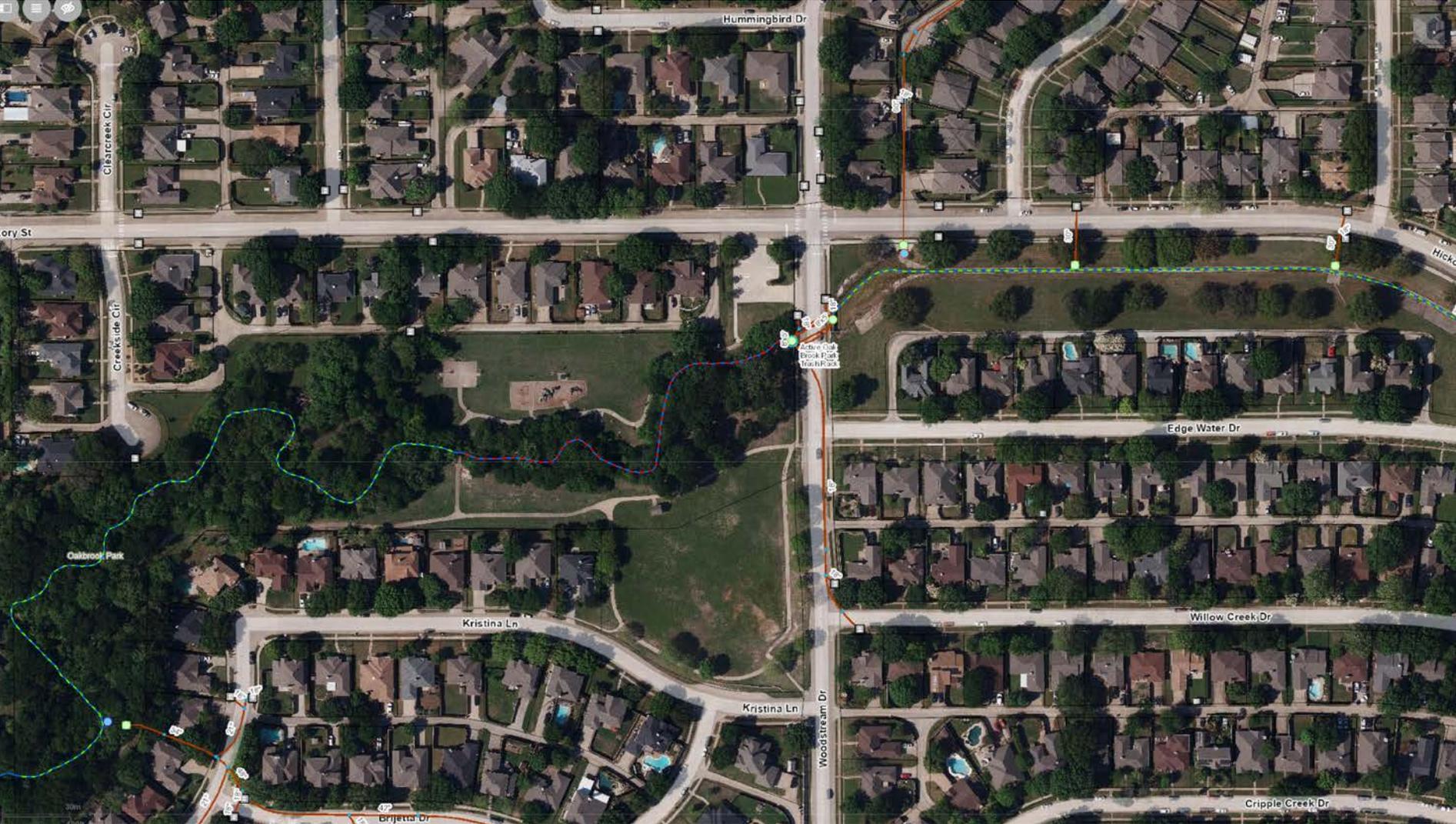


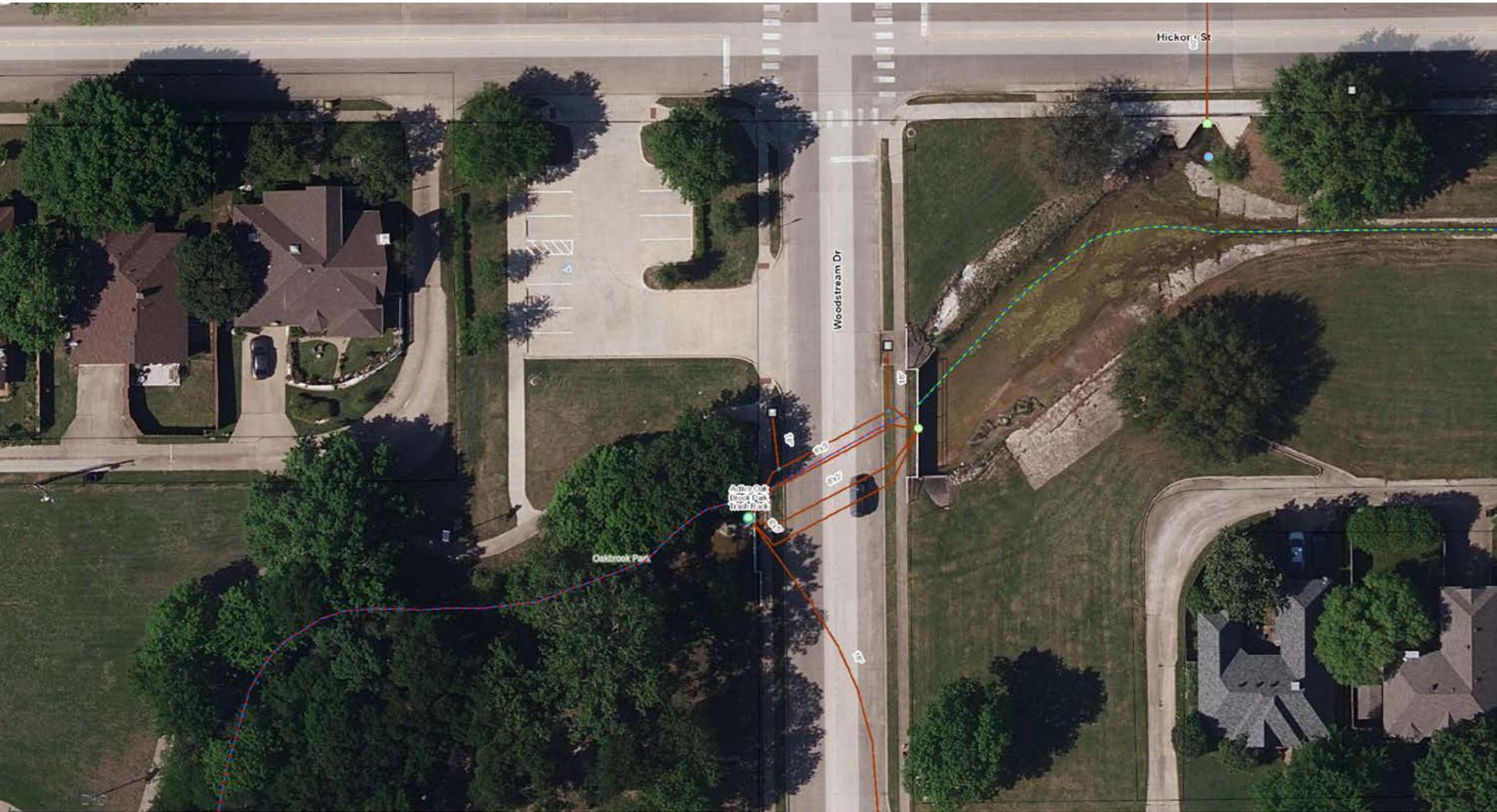
The Frisco Trash Rack

From Inception to Operation







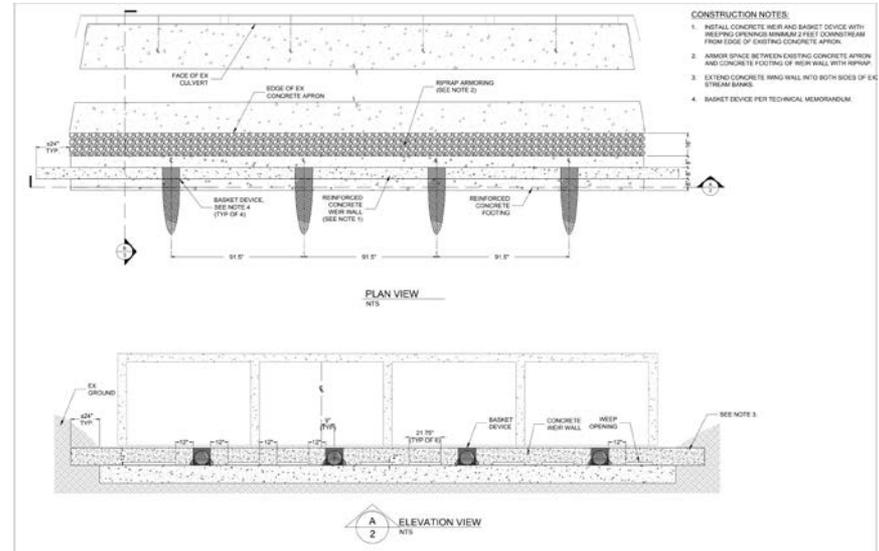
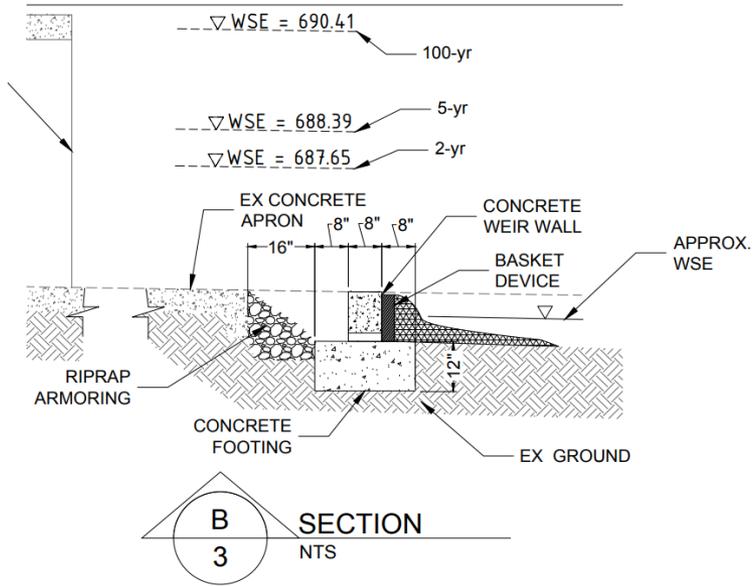


Hickory St

Woodstream Dr

Oakbrook Park

Admission Booth



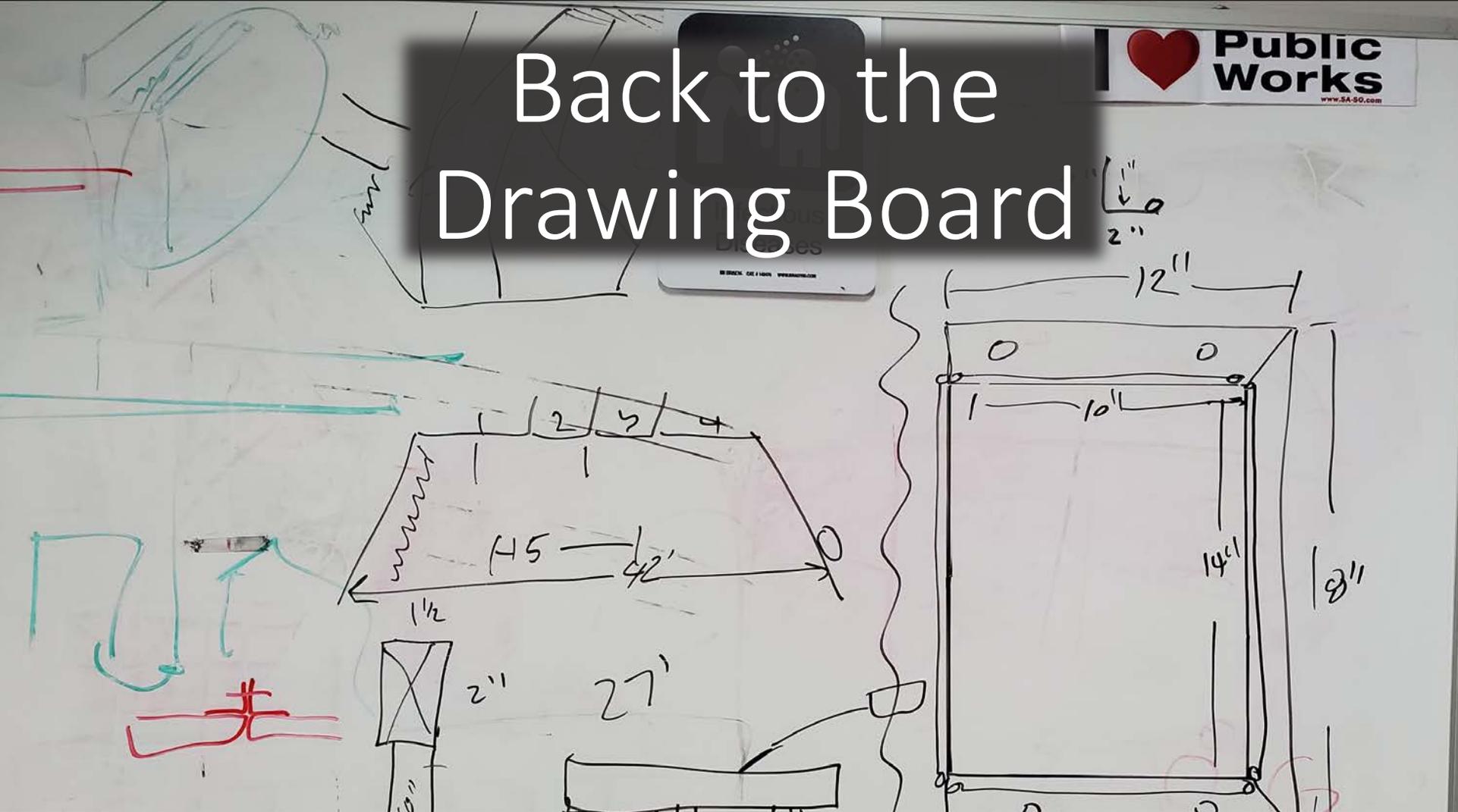
Approach not used

Using commercially available products.

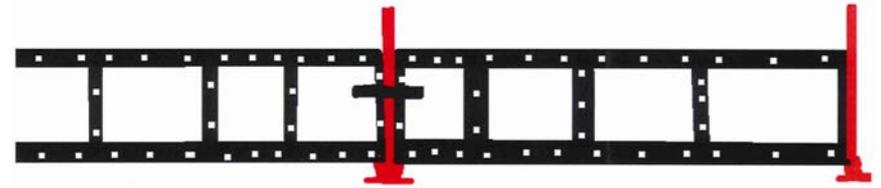
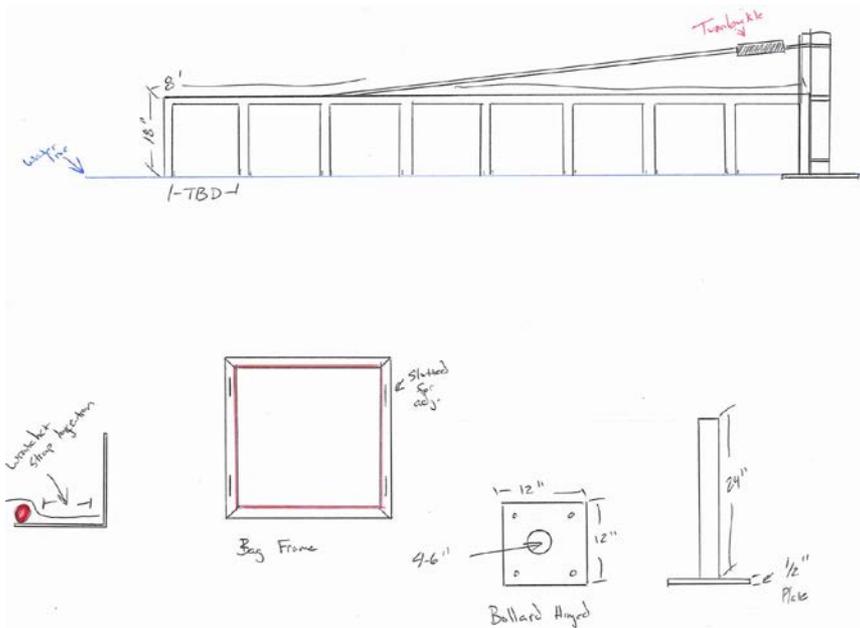
Reasons Not to Use the Product

- Construction Cost
 - Redirect the creek for construction
 - Removing trees
 - Digging in the creek bed
- Maintenance Cost
- Inflexibility

Back to the Drawing Board



Design takes Form

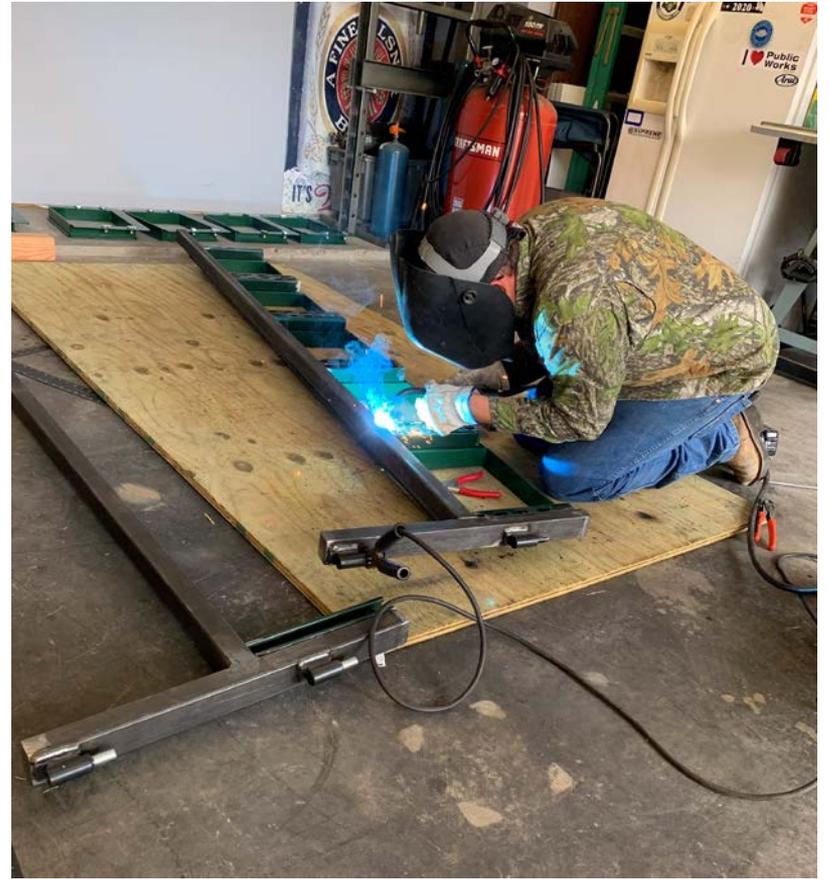
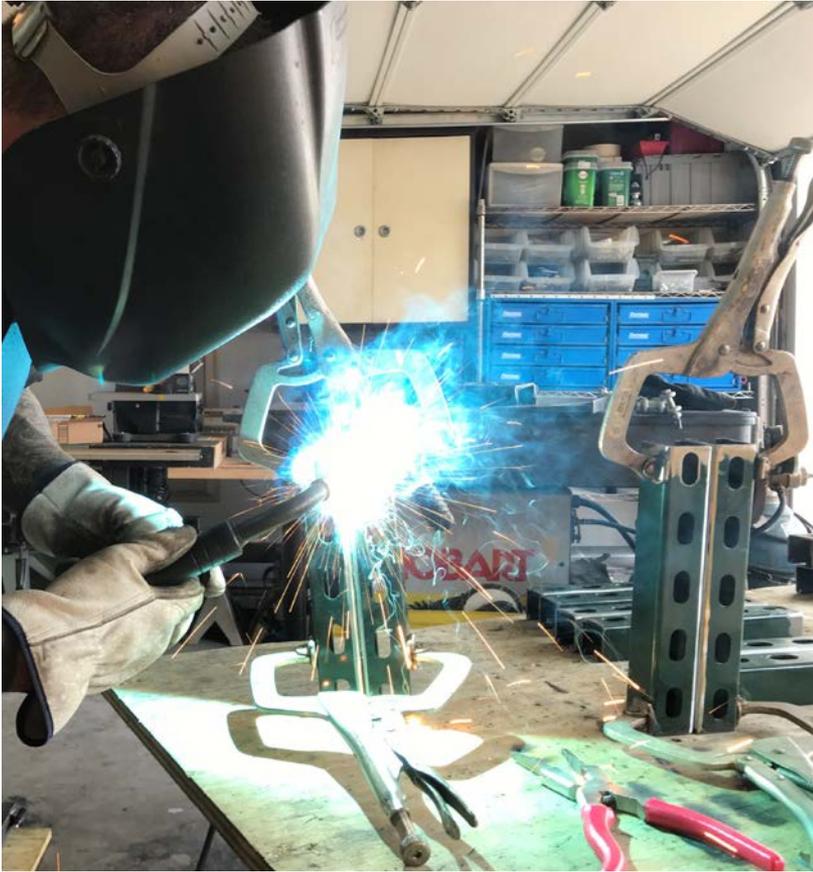


Fabrication





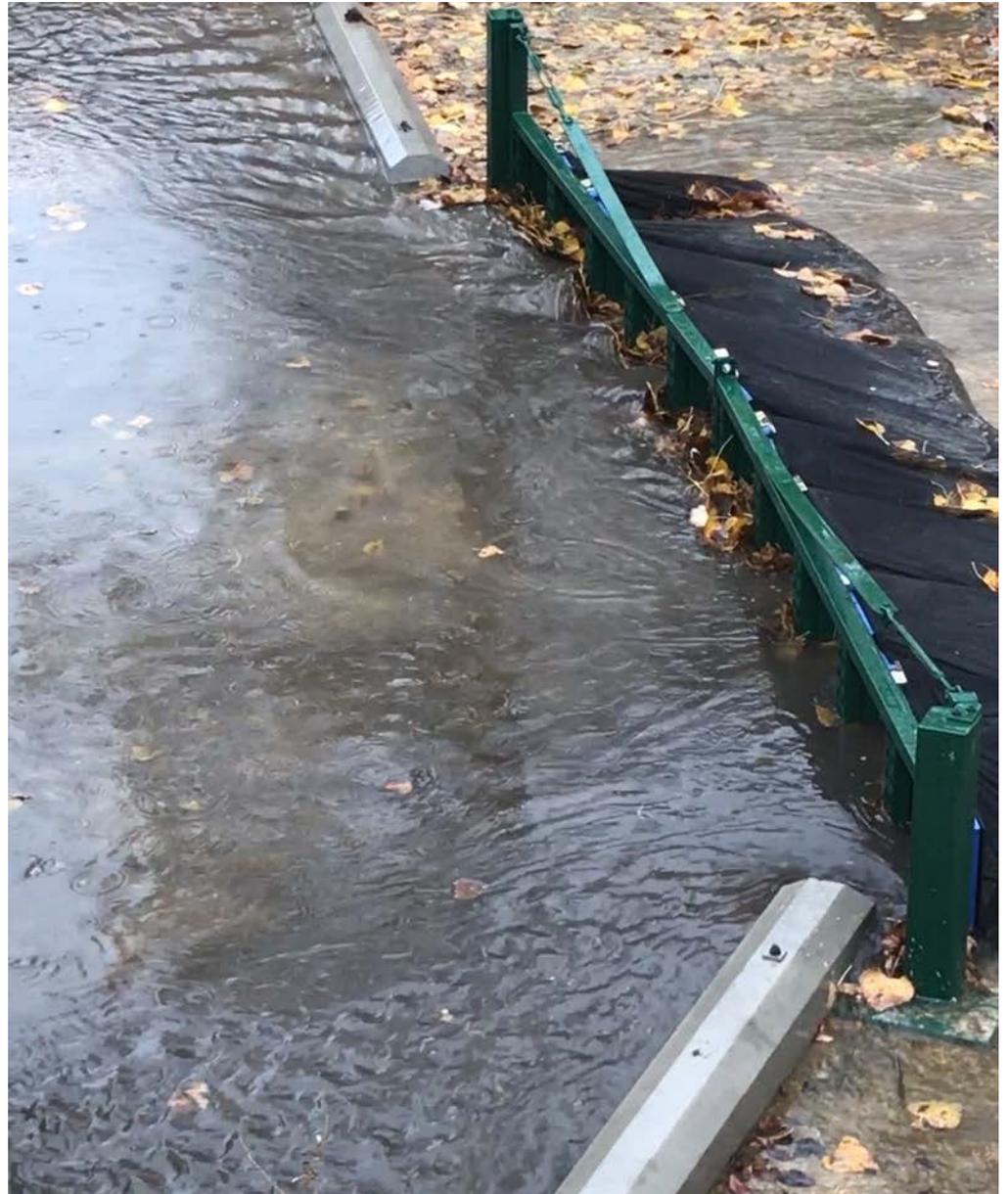
Painting



Installation



Catching Debris



Operation

Result of a heavy rain event.



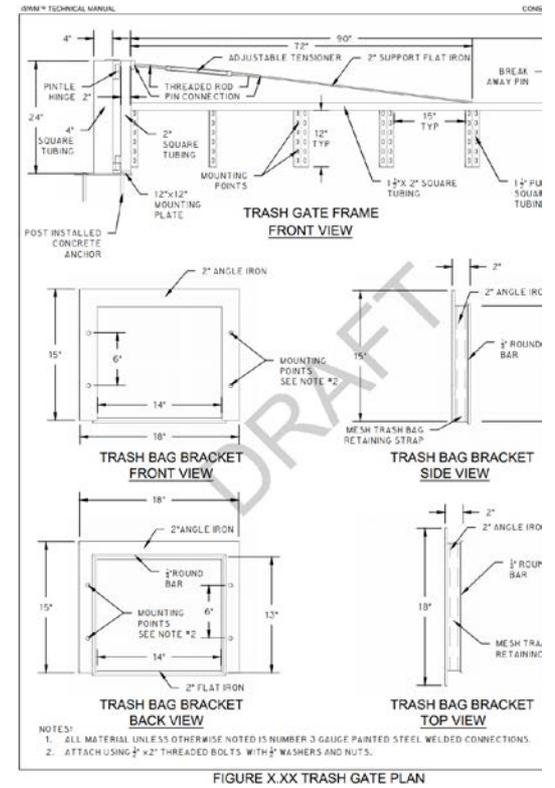
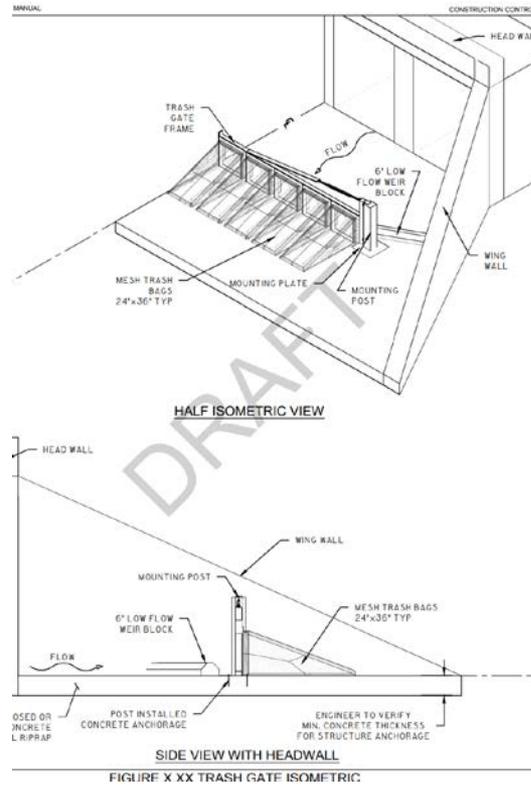


Maintenance

Debris is weighed and included on annual report to TCEQ.

Sharing with other cities

NTCOG has included the Frisco Trash Rack in their standard iSWM details.



Key Features

- Shear pins
 - Flooding
 - Large debris jam
 - Structural requirements reduced
- Uses existing concrete apron
- Construction does not require re-routing the creek.



Questions



Rick Masters, CFM, CPESC, CPSWQ, MTA
City of Pasadena





Floatable Materials Monitoring and Collection City of Pasadena Phase I MS4 Permit Requirements and Current Activities



Rick Masters, CPESC, CPSWQ, MTA
Senior Environmental Scientist

LJA Engineering, Inc. 
AN EMPLOYEE-OWNED
COMPANY

3120 Fannin Street
Beaumont, TX 77701
Office: (409) 554-8985
Cell: (409) 893-1493
Fax: (409) 833-0317
Email: rmasters@ljaengineering.com



Floatable Materials Monitoring and Collection City of Pasadena Phase I MS4 Permit Requirements and Current Activities







TEXAS COMMISSION
ON ENVIRONMENTAL QUALITY
P. O. Box 13087
Austin, Texas 78711-3087

PERMIT TO DISCHARGE UNDER THE TEXAS
POLLUTANT DISCHARGE ELIMINATION SYSTEM
under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

PART I. AUTHORIZATION

City of Pasadena
P.O. Box 672
Pasadena, Texas 77501

is authorized to discharge from to discharge from the City of Pasadena Municipal Separate Storm Sewer System (MS4) (SIC 911)

including all areas, except for any agricultural lands, located within the corporate boundary of the City of Pasadena served by, or otherwise contributing to discharges to the MS4 owned or operated by the permittee, located in Harris County, Texas, 77501, 77502, 77503, 77504, 77505, and 77506

via the MS4 to various ditches and tributaries that eventually reach the Houston Ship Channel Tidal, Houston Ship Channel/Bufalo Bayou Tidal, Armand Bayou, and Upper Galveston Bay, in Segment Nos. 1006 and 1007 of the San Jacinto River Basin, Segment No. 1113 of the San Jacinto-Brazos Coastal River Basin, and Segment No. 2421 of the Bays and Estuaries

only according to conditions set forth in this permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ), the laws of the State of Texas, and other orders of the TCEQ. The issuance of this permit does not grant to the permittee the right to use private or public property for conveyance of storm water and certain non storm water discharges along the discharge route described in this permit. This includes, but is not limited to, property belonging to any individual, partnership, corporation or other entity. Neither does this permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This permit shall expire at midnight, five (5) years from the date of issuance.

ISSUED DATE: October 18, 2011

M. P. Wiley
For the Commission

TPDES PERMIT NO.
WQ0004524000
[For TCEQ office use only - EPA
I.D. No. TXS001701]

This is a renewal of TPDES
Permit No. WQ0004524000
issued on February 23, 2006.

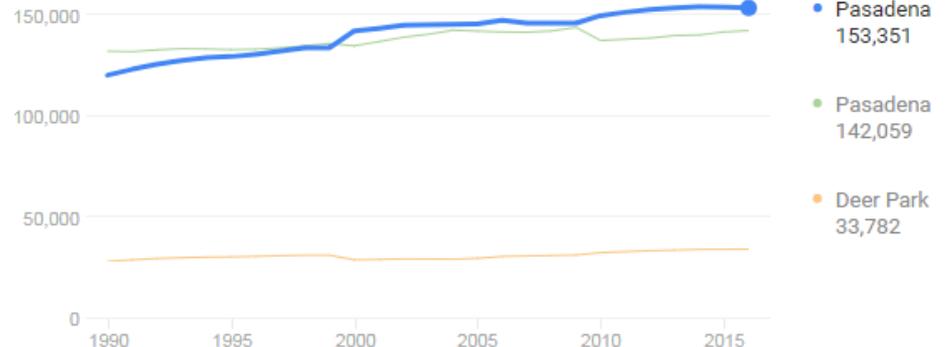
City of Pasadena, Texas:



- Phase I MS4 Permittee
- Discharges Stormwater To Armand Bayou and the Houston Ship Channel – both waterways end up in Galveston Bay.

Pasadena / Population

153,351 (2016)





Floatable Materials Monitoring and Collection
City of Pasadena Phase I MS4 Permit Requirements and Current Activities

City of Pasadena

TPDES Permit No. WQ0004524000

B. SWMP Components

The SWMP must contain the following minimum control measures (MCMs) for:

1. MS4 Maintenance Activities:

- a. *Structural Controls:* To the maximum extent practicable (MEP), the permittee shall operate and maintain the MS4, including any storm water structural controls in such a manner as to reduce erosion and the discharge of pollutants.
- b. *Floatables:* The permittee shall implement a program to reduce the discharge of floatables (for example, litter and other human generated solid refuse) into the MS4. This program element must include source controls at a minimum, and structural controls and other appropriate controls where necessary.
- c. *Roadways:* The permittee shall operate and maintain public streets, roads, and highways in a manner that minimizes the discharge of pollutants, including those pollutants related to deicing or sanding activities.



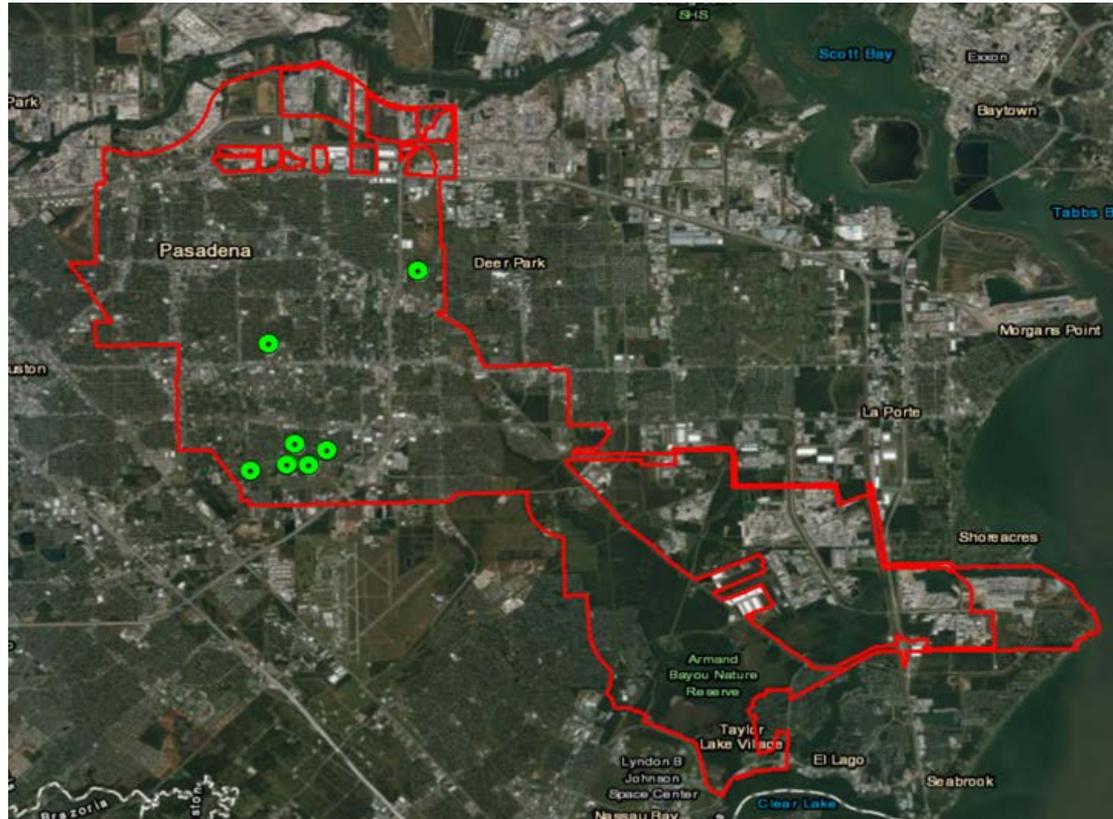
Floatable Materials Monitoring and Collection City of Pasadena Phase I MS4 Permit Requirements and Current Activities

B. Floatables Monitoring

The permittee shall maintain two monitoring locations for removal of floatable material in discharges to or from the MS4. Floatable material shall be collected at the frequency necessary for maintenance of the removal devices, but not less than twice per year. The amount of material collected shall be estimated by weight, volume, or by other practical means. Results must be included in the Annual Report required in this permit.

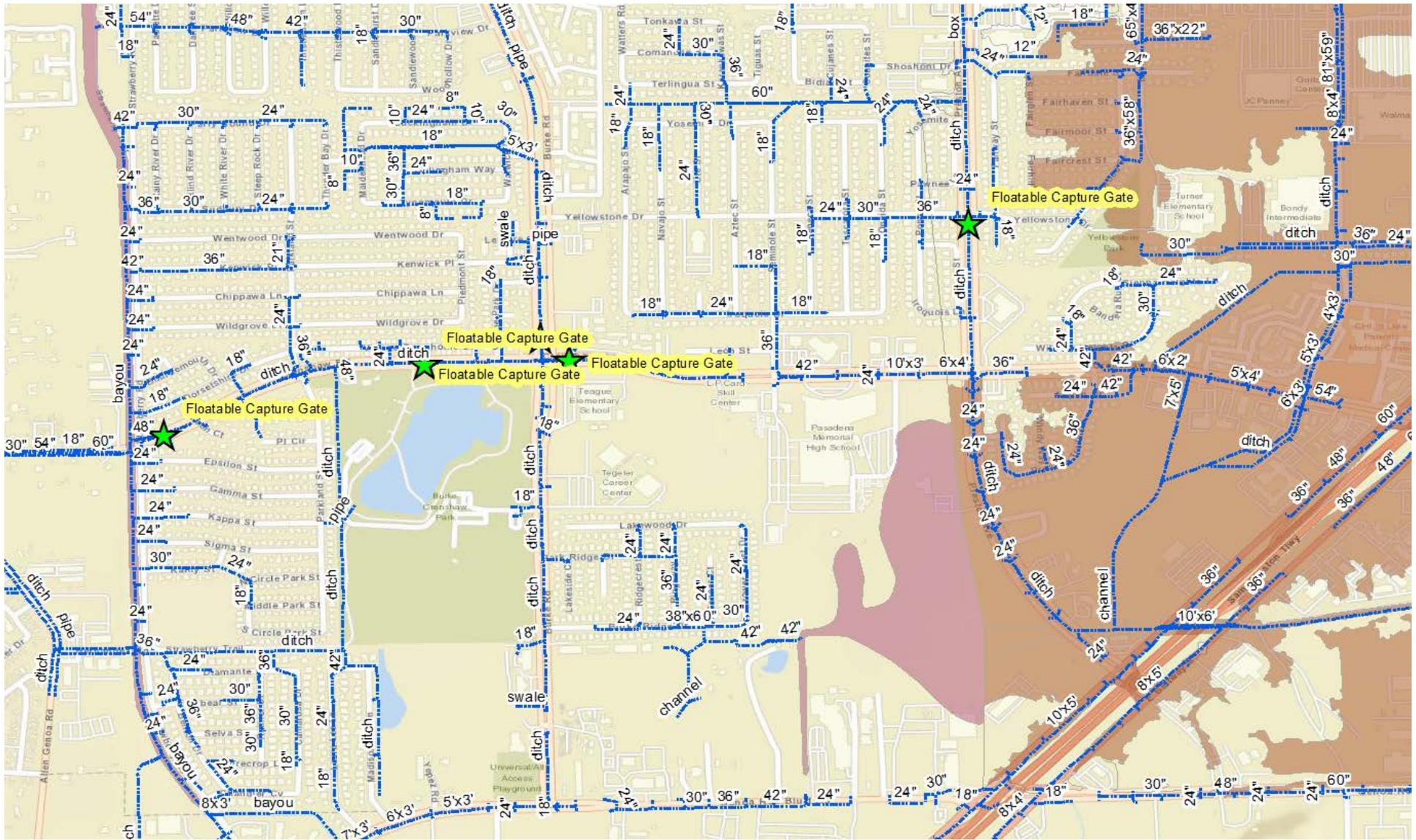


Floatable Materials Monitoring and Collection City of Pasadena Phase I MS4 Permit Requirements and Current Activities

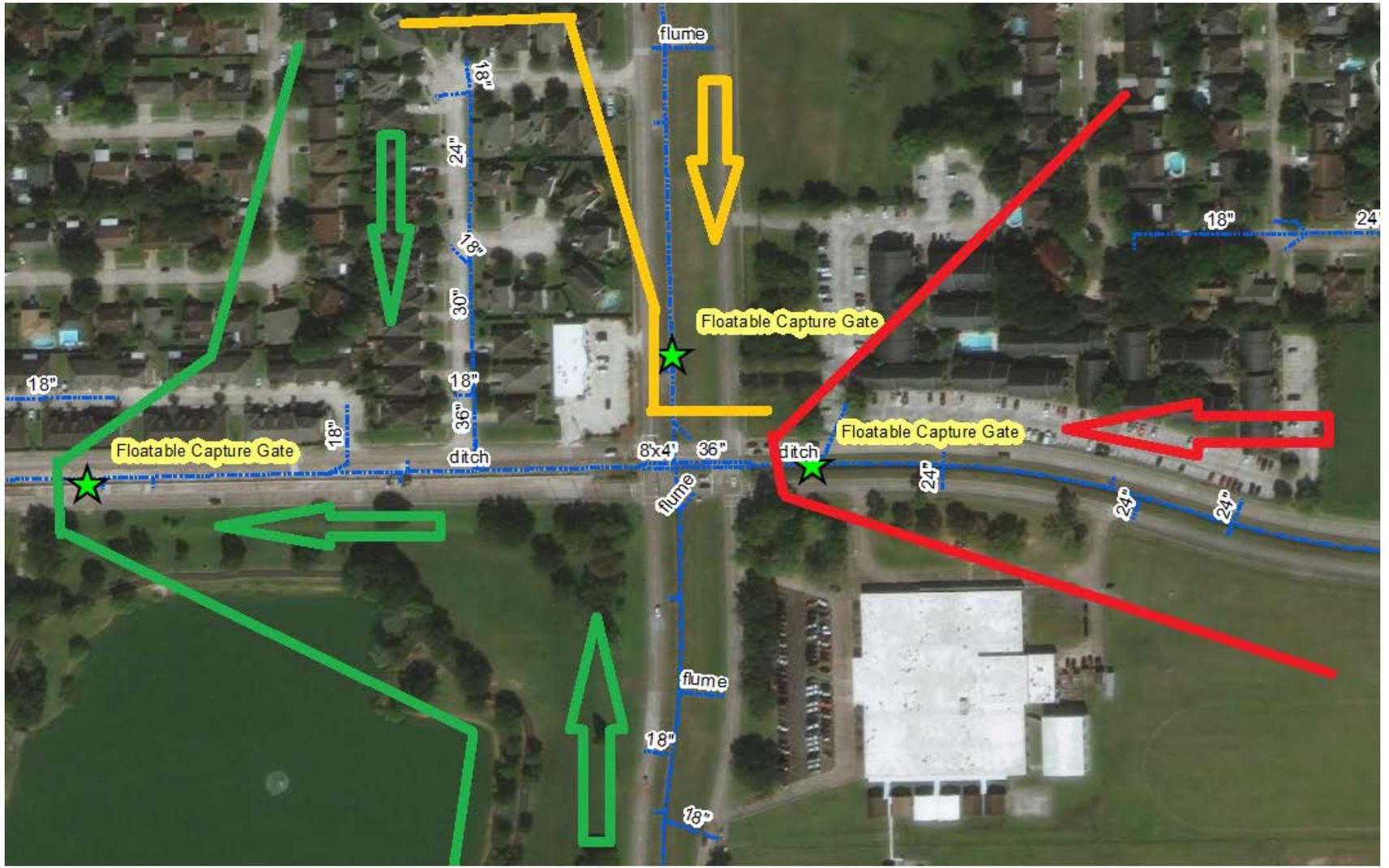


7 Floatable Monitoring Locations

- #1 & #2 Capture Gates at Burke @ Crenshaw
- #3 Stadium
- #4 Preston @ Yellowstone
- #5 Strawberry @ Crenshaw
- #6 New Crenshaw @ Burke
- #7 South Street Soccer Fields (Donated)



Floatable Capture Gate



Development of a plan for the future

- Identify all good locations for floatable capture systems
 - Not tidally influenced, mid-basin locations are preferable (wildlife)
 - Adequate right-of-way for maintenance
 - Upstream of natural waterways
 - Linear reaches with good anchor points, small open channels
 - Placed in series in some situations
- Prepare map and capital budget
 - Measure cross-sectional widths (width in feet x \$1000.00)
- Prepare budget and implementation plan/strategy
 - Currently the systems are inspected by Waterway Cleanup Services
 - Systems are cleaned by City employees



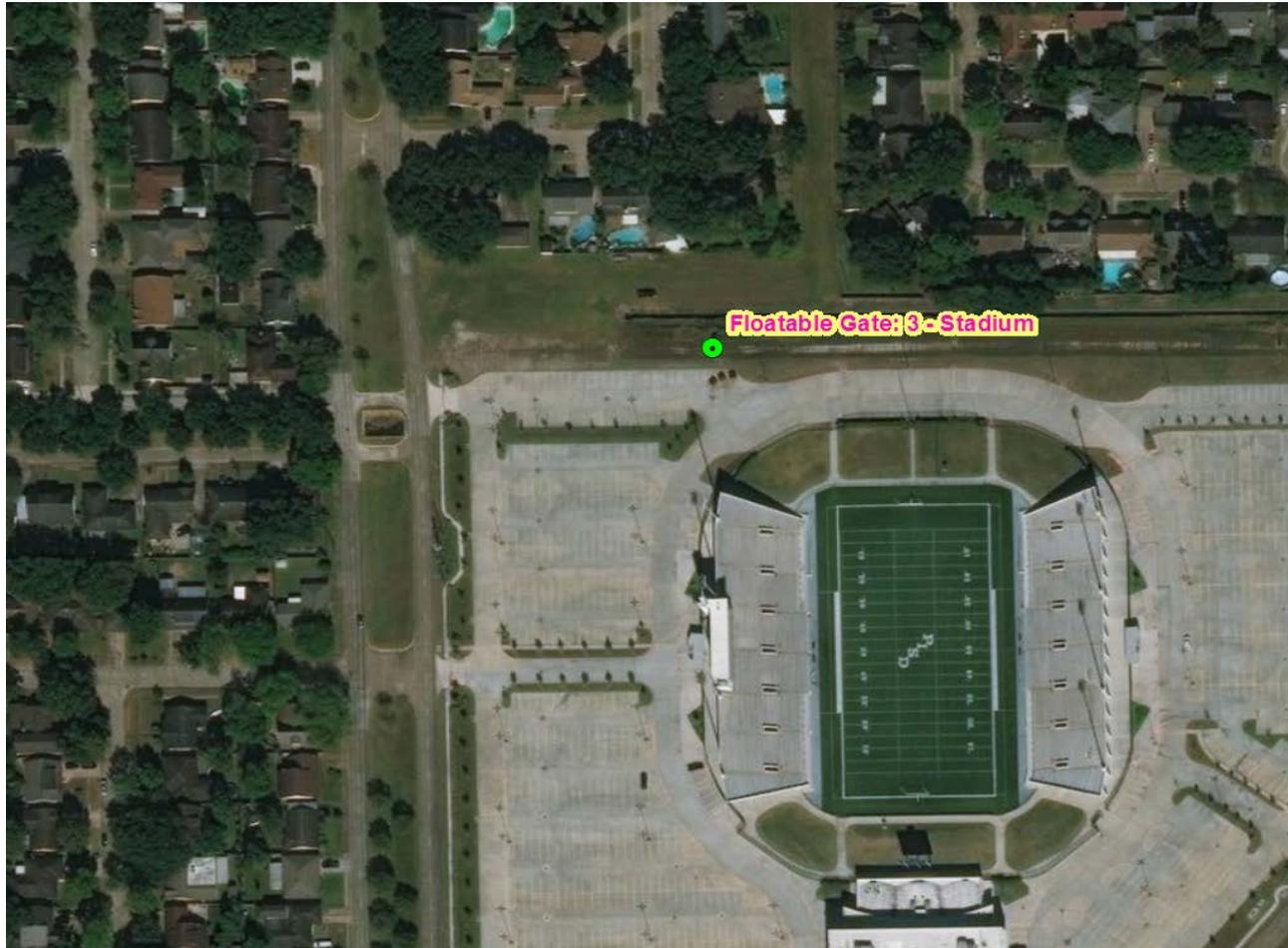


Floatable Materials Monitoring and Collection City of Pasadena Phase I MS4 Permit Requirements and Current Activities



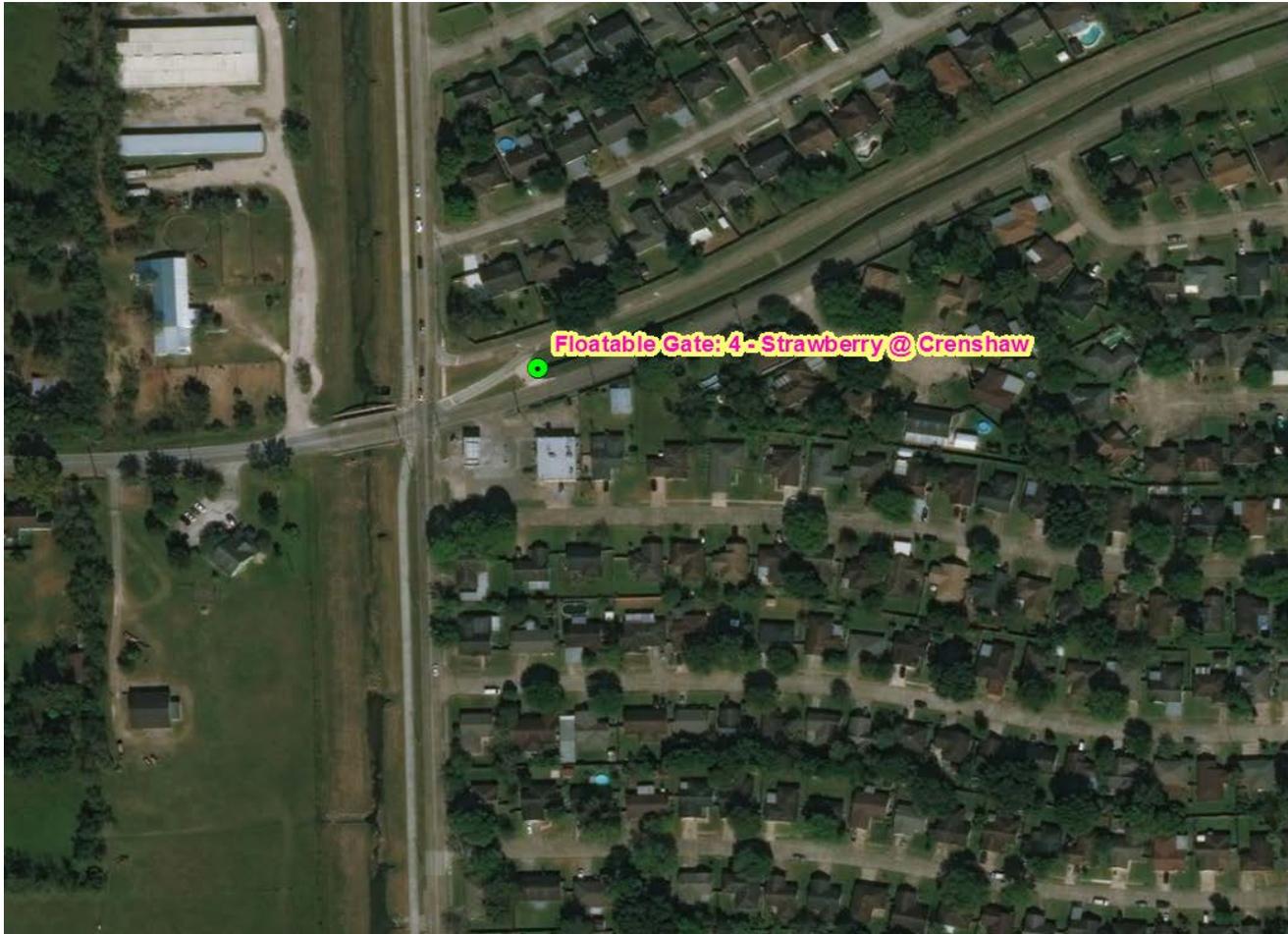


Floatable Materials Monitoring and Collection City of Pasadena Phase I MS4 Permit Requirements and Current Activities



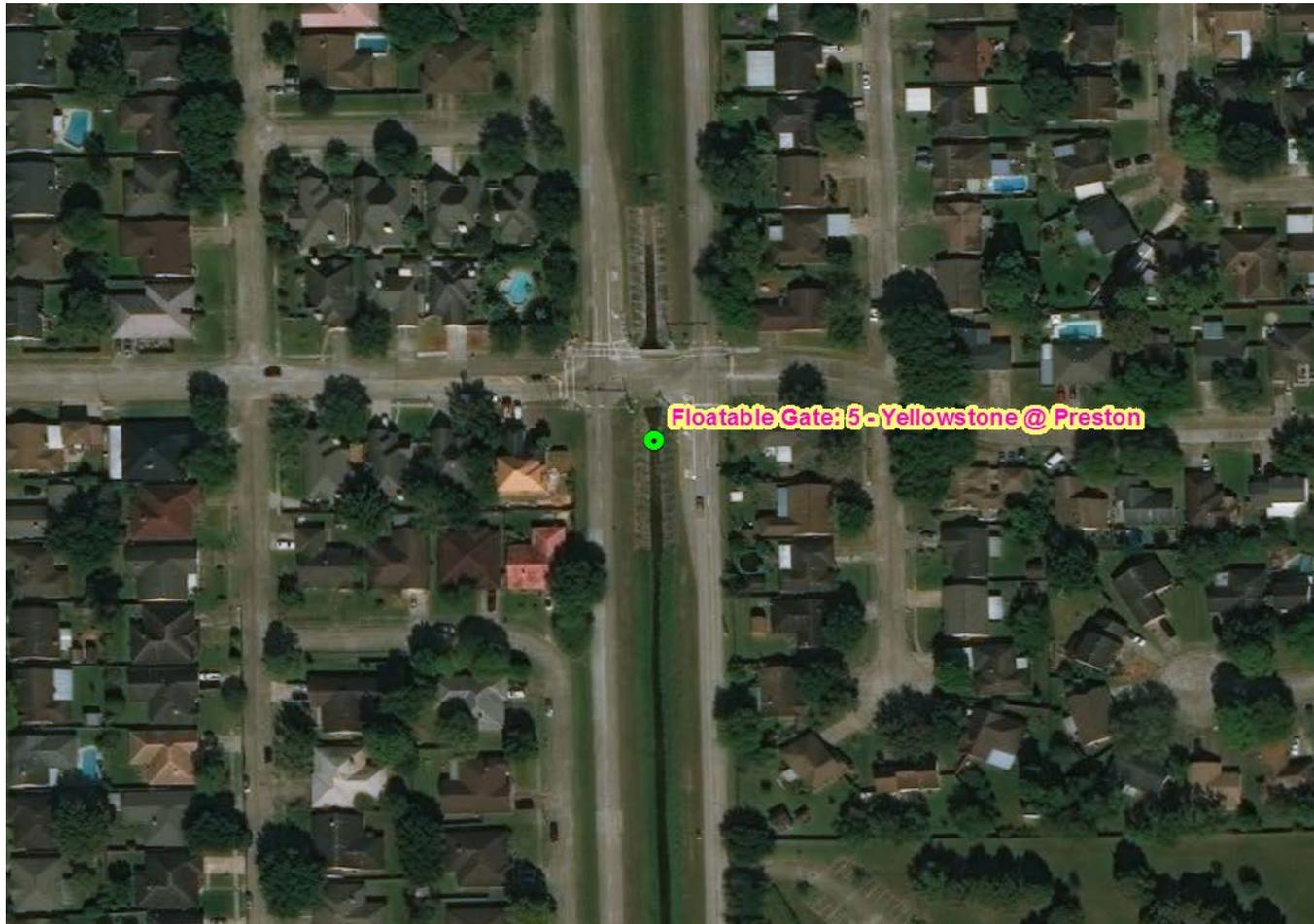


Floatable Materials Monitoring and Collection City of Pasadena Phase I MS4 Permit Requirements and Current Activities





Floatable Materials Monitoring and Collection City of Pasadena Phase I MS4 Permit Requirements and Current Activities





Floatable Materials Monitoring and Collection City of Pasadena Phase I MS4 Permit Requirements and Current Activities

The systems...

Gate-or© Floatable Capture Gates

Built, Designed and Provided by

WaterWay CleanUp Services

Perry Panousis

waterwaycleanup@gmail.com

PH# 832.588.8097





Floatable Materials Monitoring and Collection City of Pasadena Phase I MS4 Permit Requirements and Current Activities





Floatable Materials Monitoring and Collection City of Pasadena Phase I MS4 Permit Requirements and Current Activities



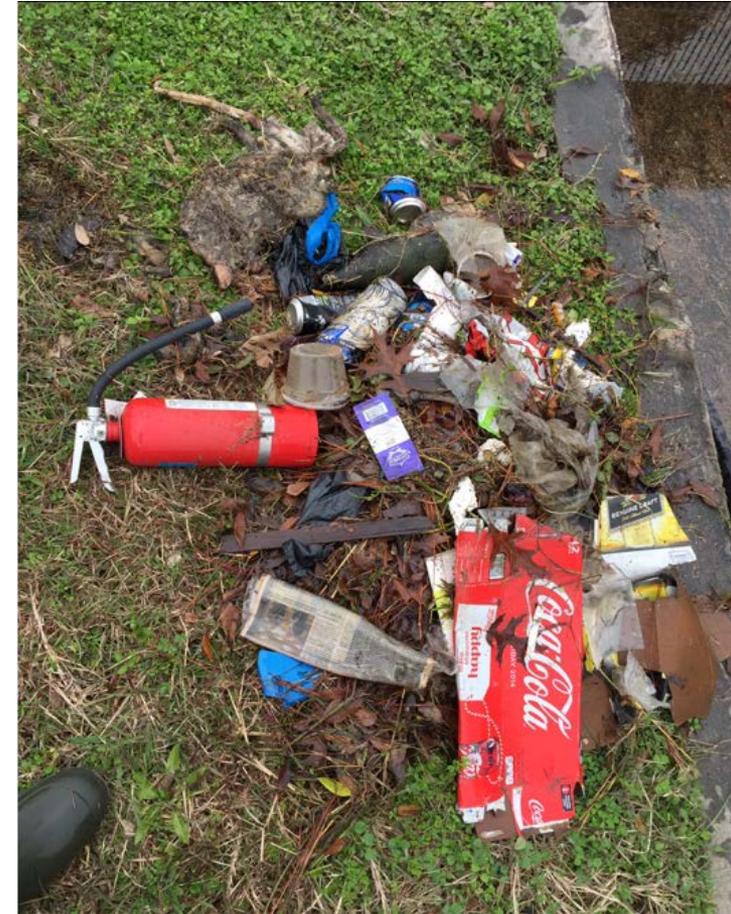


Floatable Materials Monitoring and Collection City of Pasadena Phase I MS4 Permit Requirements and Current Activities





Floatable Materials Monitoring and Collection City of Pasadena Phase I MS4 Permit Requirements and Current Activities





Floatable Materials Monitoring and Collection City of Pasadena Phase I MS4 Permit Requirements and Current Activities







Got Floatables?



Wayne Tschirhart, PE, PMP
San Antonio River Authority





SAN ANTONIO
RIVER AUTHORITY

SARA Trash Capture Devices

Wrangling Trash from Waterways – Texas Style

May 26, 2021



Committed to Safe, Clean, Enjoyable Creeks and Rivers.

Motivation

Trash in the waterways

- Extensive labor effort
- Adversely impacts riparian habitat
- Impedes recreational use of parks and waterways



Site Selection

Feasibility Study

- Los Angeles trash loading
- Identified/prioritized 33 sites
- Evaluated BMP options
 - Inlet controls
 - In-line controls
 - End of pipe nets
 - In-stream/channel controls
 - Ponds/basins/wetlands
- Selected 2 devices



Device Selection

- Bandalong Litter Trap
- Storm-X Trash Nets



Site 1: Rockwood Creek



Storm-X Trash Nets



Committed to Safe, Clean, Enjoyable Creeks and Rivers.

Storm-X Maintenance



Committed to Safe, Clean, Enjoyable Creeks and Rivers.

Site 2: Alazan Creek



Bandalong Litter Trap



Committed to Safe, Clean, Enjoyable Creeks and Rivers.

Bandalong Maintenance



Committed to Safe, Clean, Enjoyable Creeks and Rivers.

Lessons Learned

Do your own groundwork

- Loading data is important
- Don't use studies from other jurisdictions



Lessons Learned

Communication is key

- Contact adjacent property owners
- Work with community
- Education is critical



Lessons Learned

Nothing is Vandal Proof

- Simple is attractive
- Make it difficult
- Plan for the cost



Lessons Learned

Nothing is Vandal Proof

- Just when you think you've seen it all...



Lessons Learned

Water Always Wins

- All designs are based on assumptions
- Not all assumptions are valid



Lessons Learned

Engineering Is
Not the Answer

- Devices are expensive
- Can't deploy enough
- It doesn't address the problem

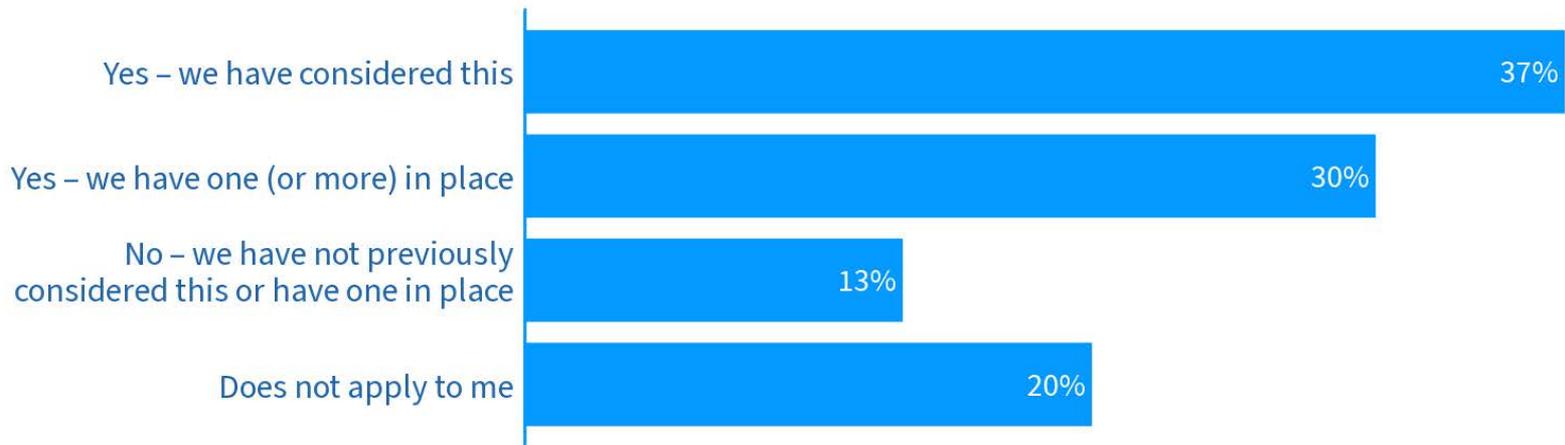


Polling Question

When poll is active, respond at pollev.com/nctcogenv444

Text **NCTCOGENV444** to **22333** once to join

Before today, had you considered an installed or engineered solution to floatables or do you already have one in place?



Polling Question

Respond at pollev.com/nctcogenv444

Text **NCTCOGENV444** to **22333** once to join, then text your message

What resources do you use when designing or looking for a trash capture device? (e.g. American Public Works Association, EPA Workshops/Webinars, etc.)

“ Research ”

“ Other cities ”

“ google ”

“ Other cities, NCTCOG ”

“ Speaking to other cities about what they have ”

Q&A

- Have a question? Please raise your hand to speak or enter it into the chat box.



NCTCOG RESOURCES

Stormwater BMP Library

- Organized by general topics
- Easy to search for specific items for your individual situation



NCTCOG Resources

[Go to Water for North Texas Online Library](#)

- Contains resources on water topics on the regional, state, and national level.
 - Social media toolkits
 - Case studies from NCTCOG region
 - Educational pamphlets, videos, etc. to share



Water for North Texas Online Library

Welcome to the Water for North Texas Online Library! Here you will find a compilation of existing resources on water topics in five main categories: Water Supply/Conservation, Water Management, Water Quality, Seasonal, and Other. These resources, which include explainer videos, brochures, webinars, and social media toolkits, are intended to be used by member governments to educate residents about the value of water across the growing NCTCOG region, which is projected to add approximately 3.5 million more people between 2020 and 2045. New resources, created in coordination with the Water for North Texas Advisory Group, will also be included here as they are developed. Browse the menu below to get started!

Topics

Water Supply / Conservation



Lake Levels



Tx SmartScape



Rainwater Harvesting



Water Efficiency at Home

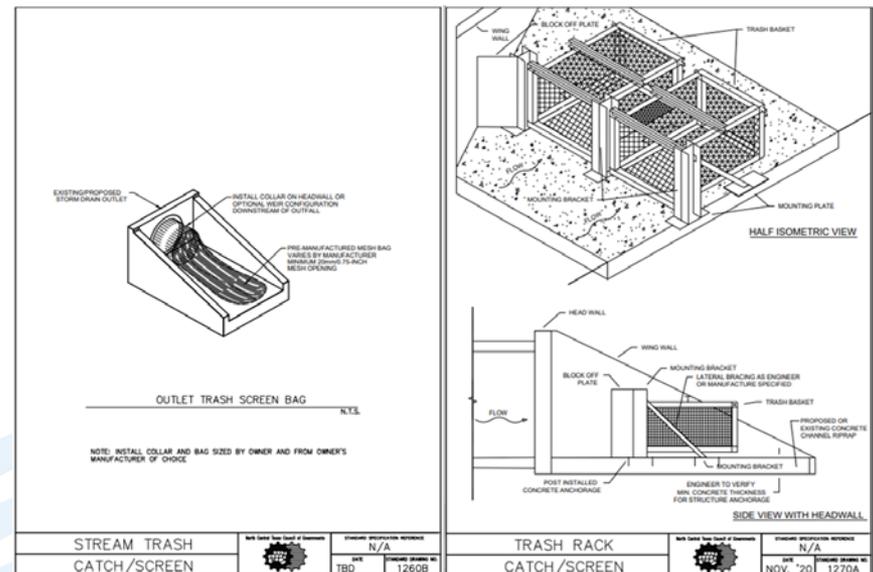
Water Management



NCTCOG Resources

- Standard Drawings update to the Public Works Construction Standards North Central Texas, Fifth Edition (2017) to be released in September
- Will include standard drawing based on the City of Frisco's Trash Rack as additional trash screen option
- Available for purchase here: <https://www.nctcog.org/envir/public-works/construction-standards>

For more information, please contact Olivia Kale at okale@nctcog.org





Four Easy Steps to Get Involved:

1

- Click [here](#) to create an account and sign-on.
- Don't forget to submit your logo for use on the challenge website!

2

- Organize and advertise your event(s) and participation in the NTCCC.
- Optional: Join the Mayor's Challenge by issuing a Proclamation (view a template in the Partners Resources Toolbox).

3

- Check out the [Partners Resources Toolbox](#) for items such as safety tips, general guidelines, a template press release and more.

4

- Hold your cleanup events between Sep. 1, 2021 and Oct. 31st, 2021 and log your cleanup data on the website by Nov. 30th, 2021
- Tag the NTCCC on social media using #NTXCleanupChallenge

**To learn more about the program, visit:
www.CommunityCleanupChallenge.com**

NCTCOG Resources

Subscribe to the Trash Free Waters: North Central Texas Newsletter - [here](#)



May 2021

Trash Free Waters: North Central Texas Newsletter



Webinar Recording and Presentation

- Presentation Slides and Recording will be posted on NCTCOG's website here: <https://nctcog.org/trashfreewaters>
- Follow-up emails will be sent to all registrants
 - Email Crysta Guzman, cguzman@nctcog.org if you did not register, but would like to be added to follow-up emails

Contact

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Connect

Trash Free Texas

 <https://www.trashfreetexas.org/>

 <https://www.instagram.com/trashfreetexas/>

 <https://twitter.com/TrashFreeTexas>

 <https://www.facebook.com/TrashFreeTexas>

NCTCOG's Trash Free Waters Project Webpage

 <https://nctcog.org/trashfreewaters>

H-GAC Trash Free Waters Project Webpage

 <https://www.h-gac.com/water-outreach-and-engagement/trash-free-texas>

THANK YOU!

****Information provided in this webinar and presentation regarding any specific commercial product by trade name, manufacture or otherwise does not constitute or imply its endorsement, recommendation or approval by NCTCOG.****