



ROADSIDE DITCH RE-ESTABLISHMENT PROGRAM

A BEST VALUE PROACTIVE APPROACH



**TRANSPORTATION, TECHNOLOGY, &
INFRASTRUCTURE COMMITTEE BRIEFING**

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TRANSPORTATION & DRAINAGE OPERATIONS**

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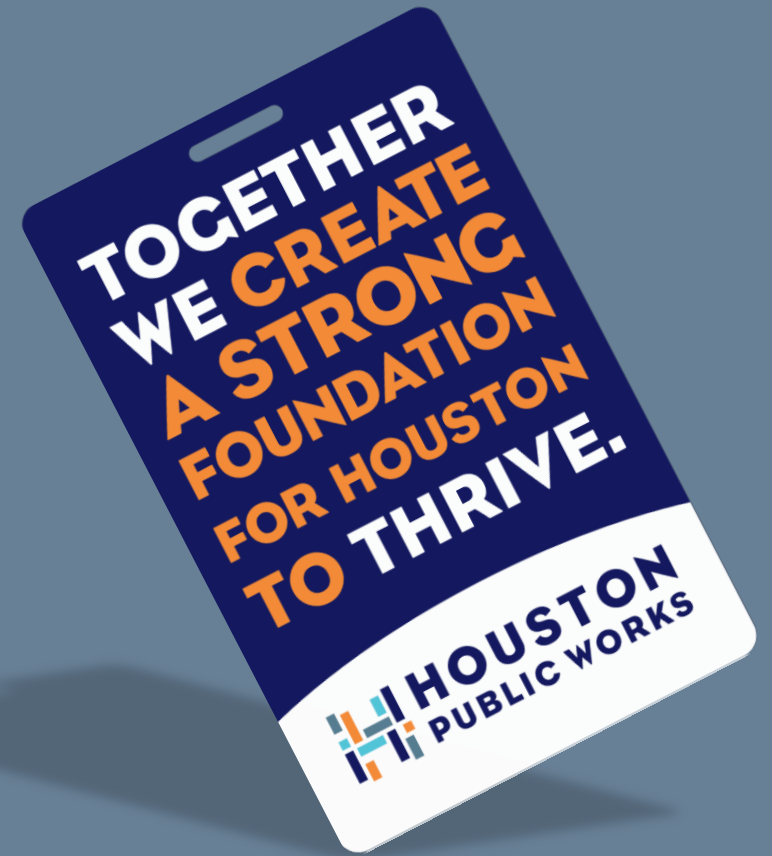


PURPOSE

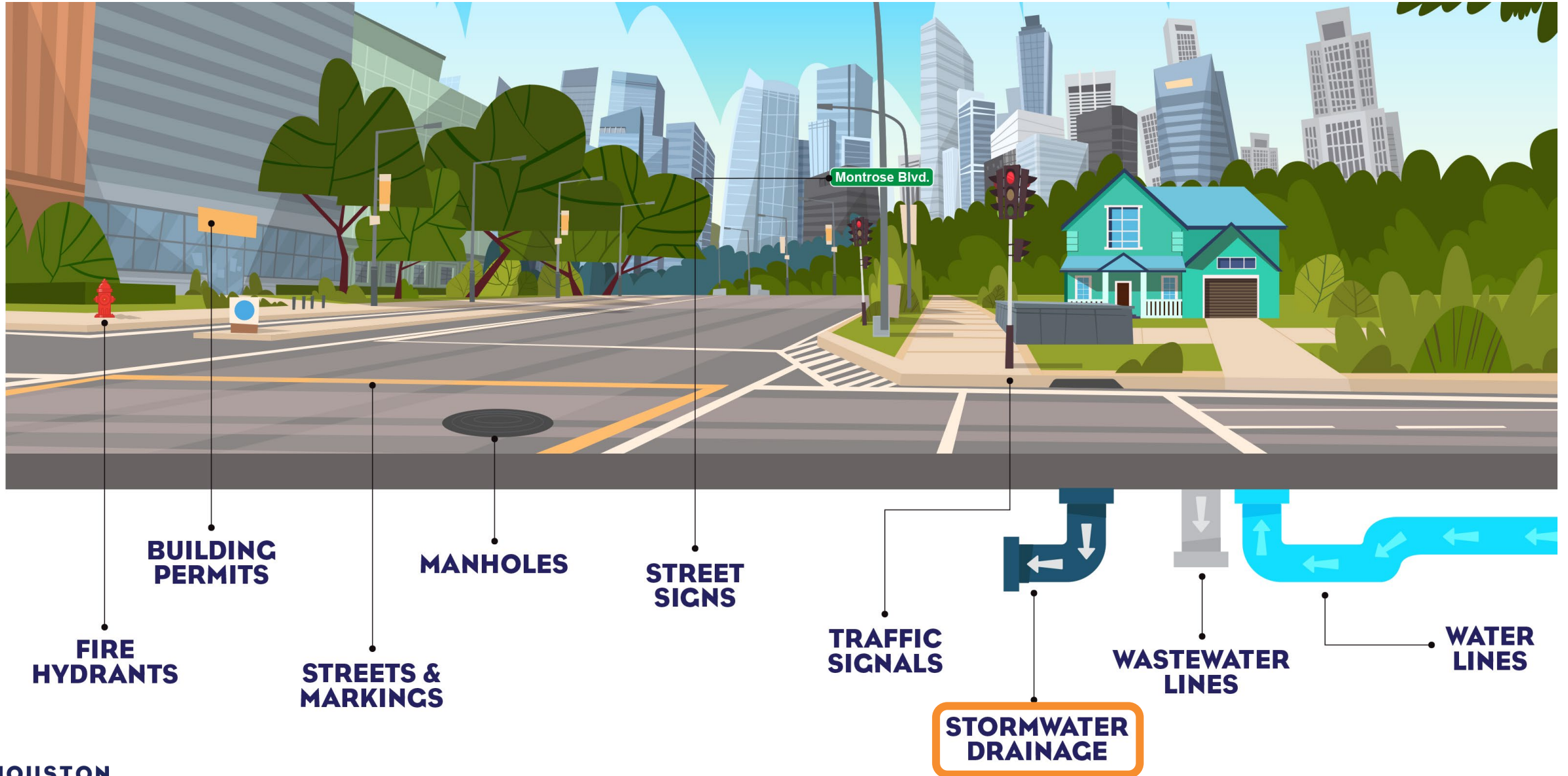
together we create a strong foundation
for Houston to thrive

5 TO THRIVE VALUES

respect | ownership | communication | integrity | teamwork



PUBLIC INFRASTRUCTURE





HOUSTON PUBLIC WORKS


16,000 
LANE MILES OF
STREETS


 **3,900**
MILES OF
STORM DRAINS


163B 
GALLONS OF WATER
TREATED PER YEAR

 **2,450**
TRAFFIC SIGNALS

2,500 
MILES OF
ROADSIDE DITCHES

 **5.8M**
WATERBILLS
SENT PER YEAR

467 
TYPES OF PERMITS

\$2.4B 
ANNUAL BUDGET

 **4,000**
EMPLOYEES

WHAT IS A ROADSIDE DITCH?

A roadside ditch is an open channel carved into the ground parallel to roadways. Roadside ditches are a cost-effective and environmentally friendly way of diverting stormwater from the road's surface and naturally direct it to reservoirs, creeks and bayous.



HOW MANY MILES OF ROADSIDE DITCHES ARE IN HOUSTON?
2,500 miles of roadside ditches

HOW ARE DITCHES MAINTAINED?

BASIC MAINTENANCE

Prevents unexpected failure

Abutting property owners maintain roadside ditches cleared of obstructions:

- Overgrown vegetation: mowing
- Trash: litter / light debris pickup
- Avoid unpermitted installations
(e.g., walls, bridges, inadequate landscape)



DITCH RE-ESTABLISHMENT

Reinstates ditch functionality

Houston Public Works:

- Regrading
- Clearing and grubbing
- Flow Line Establishment
- Culvert flushing and repair
- Removal heavy debris/obstructions





Prior to 2001

2001

2023

Neighborhood to Standards Proactive Approach
 Council Districts selected locations / neighborhoods
 ✓ Plan – Investigate - Survey
 ✓ Repair driveways/culverts
 ✓ Re-establish ditches
 ✓ Flush culverts
Planned Work with Added Value Citywide

311 Help Line Reactive Approach
 Public reports concerns to 311
 ✓ 311 Case created
 ✓ ~~Plan - Investigate - Survey~~
 ✓ ~~Repair driveways/culverts~~
 ✓ Re-establish ditches
 ✓ Flush culverts
 Equivalent to 12-Year Service Cycle
Reactive Work with Reduced Localized Value

Roadside Ditch Re-establishment Program Transition from Point Repair to Proactive Approach
 ✓ Citywide Inspection
 ✓ Plan – Investigate - Survey
 ✓ Repair driveways/culverts
 ✓ Re-establish ditches
 ✓ Flush culverts
 Planned 5-Year Service Cycle
Proactive Work with Best Value Citywide

Challenges Increasing

Staff Reductions – Critical Equipment – Increased Annual Rainfall
 SLA 60 to 30 days – Emergency/Event Response

ROADSIDE DITCH REESTABLISHMENT PROGRAM

Proactive Planned- 5-Year Inspection and Re-establishment Cycle (500 miles / year)
Priority to Northeast and Complete Communities during Transition Period

- Additional One-Time Resources FY24 Approved for Equipment and Contract Procurement
- Fixed Annual In-House Staffing and Contract Resources Required after FY25



- 1,500 miles of roadside ditches inspected in Northeast and Complete Communities
- \$15M Equipment Procurement
- \$25M Contracts Procurement



- 1,000 miles of roadside ditches inspected in remaining areas
- 450 miles re-established in Northeast and Complete Communities *
- 50 miles re-established in remaining areas



- 450 miles re-established in Northeast and Complete Communities
- 50 miles re-established in remaining areas



- 300 miles re-established in Northeast and Complete Communities
- 200 miles re-established in remaining areas

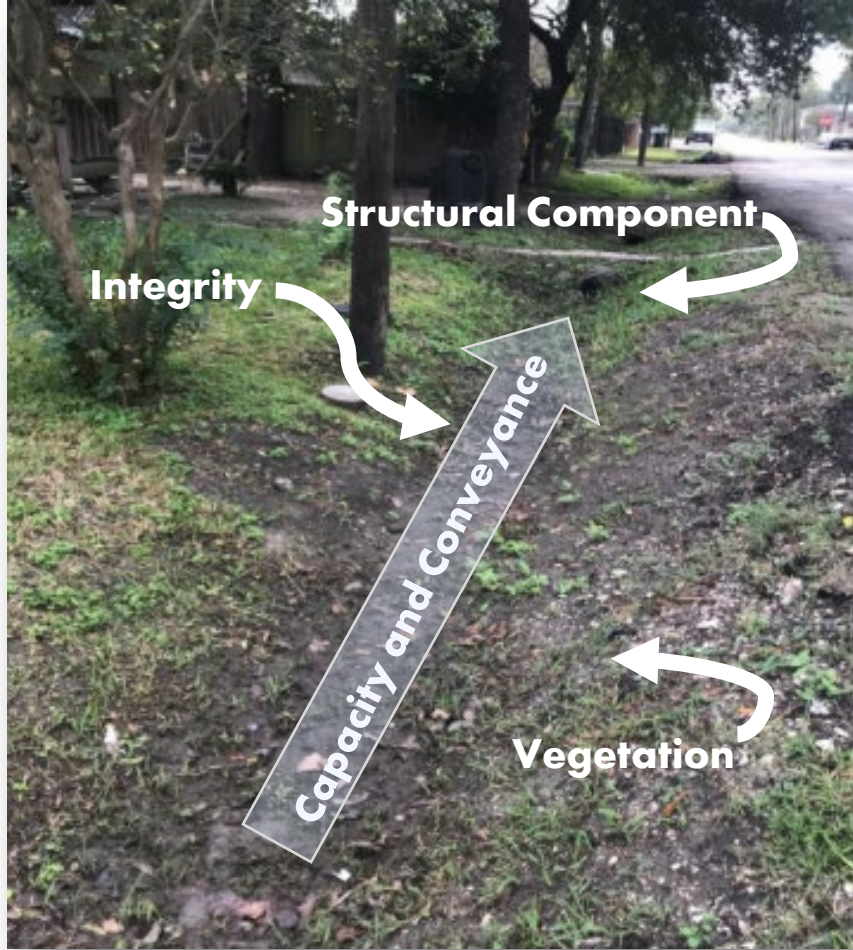


- 500 miles inspected and re-established in remaining areas
- 5-Year Cycle Starts**

** Plan schedule based on assumption that ~80% of roadside ditches in Northeast & Complete Communities rated in poor condition (~1,200 mi)*

ROADSIDE DITCH CONDITION ASSESSMENT

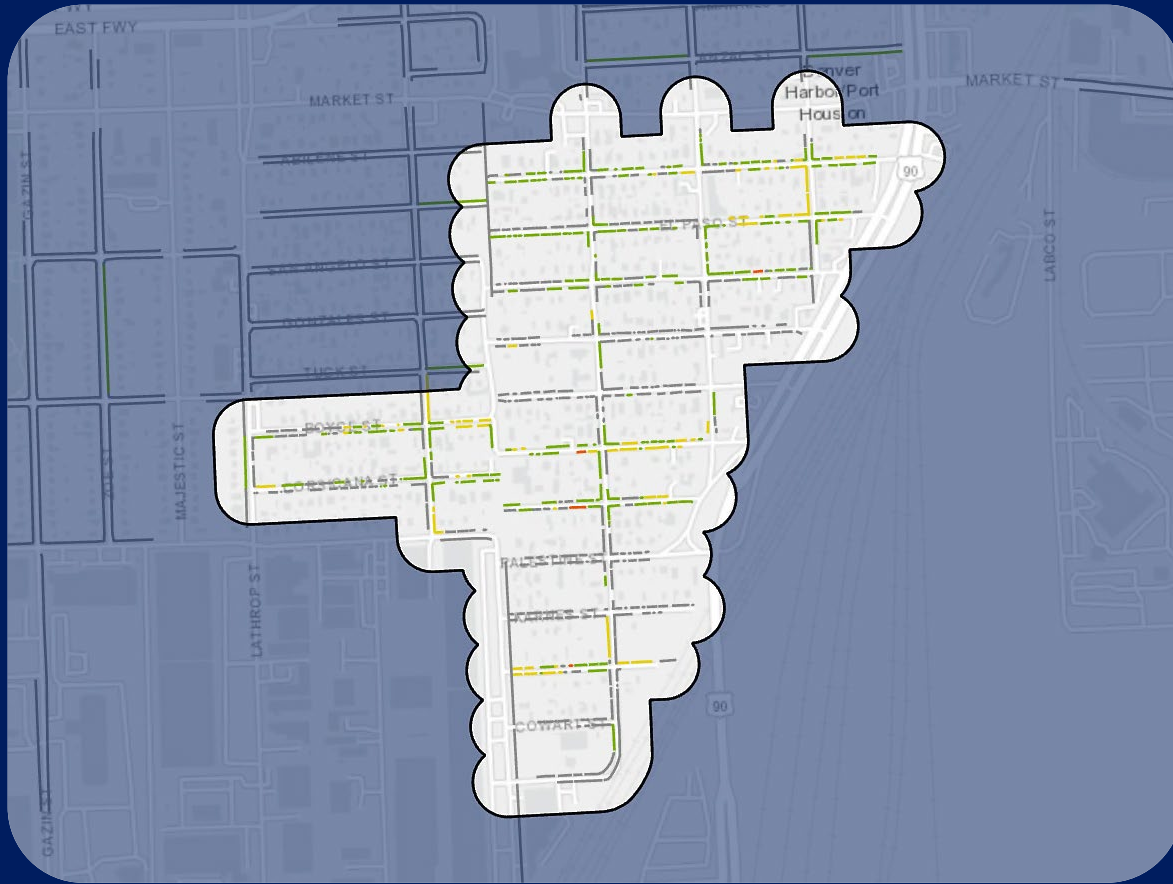
Example



Ditch Condition Assessment					
Category\Rating	Item#	Good (1)	Moderate (2)	Poor (3)	Score
Capacity and Conveyance	1	Ditch flows freely, no debris build-up evident, no signs of offset culverts	Ditch flows freely, some minor build-up, minor offset culverts are evident	Ditch functions to less than 25% of capacity, major offset culverts are evident	3
	2	No evidence of localized flooding	Not applicable	Evidence of localized flooding	1
Structural Components	3	No damaged components present	Damaged components (culvert, outfall, other), but not causing flow blockages	Damaged components (culvert, outfall, other) causing flow blockages	1
	4	No debris buildup at inlet or outlet	Debris buildup at inlet or outlet blocking 25% of inlet/outlet capacity	Debris buildup at inlet or outlet blocking 50% or more of inlet/ outlet capacity	2
Vegetation	5	Covering 90% of ditch bottom	Covering 75-90% of the ditch bottom	Covering less than 75% of ditch bottom and/or causing line- of-sight issues	3
	6	Recently mowed (< 1 year ago)	Mowed last year (2 years ago)	Not recently mowed (3 or more years ago)	1
	7	No noxious weeds present	Noxious weeds present, but are actively being managed	Noxious weeds present and not being managed	1
Integrity	8	No erosion	Minor erosion conditions	Major erosion conditions	2
	9	No bare spots	10-20% bare spots	> 40% bare spots	3
	10	No evidence of nuisance animals	Evidence of illegal dumping	Evidence of nuisance animals or illicit connections	1
Total Ditch Condition Score					18

DITCH CONDITION	Good	Moderate	Poor
SCORE	10-16	17-23	24-30
MAINTENANCE PRIORITY	None - Low	Routine	High

ROADSIDE DITCH RE-ESTABLISHMENT SCHEDULING



Sample GIS Mapping Tool. Pilot Testing



Good

Moderate

Poor



**RE-ESTABLISHMENT
PRIORITY**



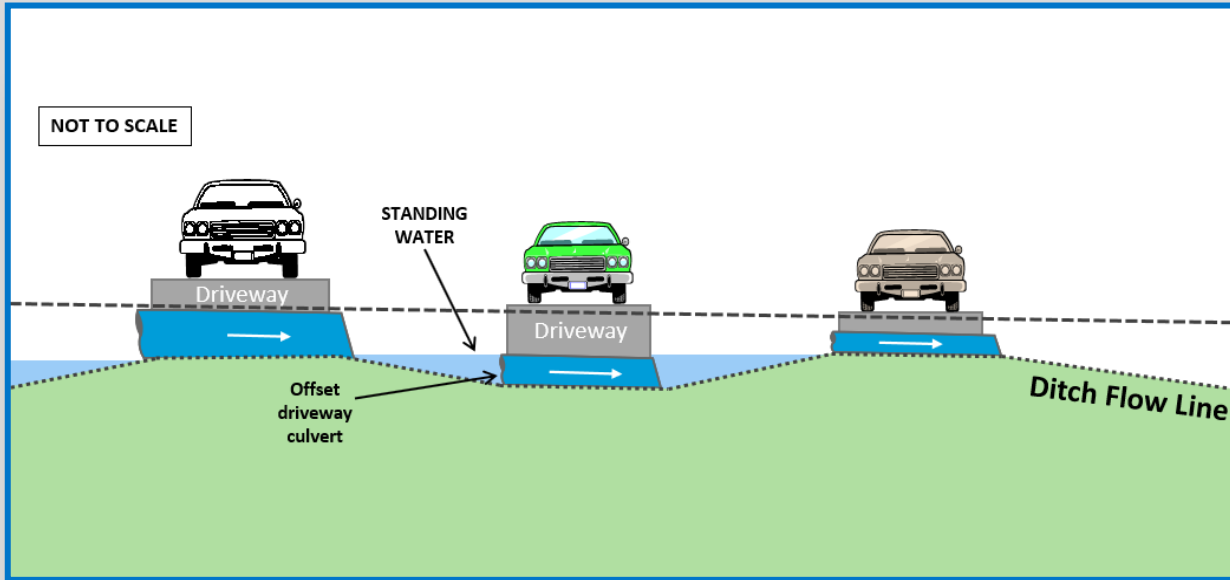
I. **FY25 – FY27:**

Northeast and Complete Communities

II. **FY28 and future:**

Citywide

STANDING WATER CAUSED BY DRIVEWAY CULVERTS OF VARIOUS SIZES AND/OR UNEVEN DITCH FLOW LINE



- △ Standing water does not necessarily trigger need for re-establishment
- △ Some ditch segments will require full rehabilitation (contracted project)

PRESENCE OF HEAVY MACHINERY DURING RE-ESTABLISHMENT WILL CAUSE TEMPORARY INCONVENIENCE TO RESIDENTS

COMMUNITY INVOLVEMENT



Illegal Dumping



Encroachments and Unpermitted Enclosures



DRAINAGE IMPROVEMENTS STRATEGIES

I. BASIC MAINTENANCE



Abutting Property Owners:

- Maintain roadside ditches cleared of obstructions:
 - Overgrown Vegetation: mowing
 - Trash: litter / light debris pickup
 - Avoid unpermitted installations

II. RE-ESTABLISHMENT



Roadside Ditch Re-establishment Program:

- HPW Proactive Planned-Work Approach
- 500 miles inspected and re-established / year = 5-Year Cycle

III. REHABILITATION



- Upgrades to existing drainage systems for accommodate for day-to-day storm events (storm sewer and outfall replacements, upsizing inlets and leads, roadside re-establishment, off-road ditch and detention pond clearing and grubbing, etc.).
- Programs: SWAT, LDP, Street & Drainage Rehabilitation

DRAINAGE REHABILITATION PROGRAMS

STORMWATER ACTION TEAM (SWAT)

- Established 2017 after Harvey
- Goal: reduce localized drainage problems not directly subject to riverine/bayou overbank flooding
- **Drainage issues reported by Council Districts. Internal recommendations.**
- \$20M/FY evenly distributed in all Council Districts
- Typical 12-18-month turnaround

LOCAL DRAINAGE PROGRAM (LDP)

- Originally in Capital Projects. Managed by Stormwater Operations since 2018
- Goal: address drainage infrastructure maintenance and rehabilitation that exceeds internal maintenance capabilities.
- **Work nominated by maintenance, public, SWAT**
- ~\$11.5M / FY allocated citywide
- Typical 12-18-month turnaround



STREET & DRAINAGE REHABILITATION

- Drainage-driven projects with added roadway improvements
- Support to MYR Street Rehabilitation Program
- **Work identified by Transportation & Drainage Operations, increased scope of traditional LDP or Street Rehabilitation**
- Variable turnaround



thank you!



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