



RICHARDSON[®]

**ENGINEERING &
CAPITAL PROJECTS**

DRAINAGE UTILITY PROGRAM UPDATE

City Council Briefing: June 6, 2022

Drainage Utility Program Presentation Overview

Background

Program Elements

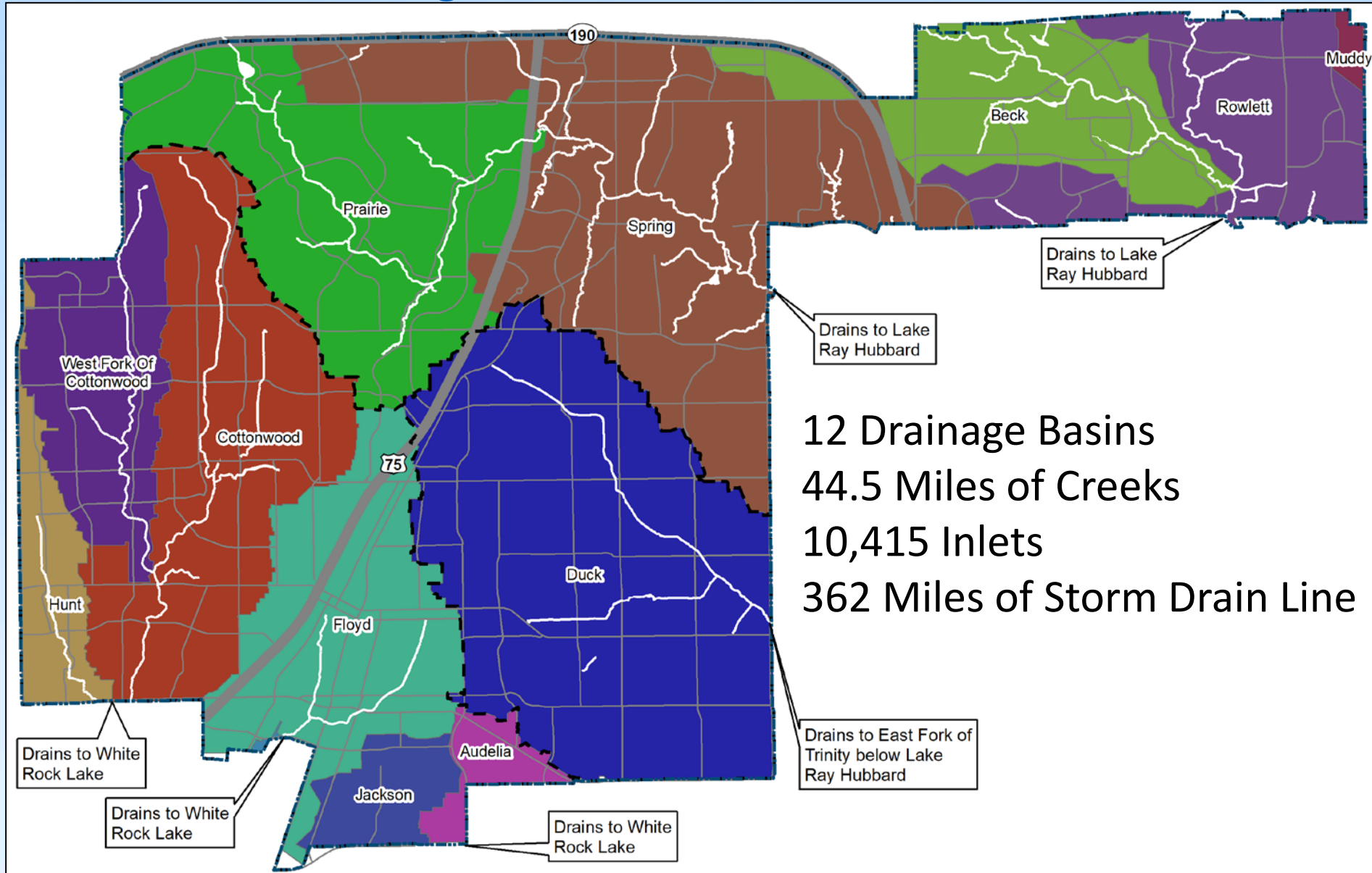
Current FY22 Work Plan Update

Proposed FY23 Work Plan

Funding Summary

Background

Richardson's Drainage Infrastructure



Background

Drainage Infrastructure Funding Elements

- Maintaining and Improving Richardson's Drainage Infrastructure involves multiple programs and funding sources that include:
 - Drainage Utility Program
 - G.O. Bond Programs
 - Annual C.O. Programs
 - Private Development
 - Partnerships with other State and Local Agencies including but not limited to
 - Texas Water Development Board
 - Dallas County
 - UTD
- The focus of this presentation is on the Richardson Drainage Utility Program

Background Drainage Utility

Established - November 2011

Purposes:

- Continue to sustain the City's environmental and regulatory obligations for stormwater management
 - Public education and outreach
 - Illicit discharge detection and elimination
 - Construction site stormwater pollution prevention
 - Post construction pollution prevention
 - Floodplain management
- Enhance maintenance, capital work plans and services in response to community needs
- Allocate cost of services through an equitable rate method

Drainage Utility Program



City Operations

- System Maintenance and Storm Preparation & Response
- TCEQ Permit Compliance
- Street Sweeping
- Floodplain Management
- Public Education/Outreach



Contract Services

- Open Channel Maintenance
- Litter Abatement
- Storm Drain Inspection & Cleaning
- Storm Drain Pipe Repairs
- Studies & Assessments
- Street Sweeping



Projects

- Flood Prevention
- Erosion Protection

City Operations – System Maintenance, Storm Preparation & Response

City Forces, through scheduled work plans, advanced storm warnings and Service Requests received during or after storm events

- Clear debris from bridges and culverts following storm events
- Remove debris from storm inlets
- Repair damaged storm drainpipes
- Remove litter from City Parks, Rights of Way and Park lakes
- Close roadways in the event of high water
- Provide sandbags at known/reported flooding



City Operations – TCEQ Permit Compliance

Texas Commission on Environmental Quality requires stormwater discharge permit for all City's within urbanized areas

Permits are issued for a term of five years

New permit term renewal is January 2024

Six minimum control measures

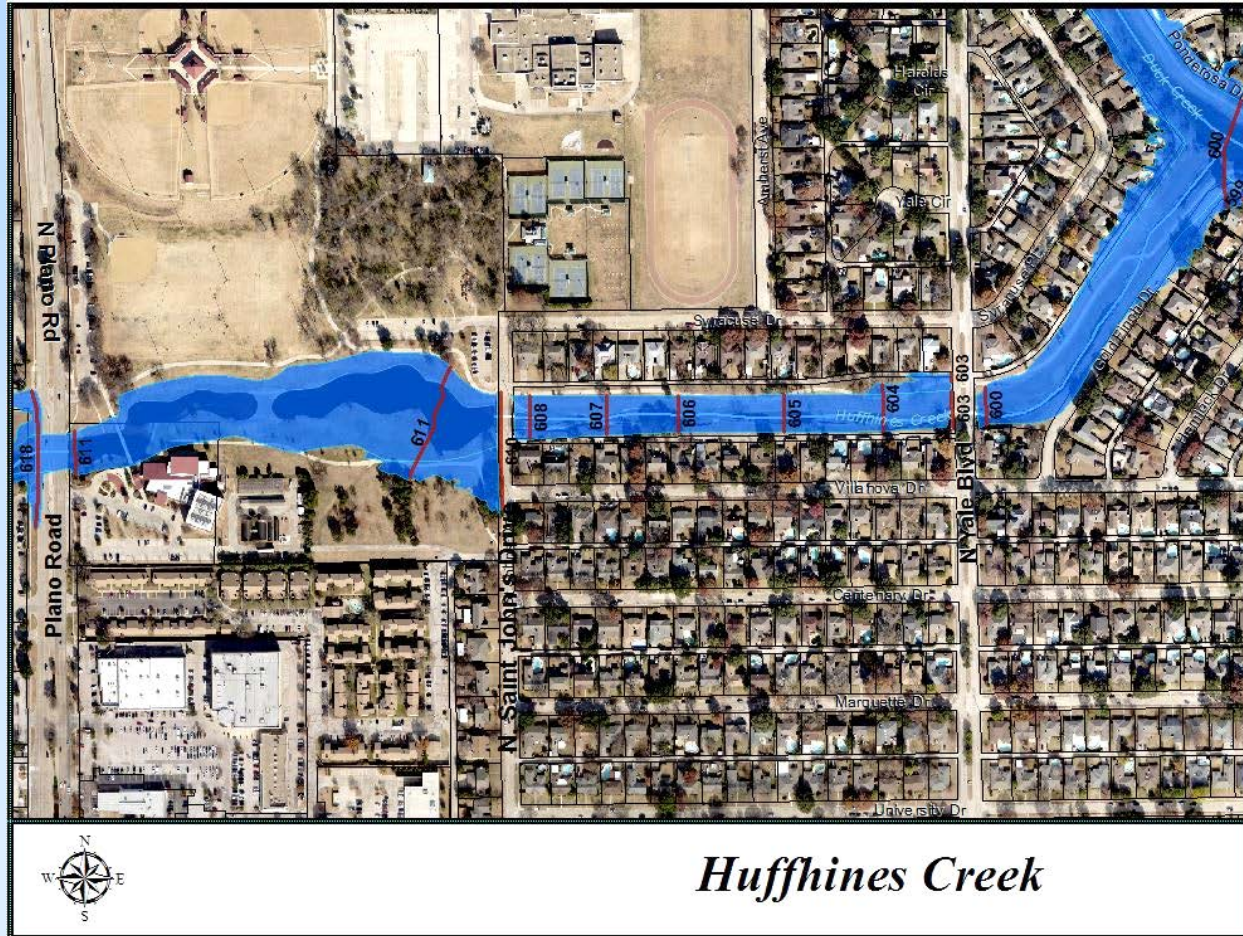
- Public Education, Outreach, Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-construction Stormwater Management
- Pollution Prevention, Good House Keeping for Municipal Operations
- Industrial Stormwater Sources

City Operations – Street Sweeping

- Litter and sediment removal and disposal
- Public building parking lots, Parks trails and parking areas
- Sweeping after ice events to remove sand



City Operations – Floodplain Management



PANEL 0205K


FIRM
FLOOD INSURANCE RATE MAP
DALLAS COUNTY,
TEXAS
AND INCORPORATED AREAS

PANEL 205 OF 725
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DALLAS, CITY OF	480171	0205	K
RICHARDSON, CITY OF	480184	0205	K

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



MAP NUMBER
48113C0205K

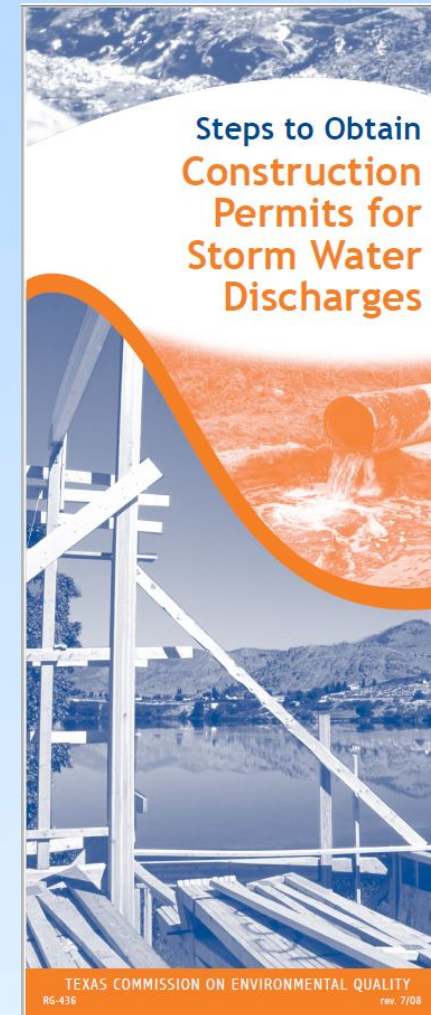
MAP REVISED
JULY 7, 2014

Federal Emergency Management Agency

Administering the local portion of the National Flood Insurance Program and assisting residents in interpreting map data.

City Operations- Public Education/Outreach

- Provide flood insurance/ flood risk information to the public
- Advise residents with lot grading and drainage concerns
- Advise property owners regarding erosion protection measures
- Provide information regarding stormwater pollution prevention measures

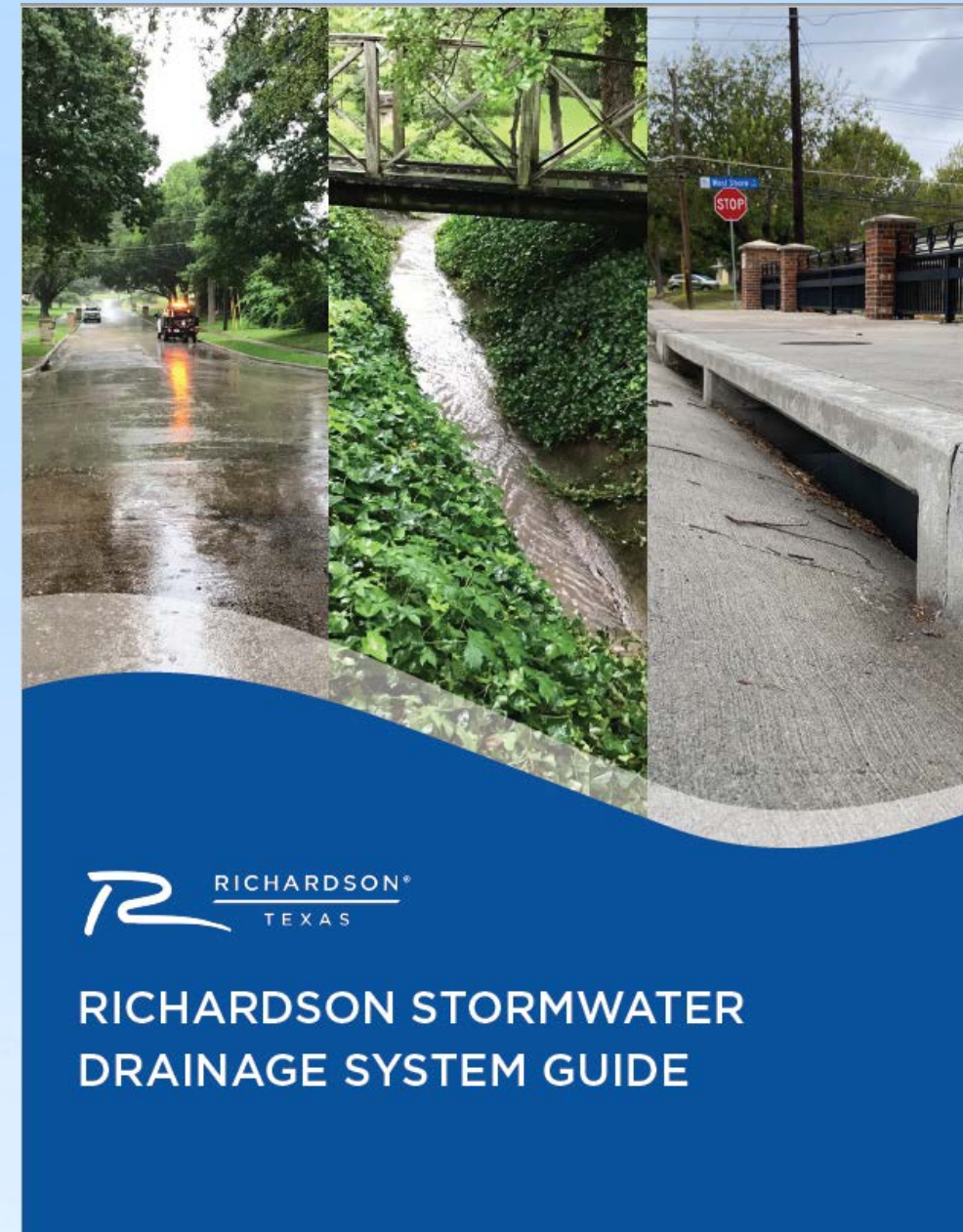


City Operations - New Stormwater Drainage System Guide

- Requested by Council in budget workshops last summer
- Guide finalized in Spring 2022
- Customer Education Focus
 - Overview of City's storm drain system and watersheds
 - Describes expectations for drainage in streets
 - Helpful tips to promote better drainage
 - Erosion mitigation along creeks and waterways
 - Do's and Don'ts

Download link:

<https://www.cor.net/departments/health-department/environmental-health/stormwater/stormwater-resident-s-guide>



 RICHARDSON®
TEXAS

RICHARDSON STORMWATER
DRAINAGE SYSTEM GUIDE

Contract Services – Open Channel Maintenance

- Maintain the capacity of the City's open drainageways
- Remove sediment, debris, and wooded vegetation from culvert, bridges, city owned gabions, and concrete channels
- Repair damaged storm drain outfalls
- Repair concrete channels and city owned gabions





Contract Services – Litter Abatement

- Program started in 2016 to capture debris near the source with inlet filter baskets
- Baskets capture sediment and litter yet allow storm water to pass and are emptied on a regular basis
- Locations are selected based on land use and area served
- Can also be used during construction activity

Contract Services – Storm Drain Pipe

Inspection and Cleaning

Storm Drain Pipe Inspection and Cleaning utilizes CCTV camera within the storm drain

- Inspect pipes, culverts, junction boxes and inlets
- Remove debris to maintain capacity
- Assess pipe condition
- Locate obstructions
- Identify repair needs for pipes, joints, connections, etc.



Contract Services – Storm Drain Pipe Repairs

Storm Drain Pipe Repairs

- Repairs are time consuming and often require considerable coordination
- Engineering Design Services
- Franchise Utility Coordination
- Contract to fix point repairs (damaged pipe, segmented joints, etc.)



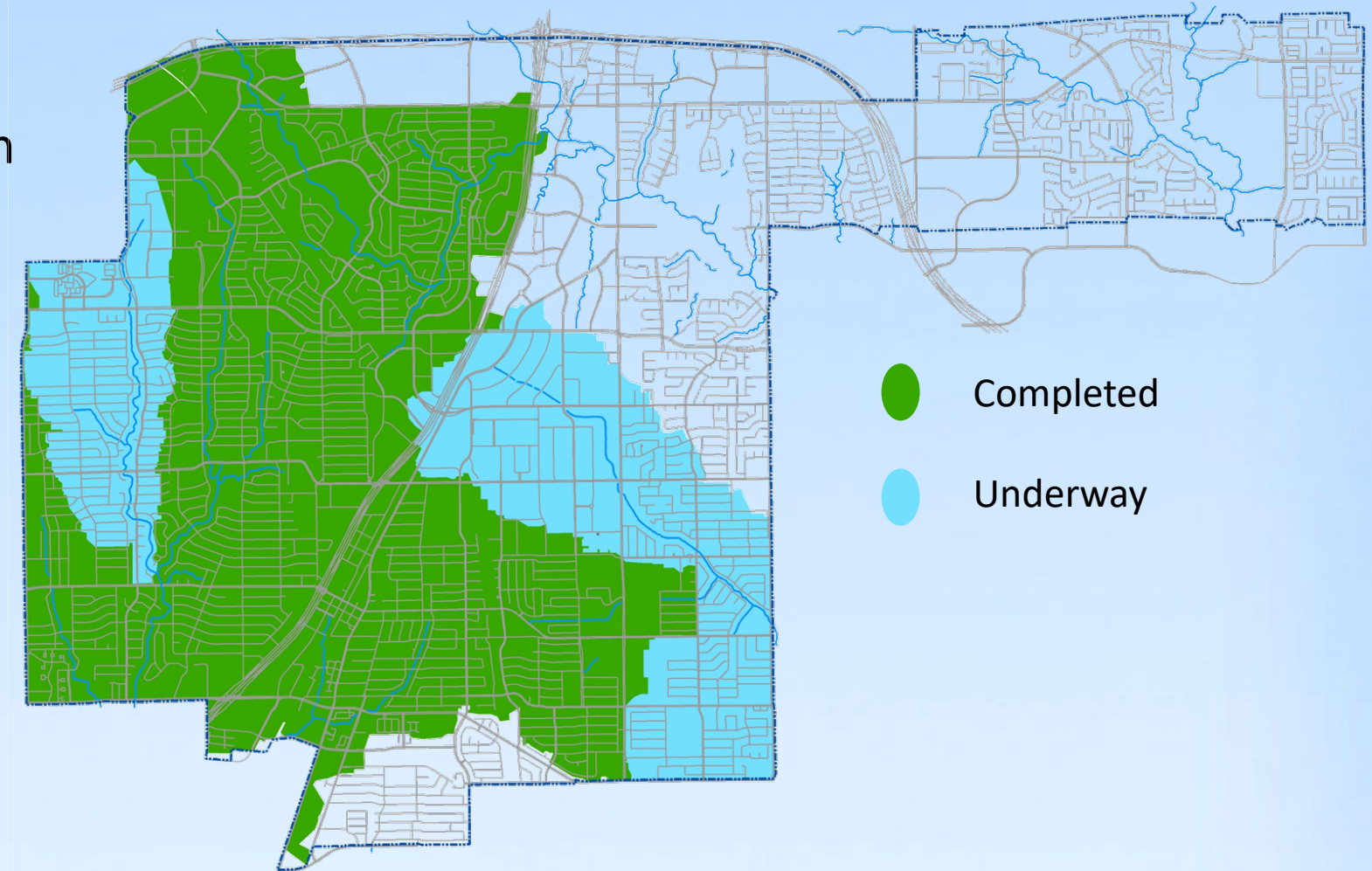
Before



After

Contract Services – Studies and Assessments

- Watershed Studies identify flooding concerns and mitigation
- Update Flood Insurance Maps
- City wide creek bank erosion assessments
- City lake assessments
- Studies Underway:
 - Duck Creek watershed (Phase 1)
 - West Fork of Cottonwood Creek watershed



Contract Services – Street Sweeping

- Contract monthly sweeping of primary roadways
- Litter and sediment removal and disposal
- Swept nearly 1,000 curb miles, removing an estimated 70 tons of sediment as of April 30, 2022
- Sweeping streets after ice events to remove sand



Drainage Utility Program Update

Current FY22 Work Plan

Current FY22 Work Plan

Contract Services

Open channel maintenance

Fall 2021 Project Completed

- Cottonwood Creek upstream of Wisteria Way – Storm debris removal
- Sherrill Park – Woody vegetation cleared from 1,300 linear feet of gabion walls
- Texas Street Channel – cleared debris from 2,000 linear feet of concrete lined open channel + cleaned 1,500 linear feet of 3-barrel box culverts

Remaining Projects Programmed for FY 2022

- Sediment removal within culvert & upstream of culvert intake – Sharps Farm lake
- Vegetation removal on gabions – along Cottonwood Creek at intersection with Beltline Rd
- Flood mitigation – West Fork of Cottonwood Creek between Campbell Rd and Arapaho Rd



Texas Street Channel

Current FY22 Work Plan

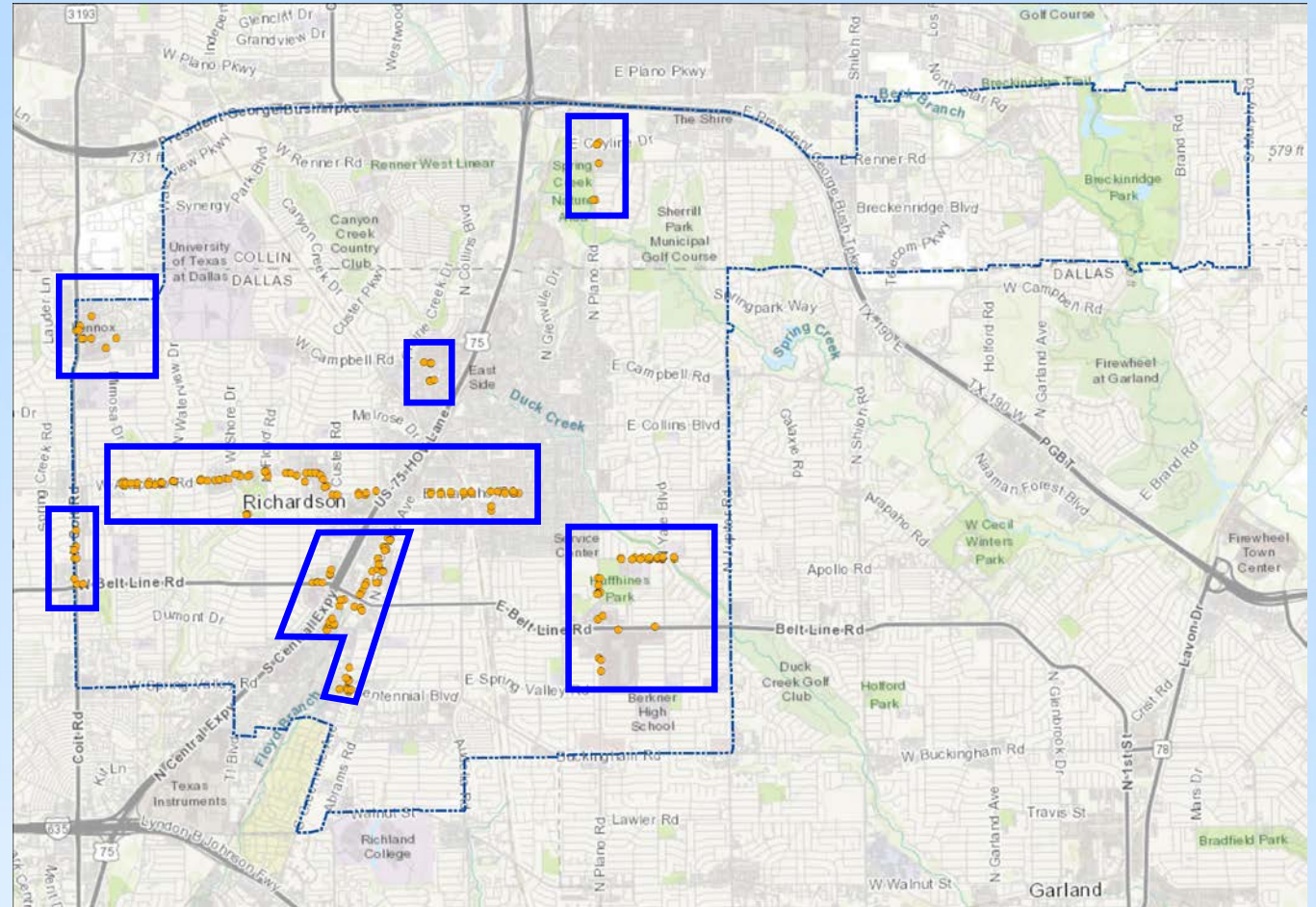
Contract Services

Litter abatement program

- 207 unique inlets have been cleaned at least once as of April 30, 2022
- Inlet basket locations adjusted throughout the year based on level of debris production
- Debris Collection Metrics:

FY	Projected	Actual
2021	26,000 lbs	30,145 lbs

FY	Projected	Actual / To Date	Total Estimated
2022	36,000 lbs	20,055 lbs	56,055 lbs



Current FY22 Work Plan

Contract Services

Storm Drain System Inspection and Cleaning

FY21 Completed

Pipe inspection	21,000 feet
Pipe cleaning	600 feet

FY22 Estimated

Pipe inspection	24,000 feet
Pipe cleaning	600 feet



Current FY22 Capital Projects Work Plan

Funding: Drainage Fund

CAPITAL PROJECTS

PROJECTS	SCHEDULE
Cambridge & Floyd Culverts at Nantucket Channel	Complete Construction Fall 2022
Beck Branch Storm Drain Outfall/Erosion	Began Construction Spring 2022
West Fork and Cottonwood Creeks Detention Basin Design (at UTD)	Begin Construction Fall 2022
West Fork Gabion Maintenance	Began Construction Spring 2022
Cherrywood Dr and Beltline Rd Culverts at Hunt Branch	Begin Construction Summer 2022
Lois Branch Flood Prevention Study *	Began Study Spring 2022
2801 Wyndham Lane Drainage Relief *	Begin Construction Summer 2022
300 Thompson Drive Drainage Relief *	Begin Construction Summer 2022

* Denotes projects arising from the May 2021 storm event

Current FY22 Capital Projects Work Plan



West Fork Gabion Maintenance



2801 Wyndham Lane Drainage Relief



Hunt Branch at Cherrywood Drive Culvert



Nantucket Branch Channel Improvements

Current FY22 Capital Projects Work Plan

Funding: Other Sources

PROJECTS

Jupiter Road at Spring Creek Bridge Repairs & Slope Stabilization

Lawnmeadow Drive Drainage Relief (Phase 1)

Renner Road Bridge Repairs over Prairie Creek

Sherrill Park Golf Course Erosion, Course 1 Holes 1 & 16

Sherrill Park Golf Course Erosion, Course 2 Hole 11

SCHEDULE

Complete Construction Spring 2022.

Complete Design Winter 2023. Begin Construction Spring 2023.

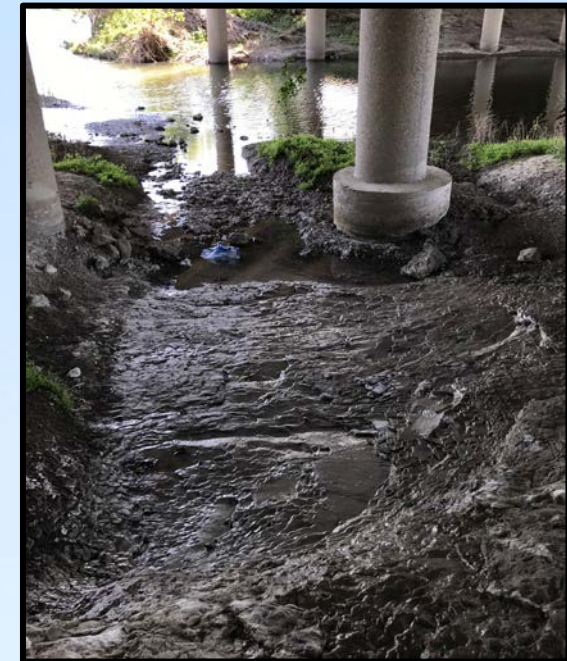
Complete Design Spring 2022. Begin Construction Summer 2022.

Completed Construction April 2022

Completed Construction April 2022

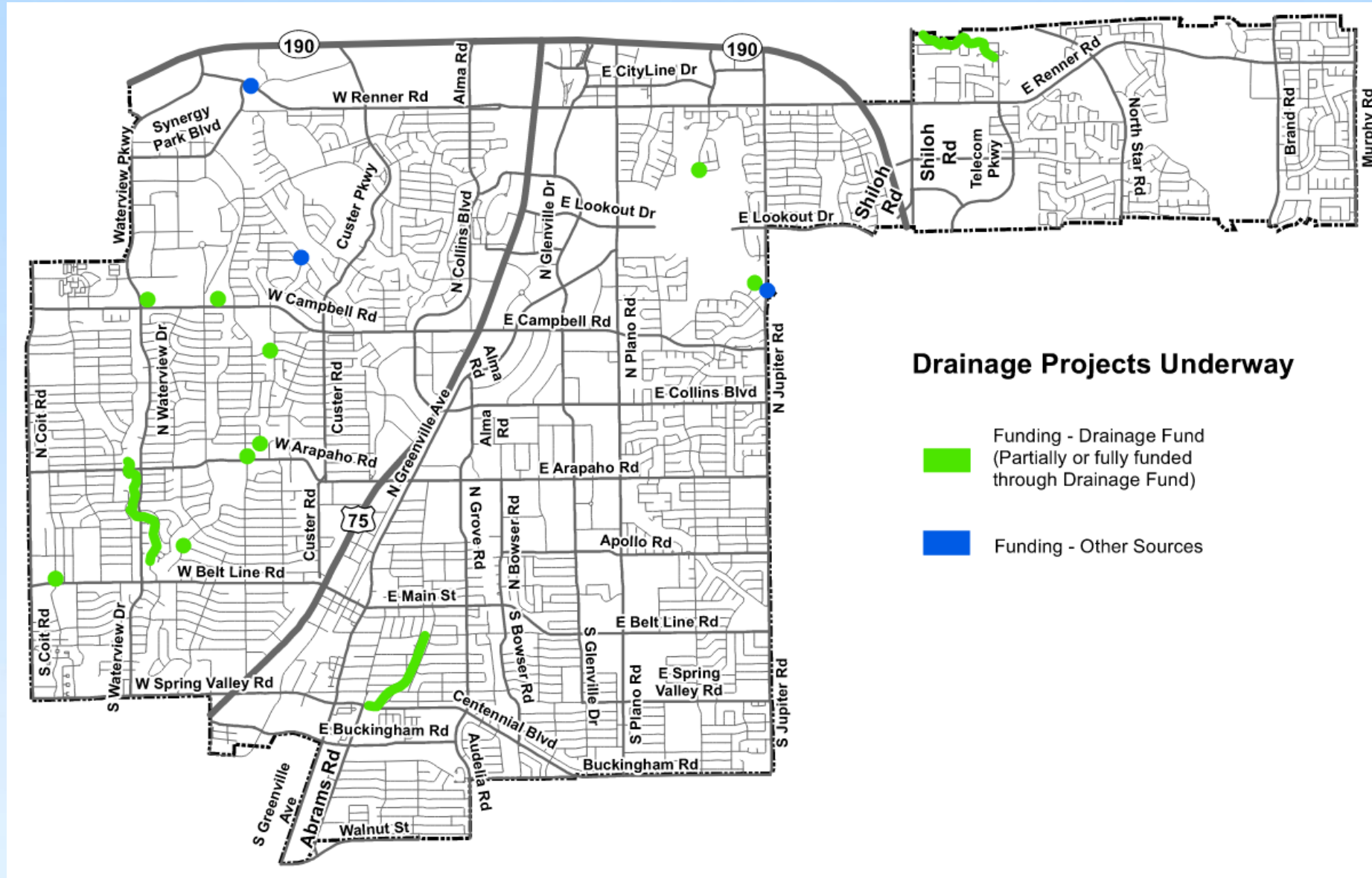


Jupiter Road Bridge Slope Stabilization



Renner Road Bridge Repairs

Current FY22 Capital Projects Work Plan



Drainage Utility Program Update

Proposed FY23 Work Plan

Proposed FY23 Drainage Utility Program Work Plan

Street Sweeping

- Maintain current funding level

Litter Abatement

- Increase current funding level

Open Channel Maintenance

- Increase current funding level

Storm Pipe Inspection, Cleaning

- Increase current funding level

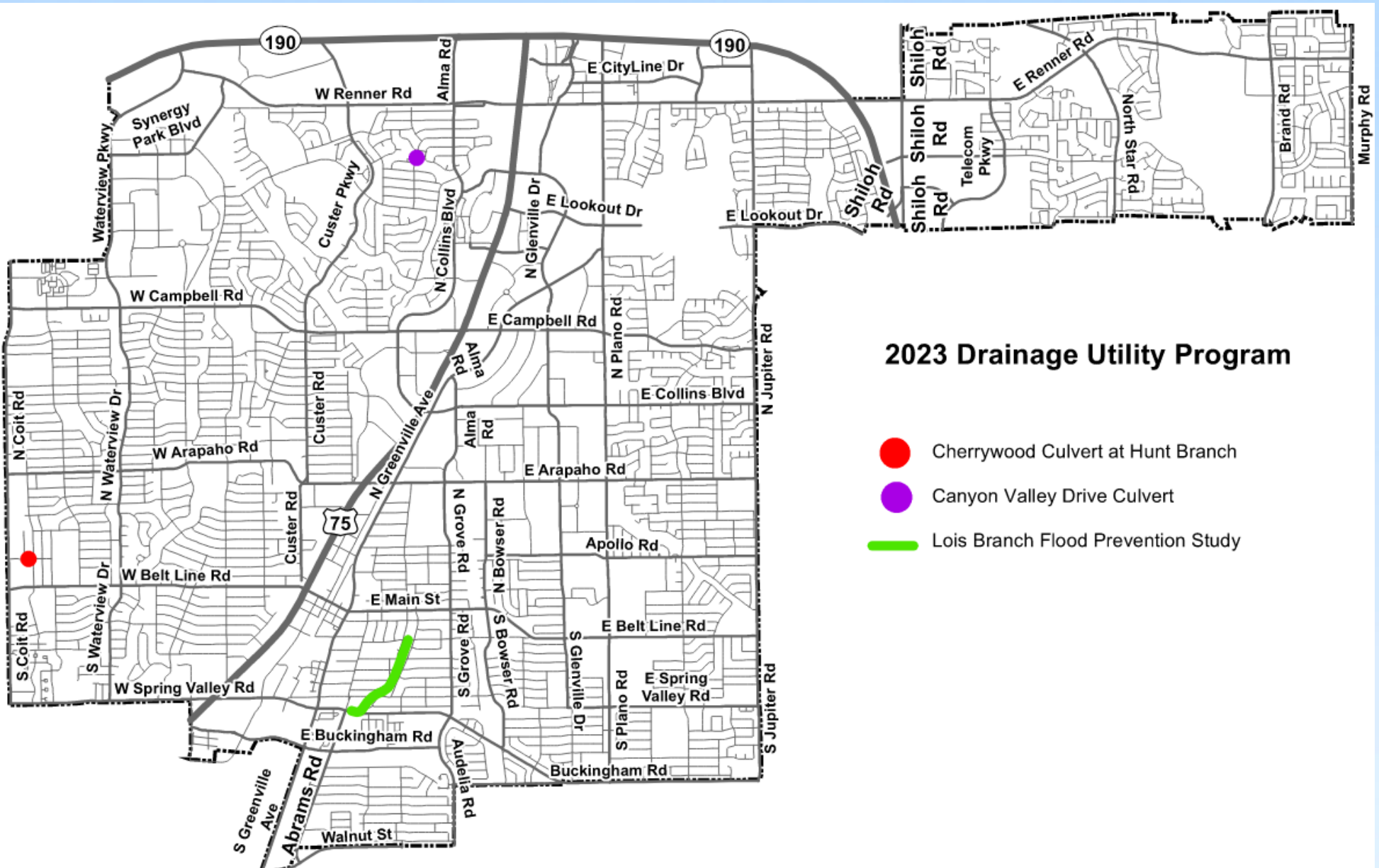
Watershed Study

- Duck Creek Phase II (Lower Duck Creek)

Capital Projects

- Lois Branch Ph 1 Drainage Design
- Canyon Valley Drive Drainage Supplement
- Cherrywood Culvert at Hunt Branch Supplement

Proposed FY23 Capital Projects Work Plan



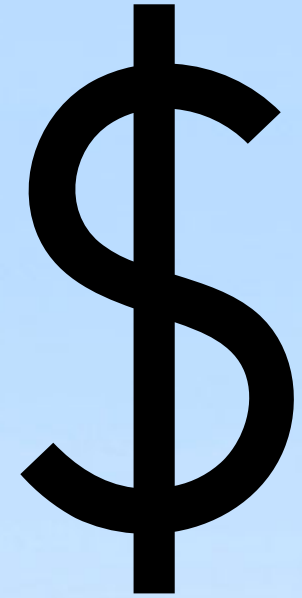
Proposed FY23 Drainage Utility Work Plan

Category No.	Category	FY19/20	FY20/21	FY21/22	FY22/23 (Proposed)
1	City Operations	\$830,000	\$830,000	\$830,000	\$910,000*
2	Contract Services	\$957,000	\$1,000,000	\$1,008,000	\$1,145,000*
3	Projects	\$1,004,000	\$1,102,000	\$1,050,000	\$850,000
	Total [1 + 2 + 3]	\$2,827,000	\$2,932,000	\$2,888,000	\$2,905,000

*Increase due to inflation

Drainage Utility Program Funding Summary

- Current rate was established by Council in December 2011 and has generated approximately \$2,900,000 annually since inception.
- Operational and Contract Expenses primarily support Regulatory Requirements and have steadily increased year over year.
- Capital Project budgets have been steadily reduced to sustain operational and contract services.
- Capital Project expenses have steadily increased as well.



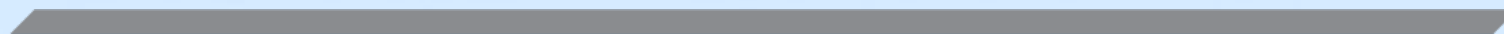
Proposed FY23 Drainage Utility Work Plan

Next Steps

- Continue delivery of the Drainage Utility Plan
- Comply with the TPDES/TCEQ Permit
- Review the Drainage Utility Fee at Budget Meetings



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T E X A S