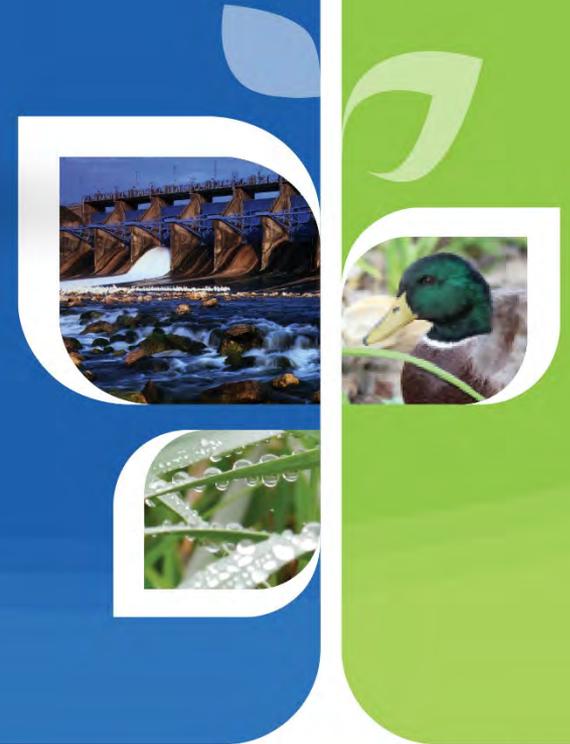


Board of Directors

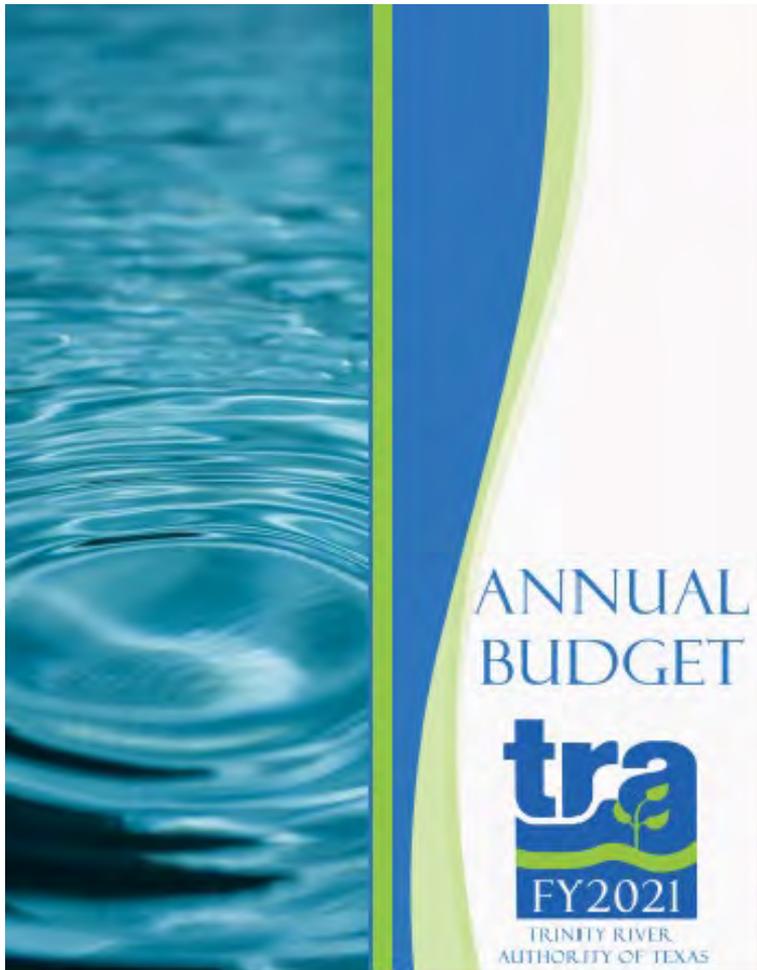
August 26, 2020



**Item A:
Annual Budget for Fiscal Year
2021 – Letter of Transmittal**



2021 Annual Budget



- **Includes an authority-wide summary and 36 separate budgets**
- **Previously approved by customer representatives**

Updates: Working Toward GFOA Budget Award

- Added to operating funds:
 - Fact sheets
 - Performance measures
 - Initiatives
 - Revenue & expense detail
 - Revenue requirement by contracting party
 - Budget highlights
 - Staffing summary
 - Flow data & cost per 1,000/gal projections



Updates: Working Toward GFOA Budget Award (continued)



CRWS

Central Regional Wastewater System

DALLAS



CUSTOMERS

- ▶ Addison
- ▶ Arlington
- ▶ Bedford
- ▶ Carrollton
- ▶ Cedar Hill
- ▶ Colleyville
- ▶ Coppell
- ▶ Dallas
- ▶ DFW International Airport
- ▶ Duncanville
- ▶ Euless
- ▶ Farmers Branch
- ▶ Fort Worth
- ▶ Grand Prairie
- ▶ Grapevine
- ▶ Hurst
- ▶ Irving
- ▶ Keller
- ▶ Mansfield
- ▶ North Richland Hills
- ▶ Southlake

CENTRAL REGIONAL WASTEWATER SYSTEM

The Trinity River Authority's Central Regional Wastewater System is a large regional wastewater system located on 195 acres adjacent to the West Fork of the Trinity River and is currently serving approximately 1.4 million customers in Dallas, Tarrant, Ellis, Johnson, and Denton counties of North Central Texas. The service area encompasses all or portions of 20 cities in the Dallas/Fort Worth metroplex, as well as the Dallas/Fort Worth International Airport. The Central Regional Wastewater System, an award-winning treatment plant, is an advanced secondary facility with disinfection and a solids dewatering facility, currently permitted to treat 189 million gallons per day (MGD). Following dewatering, the biosolids are disposed of through a beneficial land application program. This System also consists of an extensive regional network of interceptors, pipelines, lift stations and meter stations, as well as facilities for the delivery of treated effluent for golf course irrigation and lake level management under the first major urban reuse program in Texas.

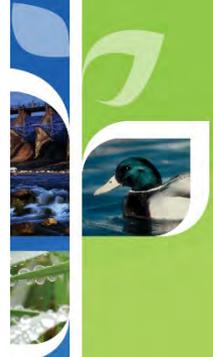
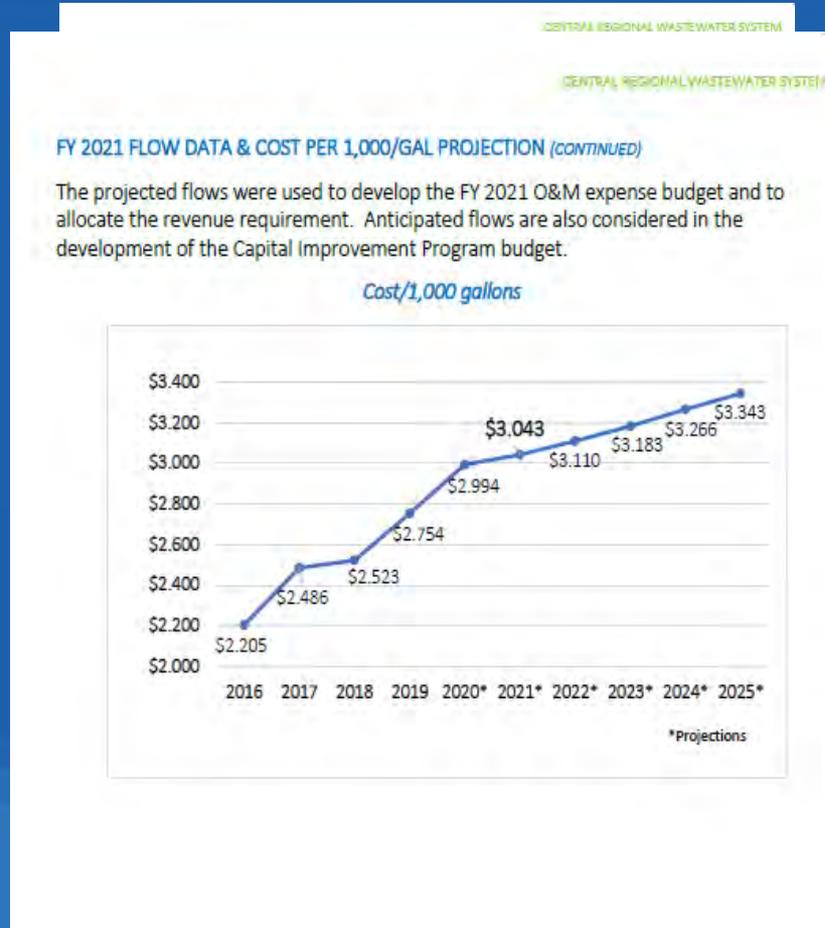
1959
service began

189.0
mgd treatment capacity

139.70
mgd avg. daily flow



Central Regional Wastewater System
6500 W. Singleton Blvd.
Dallas, Texas 75212
(972) 263-2251



Budget Philosophy and Strategies

- Provide quality wholesale utility service as efficiently as possible
- Manage our assets
- Meet all regulations
- Produce high-quality effluent
- Produce high-quality potable water



Budget Overview

- TRA Value Proposition
 - ✓ Detailed review of all accounts
 - ✓ Comprehensive review of Capital Improvement Plans
 - ✓ Thorough review of employee positions
 - ✓ Approved by all customers



Action Taken to Reduce Budgeted Expenses



- Close look at each requested new position resulting in many being put on hold.
- Legislative consulting has been defunded.
- Some engineering services that were previously contracted are being completed by internal staff.
- Collections System Group, Technical Services and Basin Planning, and Information Technology have allocated a portion of their reserve balance to fund expenses to reduce the amount collected from the Systems.
- Continued savings from health insurance changes such as new 3rd party administrator and changes to prescription plan
- Canceled 3 bond sales during 2020 which reduces FY21 debt service expense.

Authority-Wide Budget

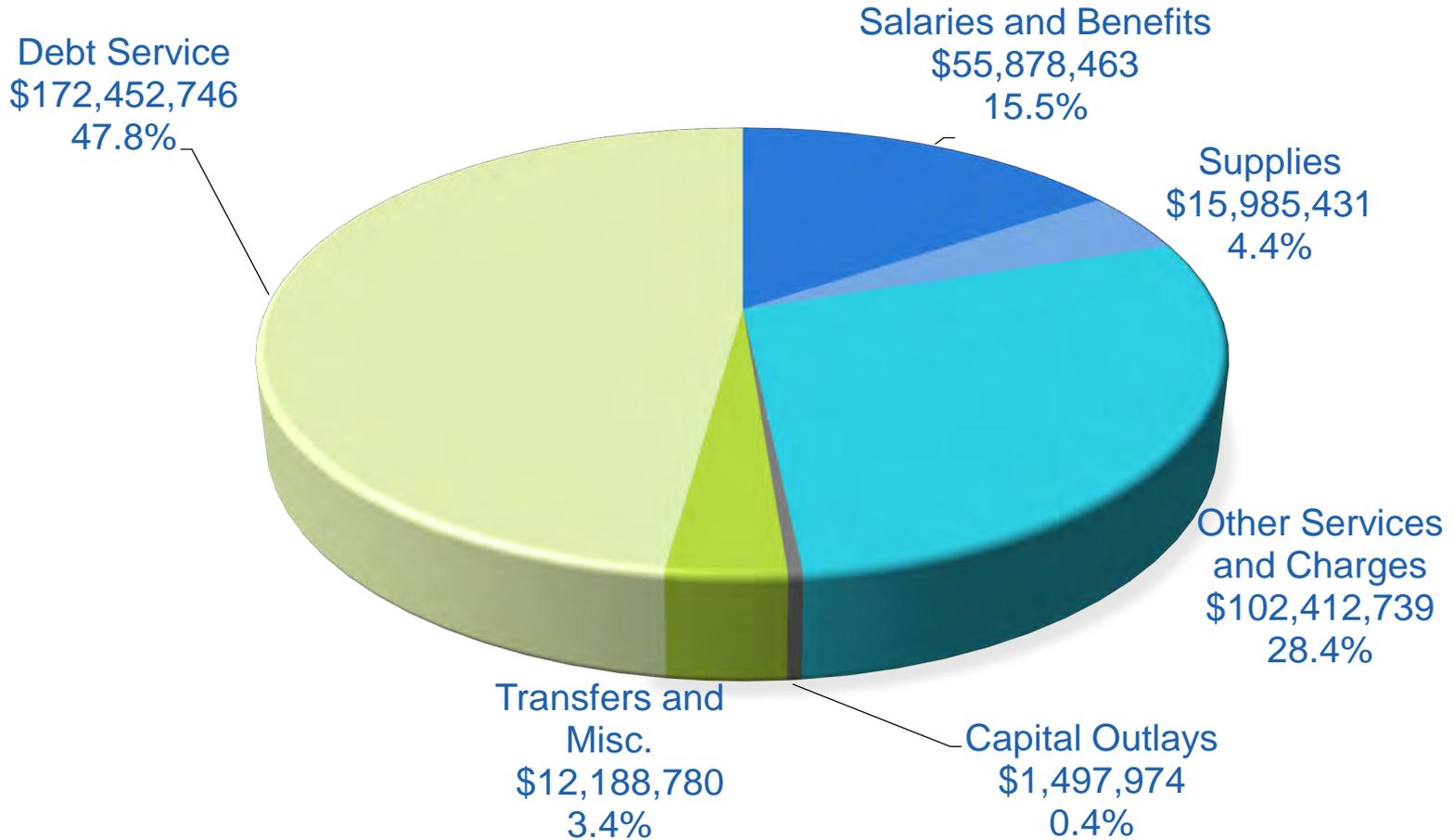
- Revenue - \$367,228,770
- Expense - \$360,416,133
- 2.87% increase over FY20



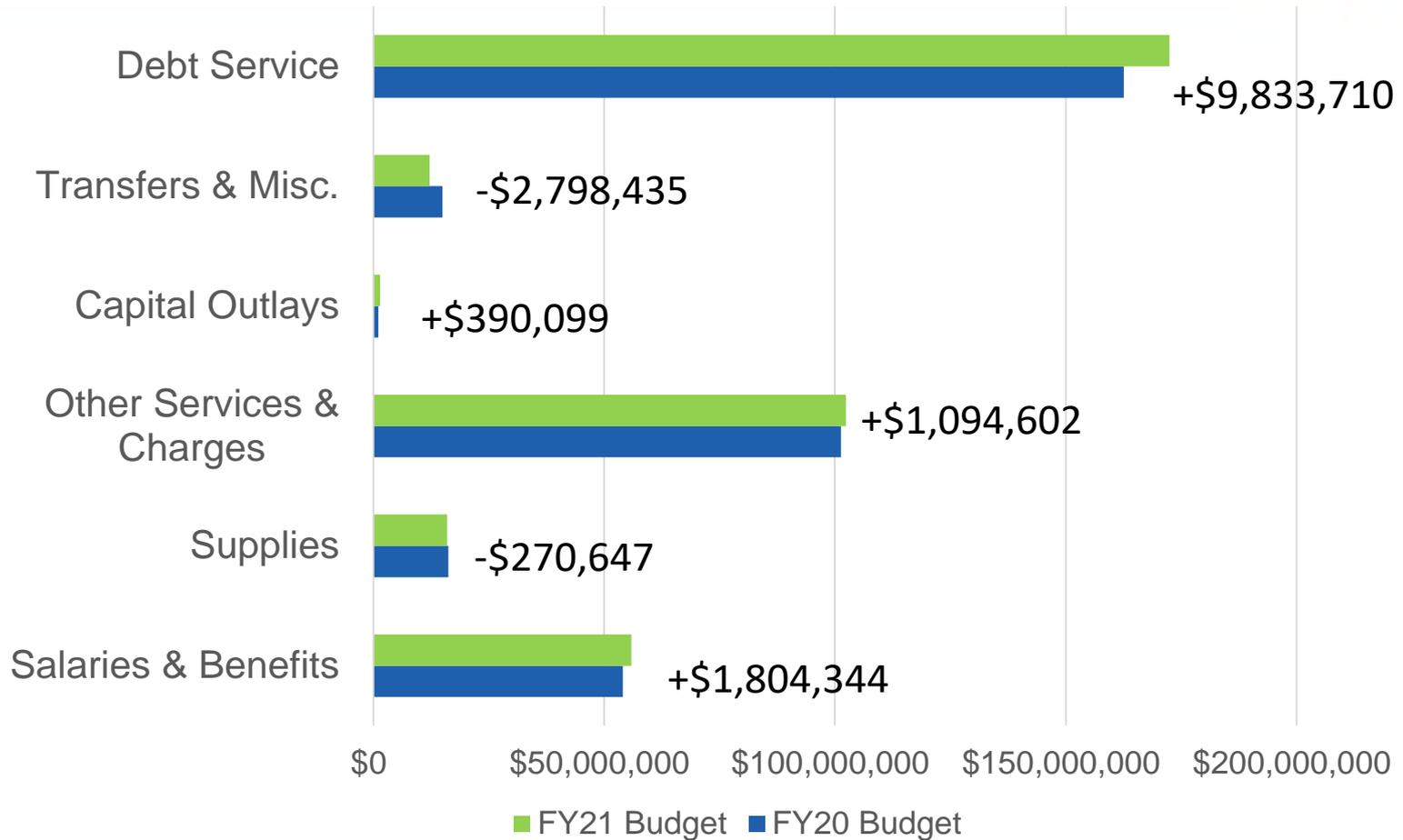
Authority-Wide Expenses



Total Expenses: \$360,416,133



Budget Comparison FY20 to FY21





- 499 Full-time Employees
- 14 Seasonal or Part-time
- 10 New Employees Added

Salaries & Benefits: \$55,878,463

- Net increase: \$1,804,344 (3.34%)
- Salaries +\$1,550,144 (4.48%)
 - Job progression/promotions + \$483,068
 - Non-budgeted FY20 positions +\$617,031
 - New FY21 positions +\$450,045
- Pension/misc. benefits +\$261,659 (6.51%)
- Health benefits -\$7,459 (-0.05%)



Headcount

- FY20 Adjustment to headcount (non-budgeted)
 - GF +1 FT, +1 PT
 - ITSS +1 FT
 - PDCA +4 FT, -1 PT

- FY21 New Positions
 - CSG + 1 FT
 - PDCA + 4 FT
 - CRWS + 3 FT
 - DCRWS + 1 FT, -1 PT
 - HRWSS + 1 FT

- FY21 Total Authority-Wide = 513



Supplies: \$15,985,431

Net decrease: \$270,647 (-1.66%)

- Process chemicals (-\$574,909) (-4.86%)



Other Services & Charges: \$102,412,739

- Increase: \$1,094,602 (1.08%)
- Water +\$761,595 (2.75%)
- Information Technology Services +\$689,900 (15.64%)
- Sludge Disposal +\$452,221 (3.95%)
- Power +\$367,037 (4.67%)
- Other Prof. Services +\$435,236 (12.61%)
- Metered Sewage Services -\$490,817 (-11.12%)
- Engineering -\$195,143 (-7.02%)
- CSG -\$1,804,824 (-29.55%)
 - \$1.5M use of Fund Balance



Capital Outlays: \$1,497,974

Net increase: \$390,099 (35.21%)

Large items budgeted in 2021:

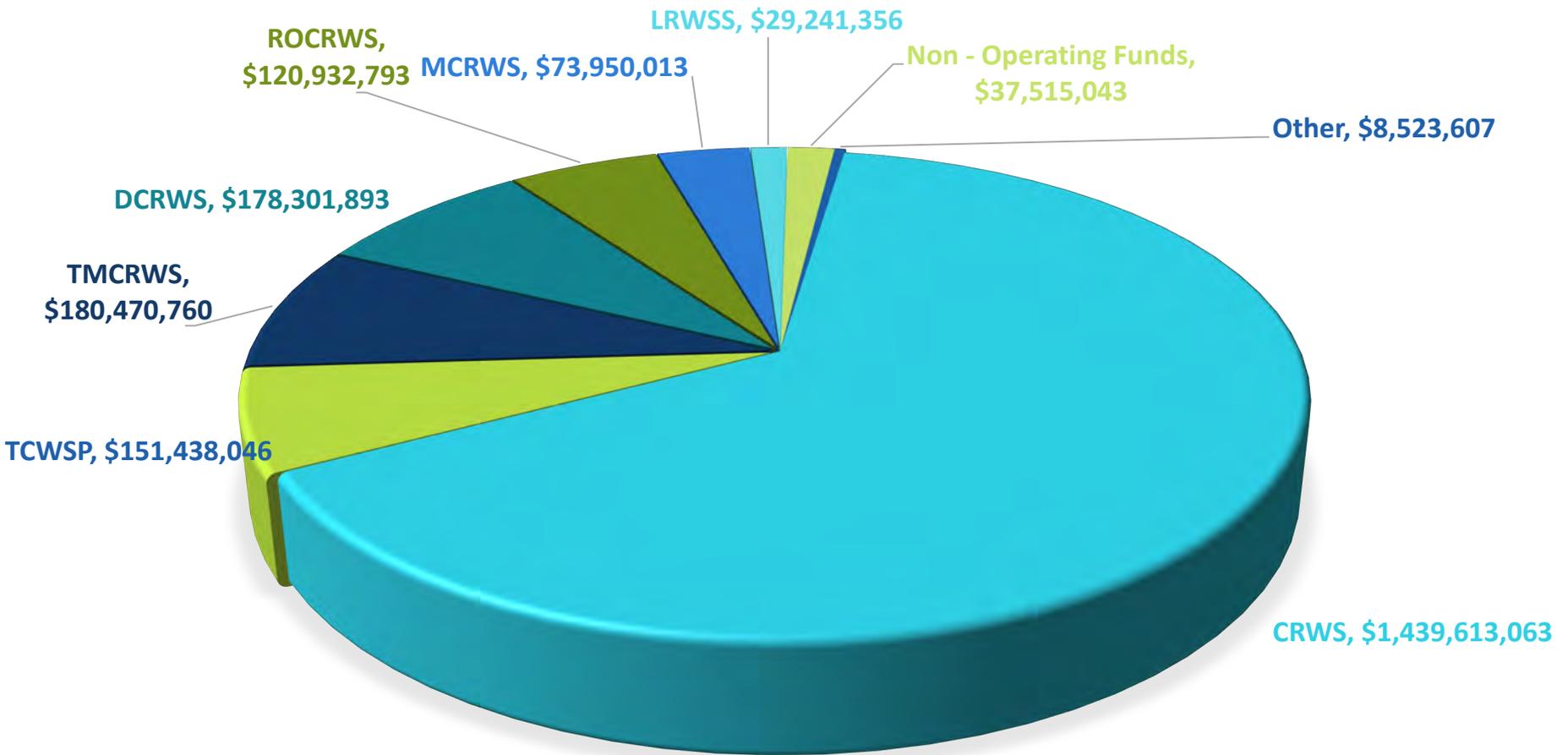
- Submersible pump (CRWS)
- Gas chromatograph (CRWS Lab)
- Oil & Grease System (CRWS Lab)
- Switch and UPS upgrade (ITSS)
- Tigerville bulkhead (LRF)
- 14 replacement vehicles
- 2 new vehicles



Debt Service: \$172,452,746



- Total increase: \$9,833,710 (6.05%)
- FY21 planned bond issuances (par value): \$220 million



Summary of TRA Debt

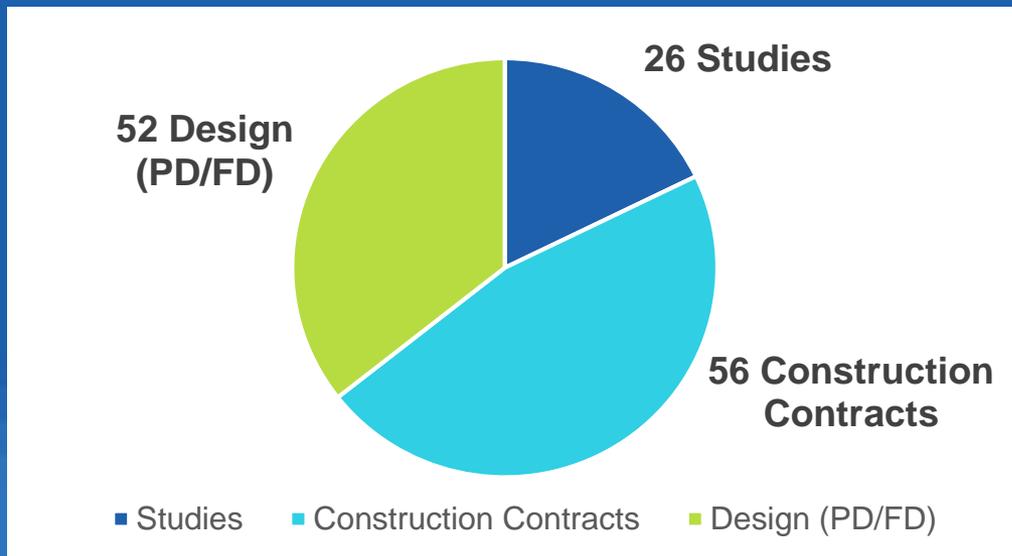
Financial Stability



Project	S&P Rating	Weighted Average Interest
Central Regional	AAA	2.53%
Ten Mile Creek	AA-	2.63%
Denton Creek	AA+	2.80%
Red Oak Creek	AA-	2.79%
Mountain Creek	AAA	2.48%
Tarrant County	AA+	2.42%
Huntsville Regional	AA-	2.40%
Livingston Regional	AA	4.63%
Walker – Calloway Branches	AA	3.57%

2021 Capital Improvements

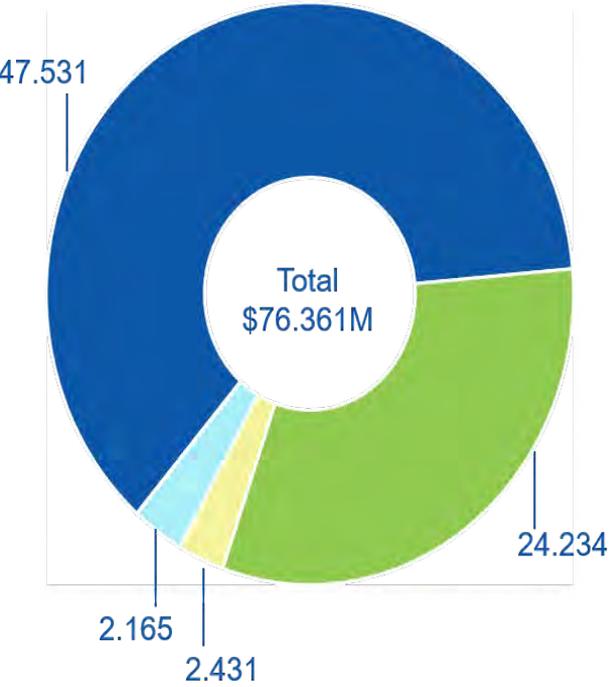
- Anticipate spending approximately \$190,250,000 on design and construction of TRA Assets
- 134 active projects



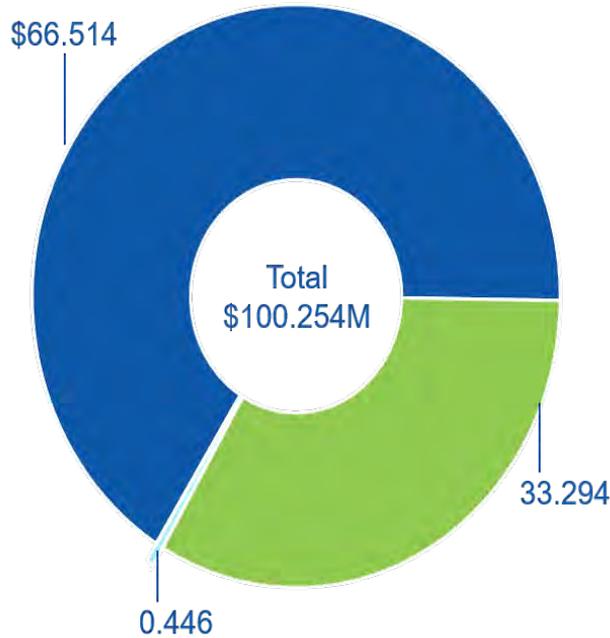
FY21 Capital Improvements



Wastewater Treatment Plant



Pipeline

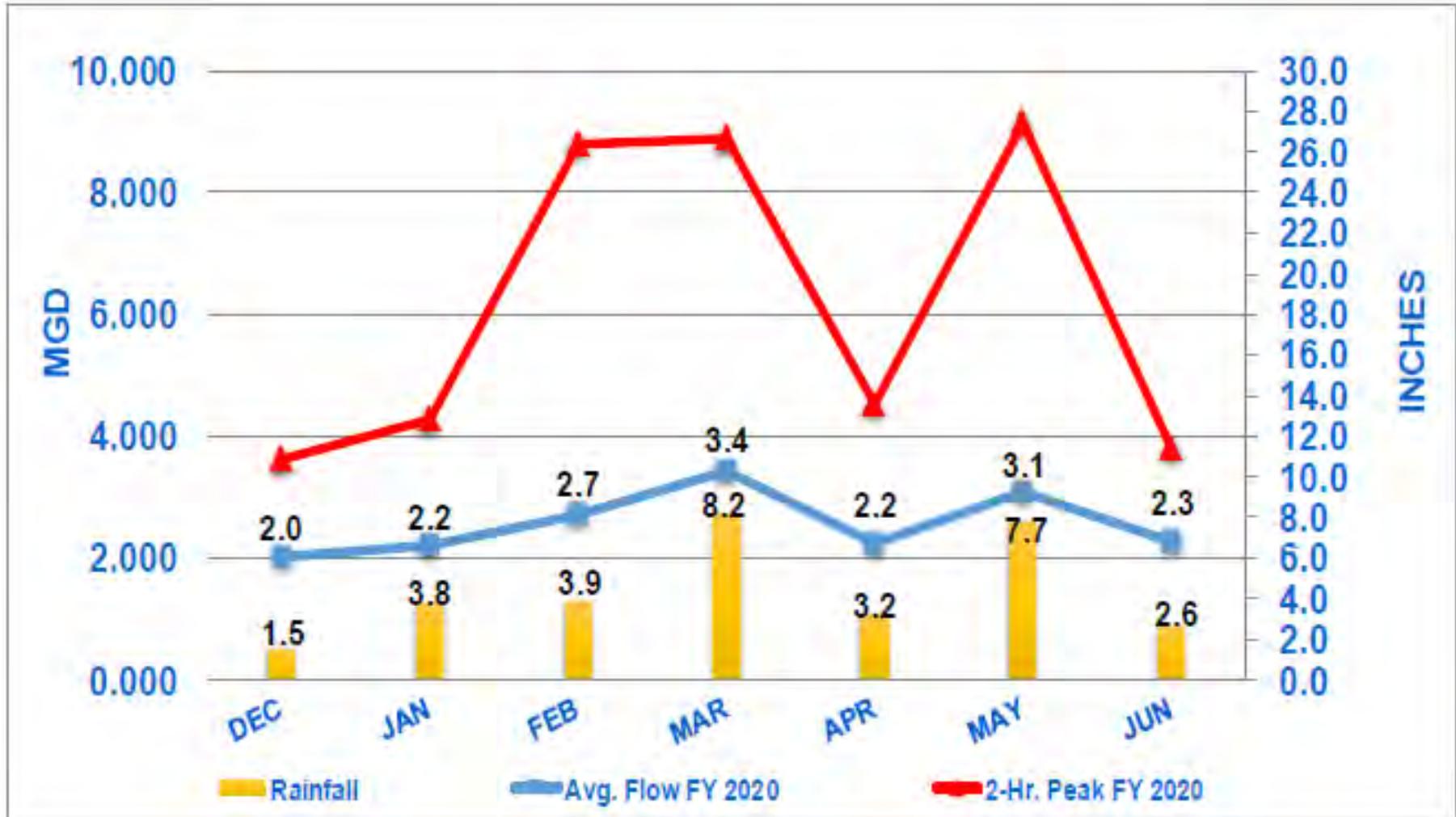


Water Treatment Plant



- Capacity
- Condition
- Security
- Employee Safety
- Resiliency
- Regulatory
- Public/Customer Impact
- Efficiency

MCRWS Effluent Daily Average Flow FY 2020



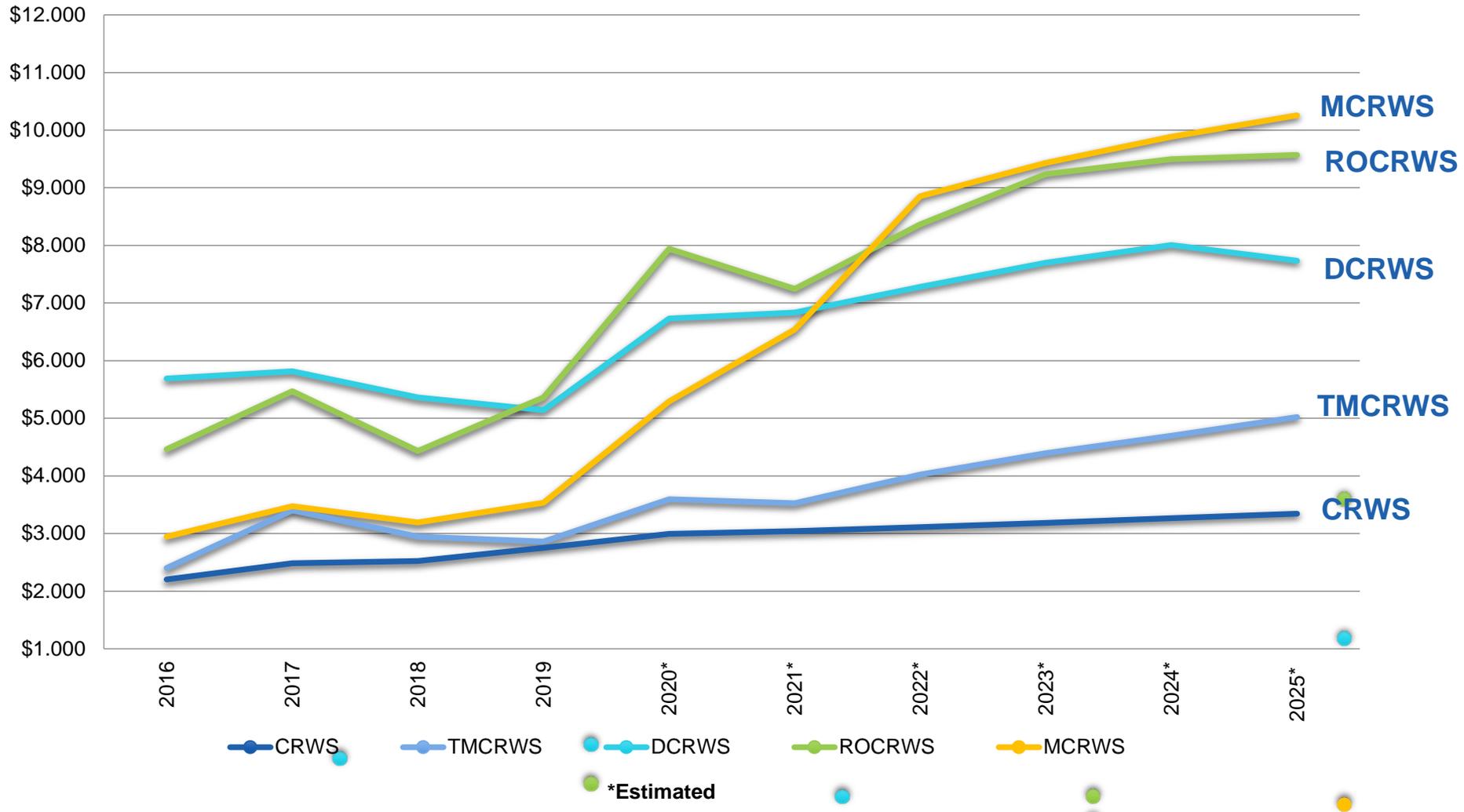
New Money Debt Issued 2010 – 2025 (in Millions)



*Includes ECP

**FY20 and beyond – includes planned issuances

Northern Region Wastewater Projects Cost/1,000 gallons

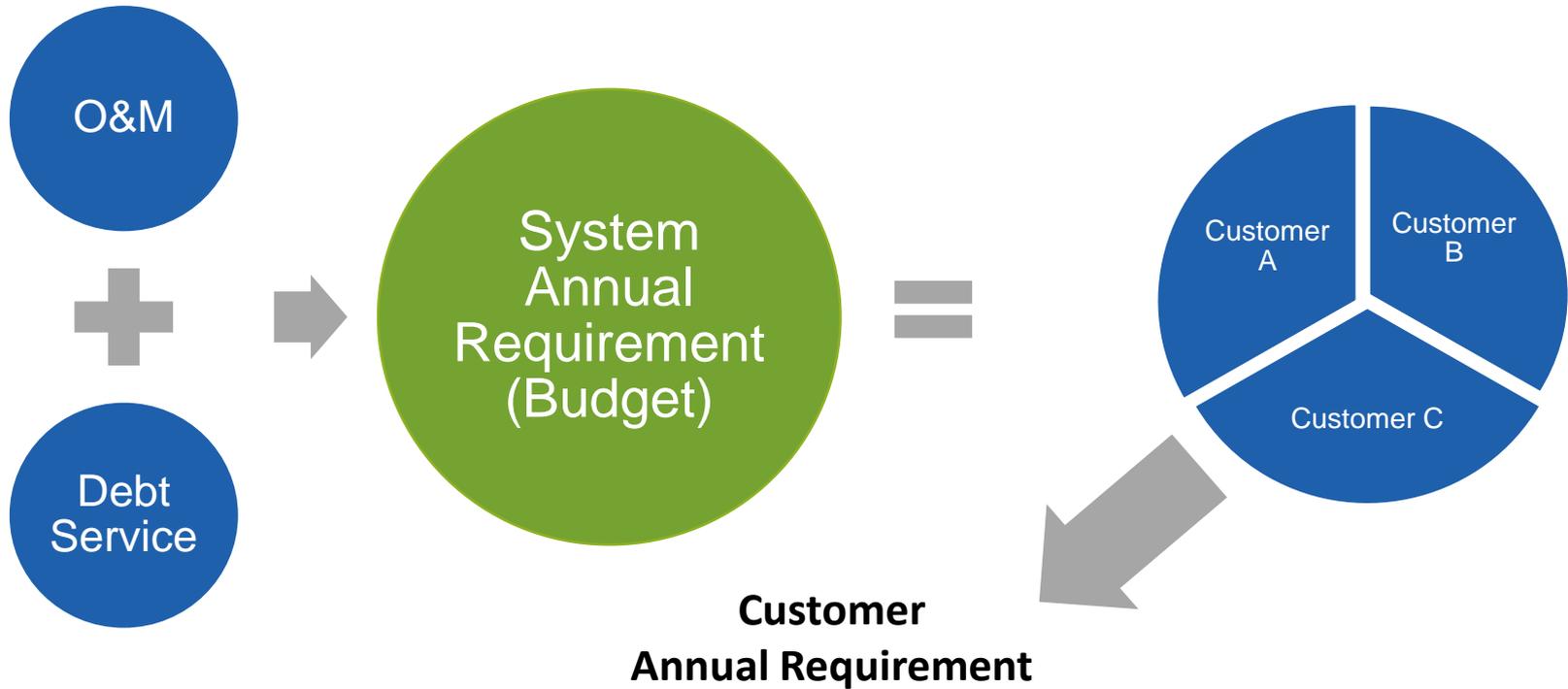


% Change From FY20 Budget

Funds	O&M	Debt
Authority-Wide	0.12%	6.05%
General Fund	(1.37%)	n/a
Central Regional	0.65%	6.67%
Ten Mile Creek	(1.47%)	3.19%
Denton Creek	0.81%	12.18%
Red Oak Creek	1.96%	8.86%
Mountain Creek	7.80%	53.56%
Tarrant County	(1.21%)	2.05%
Huntsville	28.85%	-40.85%
Livingston Regional	6.31%	0.18%
Trinity County	-7.36%	269.27%
Lake Livingston	-0.12%	0.00%
Livingston Recreation	-6.39%	0.00%



Annual Revenue Requirement Allocation

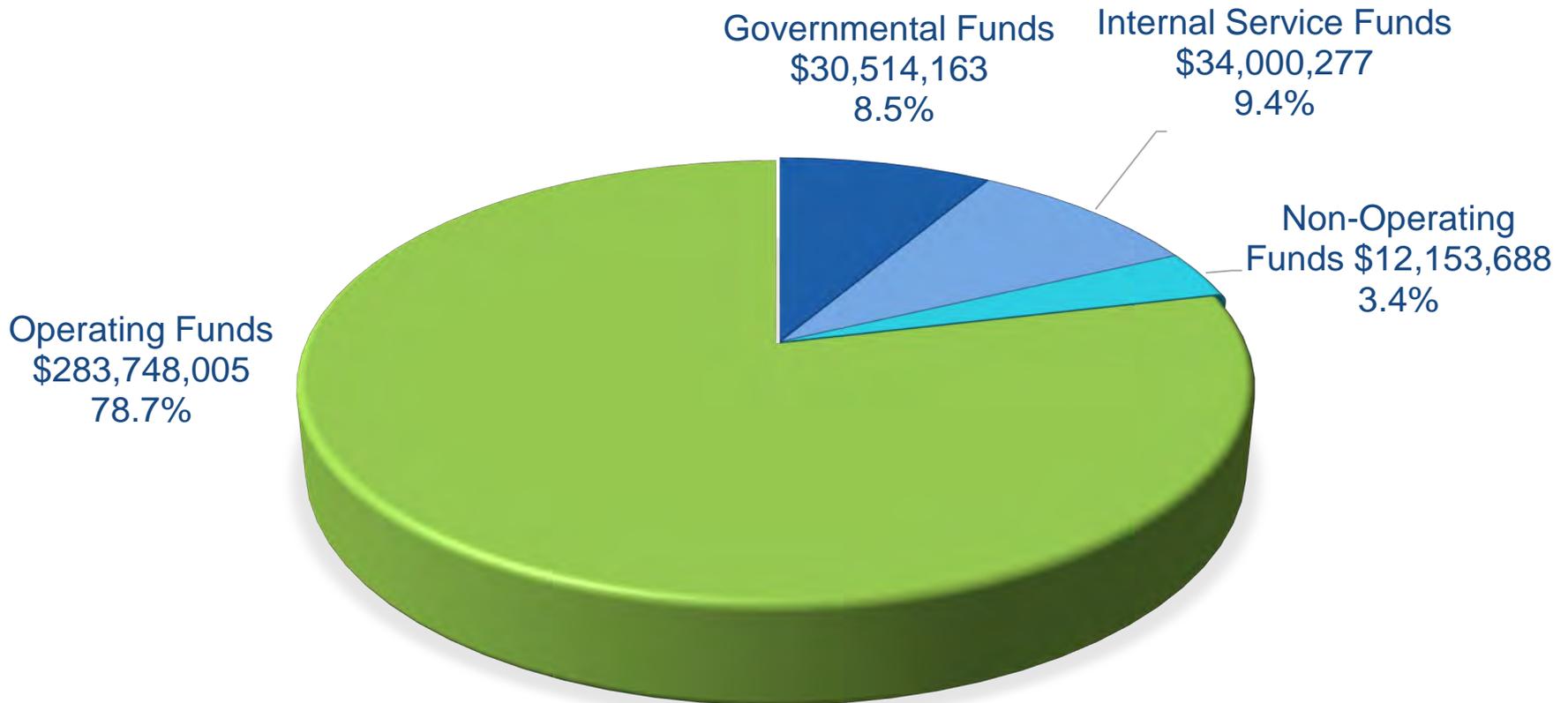


Based on % contribution of flows

Authority-Wide Expenses By Fund Type



Total Expenses: \$360,416,133



General Fund: \$13,664,580

Net decrease: -\$189,164 (-1.37%)

- Salaries & benefits + \$214,168 (2.87%)
- Health benefits -\$10,079 (-0.99%)
- Transfer to Debt Service Fund -\$416,284 (-11.39%)
 - Final payment on the outstanding transportation equipment note will be remitted during FY 20
- No anticipated use of fund balance
- \$4.2M projected remaining fund balance at 2021 fiscal year end

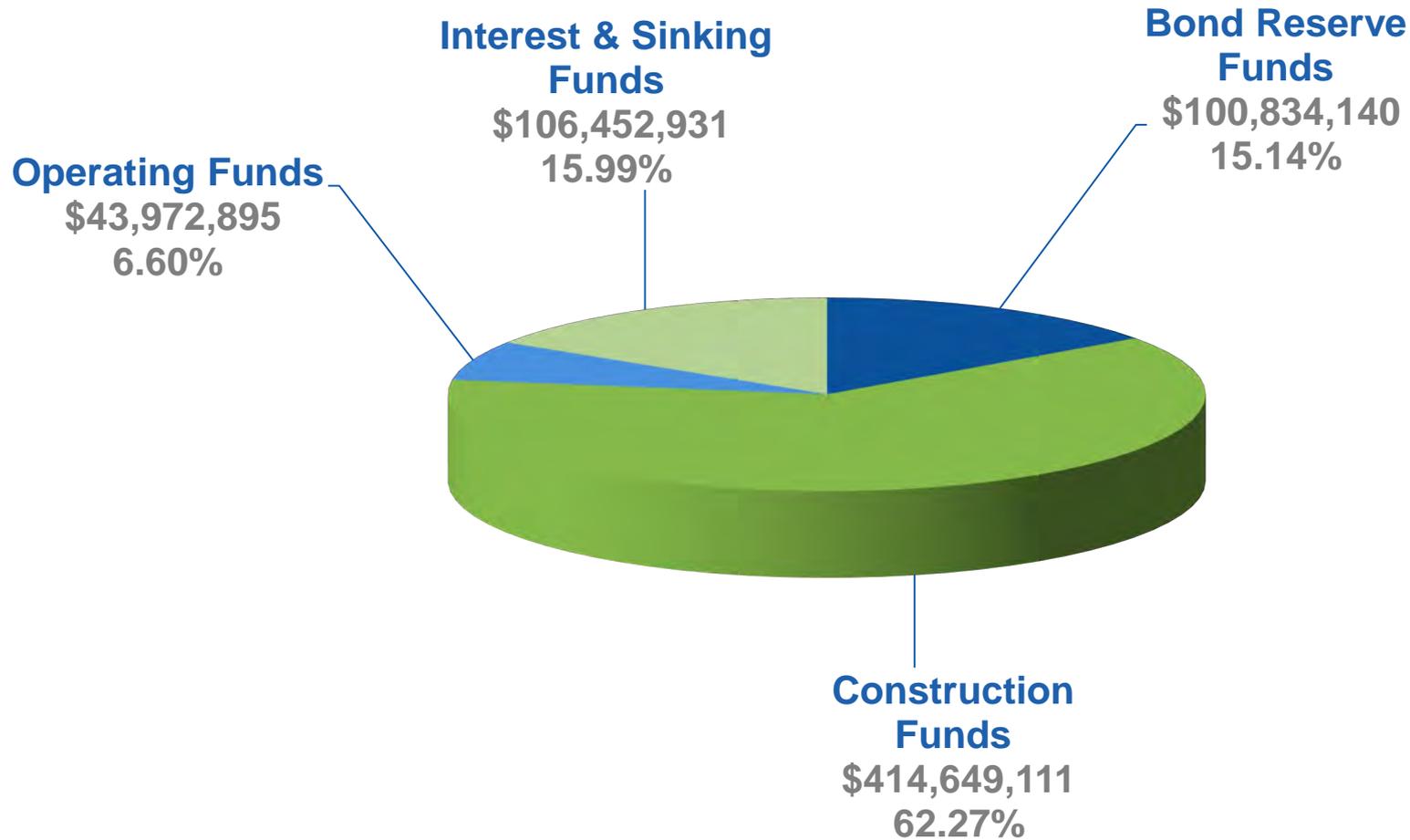


Item B: Investment Officers' Report



Consolidated Cash and Investments

As of May 31, 2020
\$665,909,077



Item C: Extendable Commercial Paper



ECP Program

- Extendable Commercial Paper program established in April 23, 2014
- Allows short term financing to fund design and construction at CRWS.
- Maximum aggregate principal amount allowed is \$350,000,000.
- Currently have \$-0- ECP bonds outstanding.
- Resolution authorizes the GM to execute long-term financing to refund short-term bonds.



ECP Authorized Projects



PROJECT DESCRIPTION	BUDGET	EXPENSE	REMAINING
PHASE III & PH IIIB SOLIDS MGMT IMPROV	263,385,382.16	196,043,518.69	67,341,863.47
HEADWORKS A FINE SCRNM FACILITY	32,796,967.57	4,896,898.84	27,900,068.73
30 MC-1	18,976,000.00	832.50	18,975,167.50
MC-7 & 8, PHASE II	15,580,946.00	915,178.17	14,665,767.83
09BC-1 PHASE 2	13,042,000.00	27,680.49	13,014,319.51
REHAB ITEMS - PH VI	15,813,310.00	8,127,089.83	7,686,220.17
BEAR CREEK INT RELIEF, PH1	5,292,887.00	615,599.22	4,677,287.78
CRWS ALT ACCESS & LEVEE IMPR	4,285,238.00	1,528,471.91	2,756,766.09
EF REHAB & REPL(CAC-7, 8A, 8B)	2,500,000.00	0.00	2,500,000.00
BURIED ASSET EVAL/COND. ASSESS	3,061,239.66	1,180,703.89	1,880,535.77
HEADWORKS B FINE SCRNM IMPR	1,791,000.00	0.00	1,791,000.00
CRWS FEED 2 INTERCEPTOR	1,444,187.00	8,840.34	1,435,346.66
METER STATION REHAB GROUP 1	1,810,600.00	555,377.19	1,255,222.81
EF-2B	7,437,861.55	7,096,851.87	341,009.68
EF-2A (DOWNSTREAM OF LS 1)	11,601,387.24	11,458,715.24	142,672.00
EMC (NELV TO MC-5)	12,788,115.57	12,892,743.33	(104,627.76)
PHASE IIIA FILTER IMPROVE	6,767,690.83	6,768,435.53	(744.70)
MISCELLANEOUS	5,704,005.61	4,597,784.24	1,106,221.37
<i>Total Projects</i>	<i>424,078,818.19</i>	<i>256,714,721.28</i>	<i>167,364,096.91</i>
Add: Retainage			8,577,721.07
Add: Projects with Negative Remaining			105,372.46
Less: L-T Funds Available			101,011,620.00
Planned FY21 Bonds			75,035,570.44

Item D: Defined Contribution Pension Plan and Deferred Compensation Plan



Retirement Plans

Defined Contribution Pension Plan - 401(a)

- TRA contributes 12%, no employee match requirement.
- Eligibility after six months of service.
- Voluntary post-tax contribution.
- Fully vested after seven years of service.

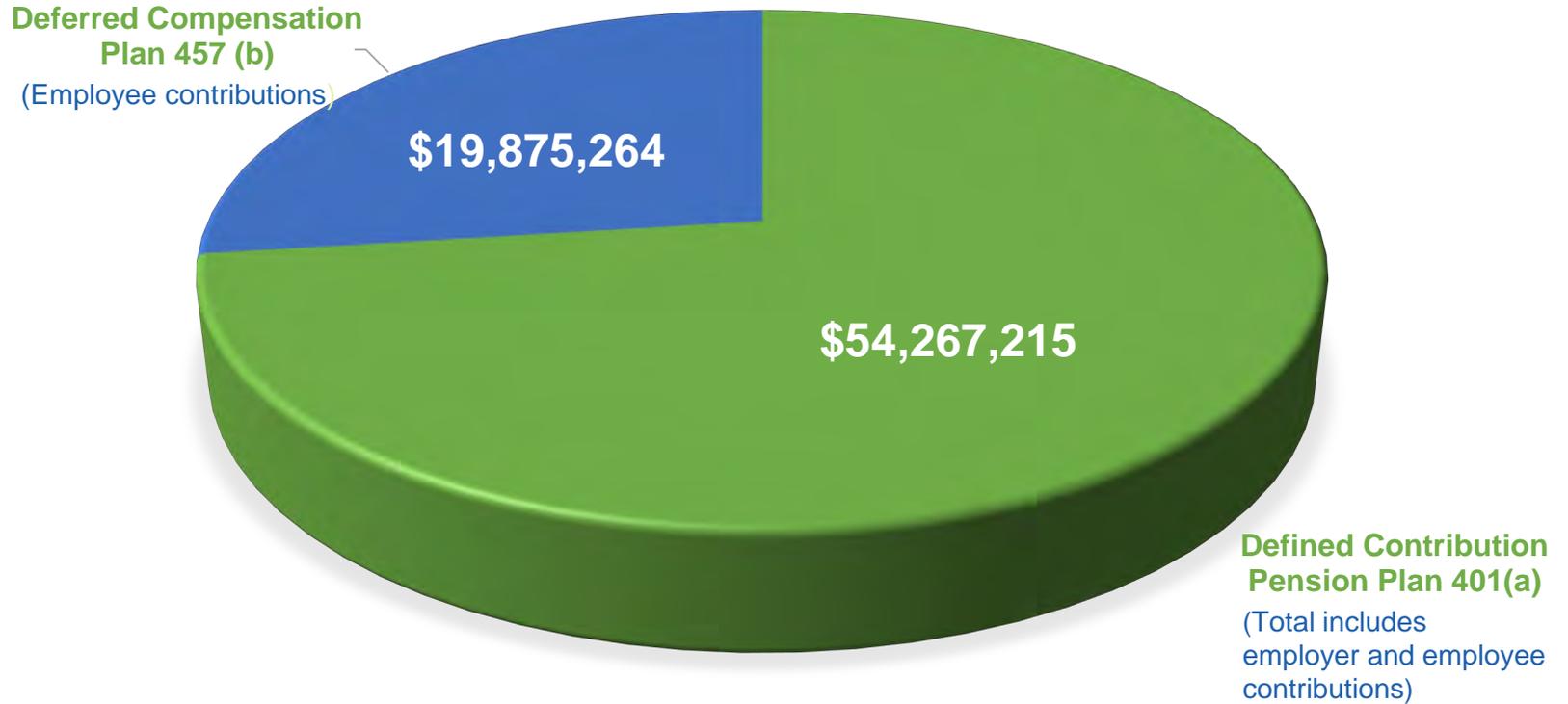
Deferred Compensation Plan - 457(b)

- Voluntary pre-tax contributions.
- Maximum contributions not to exceed annual IRS deferral limit. 2020 calendar year limit is \$19,500.
- Additional employee catchup contributions (age 50+).
- Pre-retirement catchup contributions.
- Loan provision allows for loans up to 50% of account balance.



Plan Balances

Total \$74,142,479



RFP Pre-requisite Specifications

AndCo will assist management to develop a comprehensive list of proposal specifications, including requirement that providers:

- Offer at least one Fixed Interest Account with a guaranteed rate of return.
- Improve the quality of the array of funds in the investment portfolio.
- Reduce overall plan expenses, including fund administration charges.
- Improve plan capabilities, participant services and retirement education.
- Offer online platform with tools for investment performance.
- Show superior ratings from A.M. Best, Fitch, Standard and Poor's and Moody's.

Professional services for RFP is \$32,000.



Item E: Policy Amendments — Purchasing and Procurement and Code of Ethics



**Item F:
Annual Joint Funding
Agreements — Water
Resources Investigations —
U.S. Geological Survey**



USGS Cooperative Monitoring

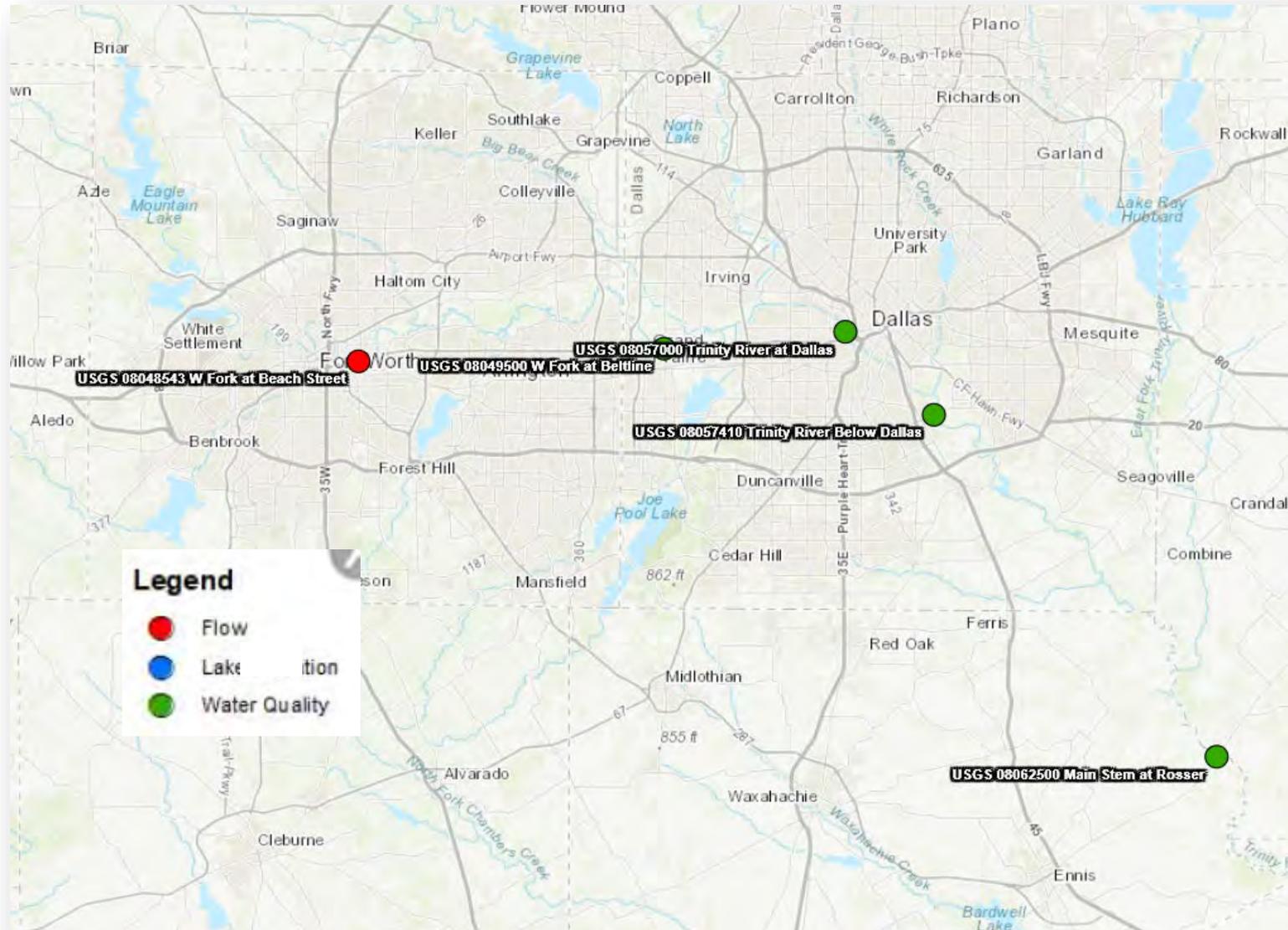
TRA has partnered with the USGS since 1975 to fund water quality and flow gauges in the Trinity Basin.

Two Agreements:

- Upper Basin Monitoring
 - Gauges (flow & water quality)
 - Zebra Mussels
 - Integrated Water Availability Assessment
- Lower Basin Monitoring
 - Gauges (lake level, flow, & water quality)
 - Zebra Mussels



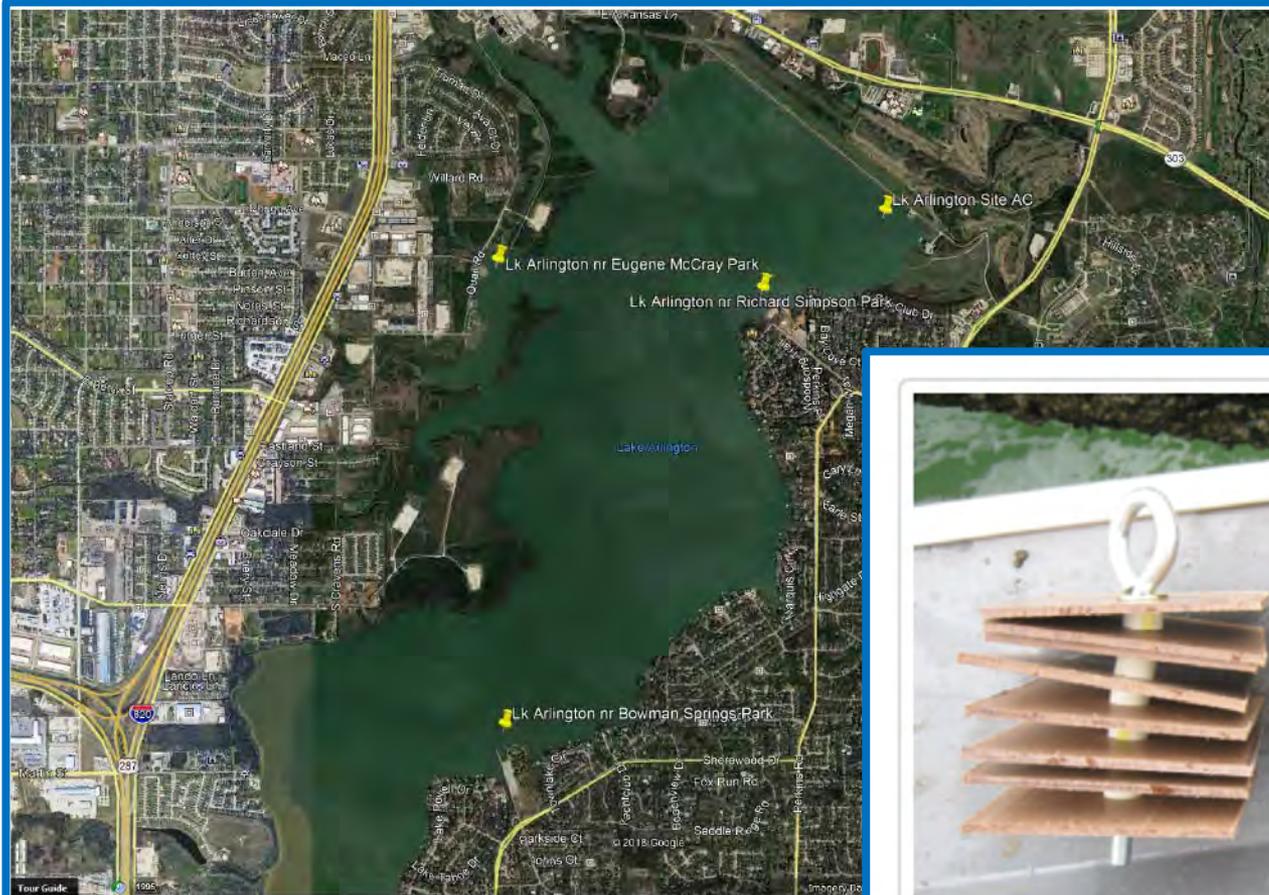
Upper Basin – Gauges



Upper Basin – Zebra Mussels



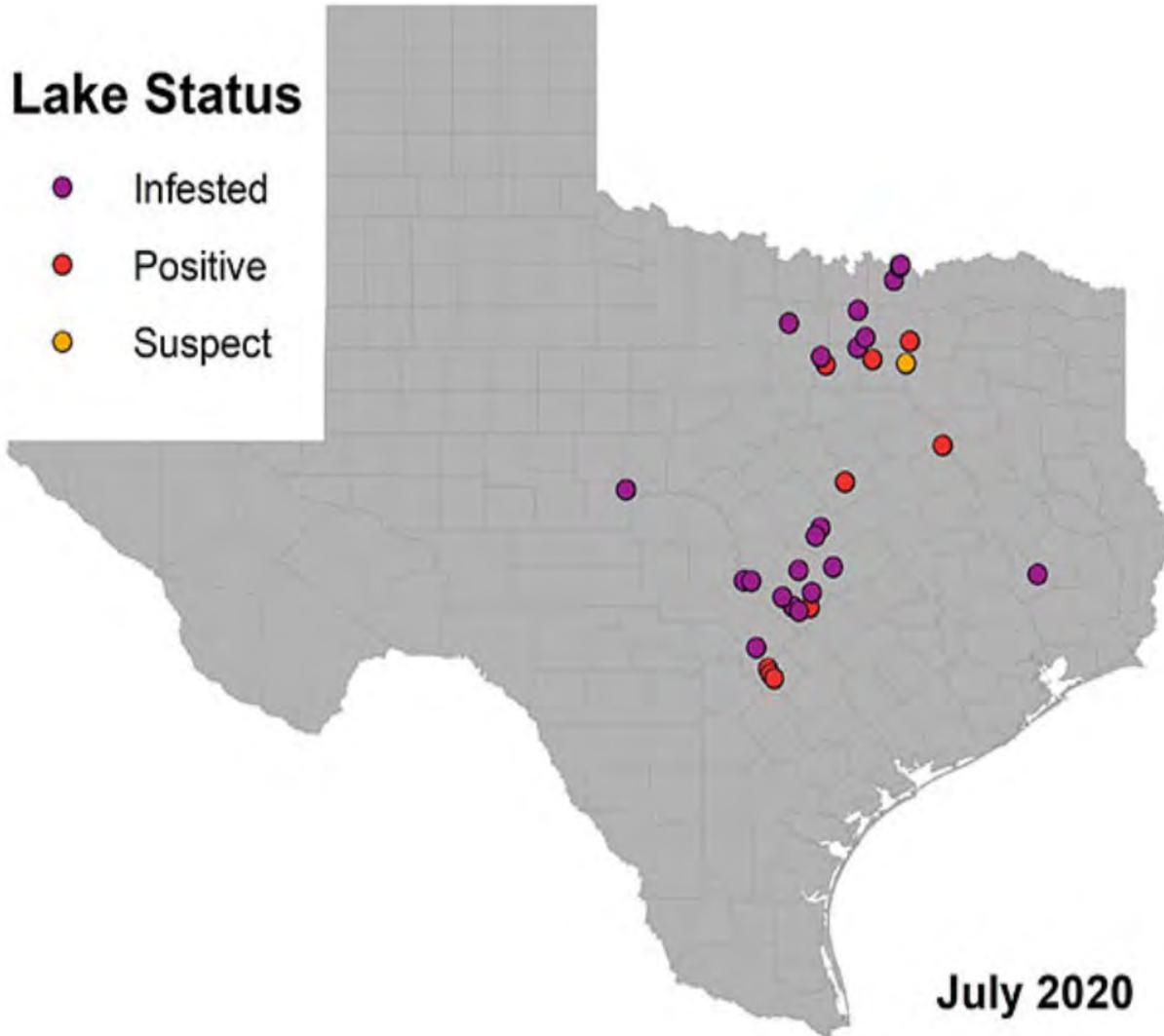
- Lake Arlington Zebra Mussel studies – 4 Sites



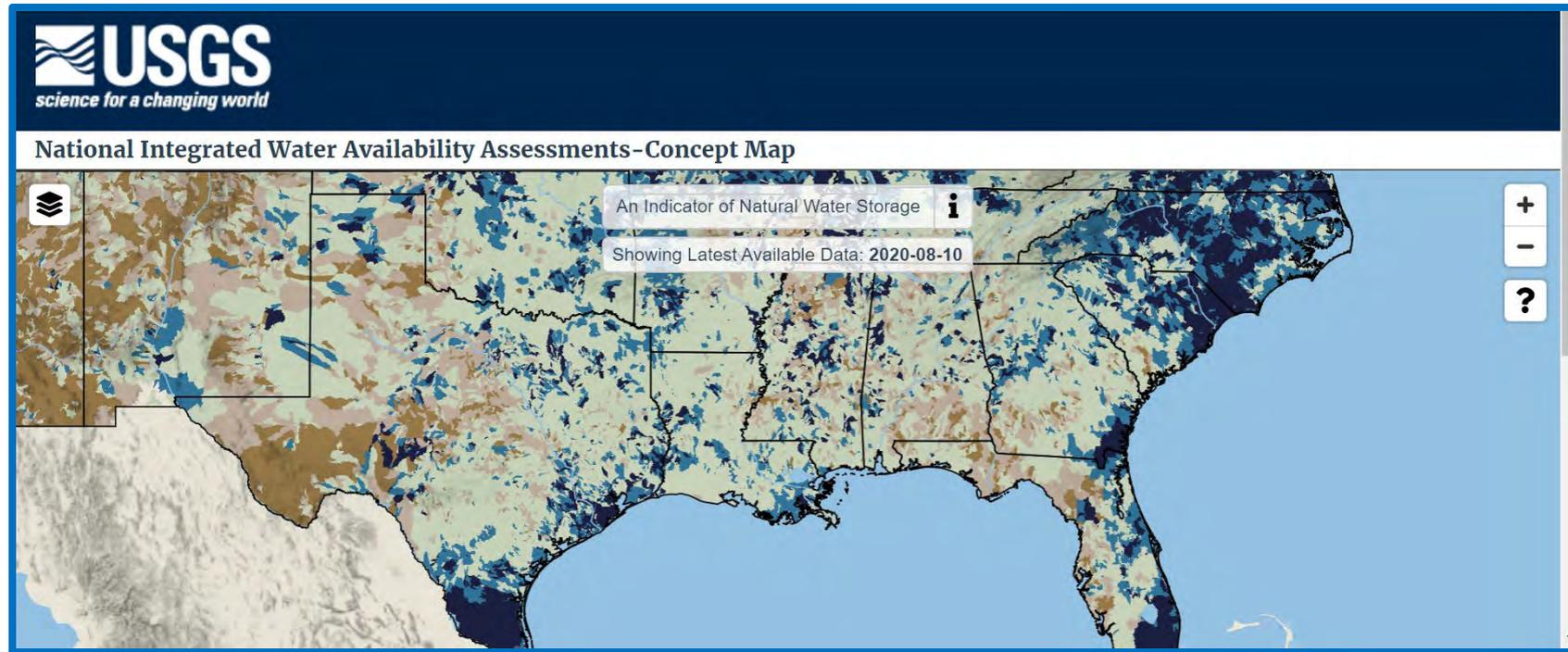
New and fully colonized substrates.

Site name	USGS Site number	GPS co
Lk Arlington nr R Simpson Park at Arlington, TX	324248097120801	N32.713441
Lk Arlington nr Bowman Spgs Park at Arlington, TX	324127097130401	N32.691083
Lk Arlington nr E McCray Park at Arlington, TX	324253097130601	N32.714876
Lk Arlington Site AC at Arlington, TX	324304097113601	N32.717403 W97.195123 A P Tarrant

Zebra Mussel Results



Upper Basin Integrated Water Availability Assessment (IWAA)



2021 Cooperative Monitoring Program - Upper Basin



YEAR	USGS	TRA	Dallas	Houston	NTMWD	Fort Worth	TRWD	Total
Gauges	\$65,925	\$36,125	\$36,125	\$0	\$0	\$36,125	\$0	\$174,300
Zebra Mussels	\$0	\$13,000*	\$0	\$0	\$0	\$0	\$0	\$13,000
IWAA	\$167,000	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	\$342,000

Total Project Cost - \$529,300

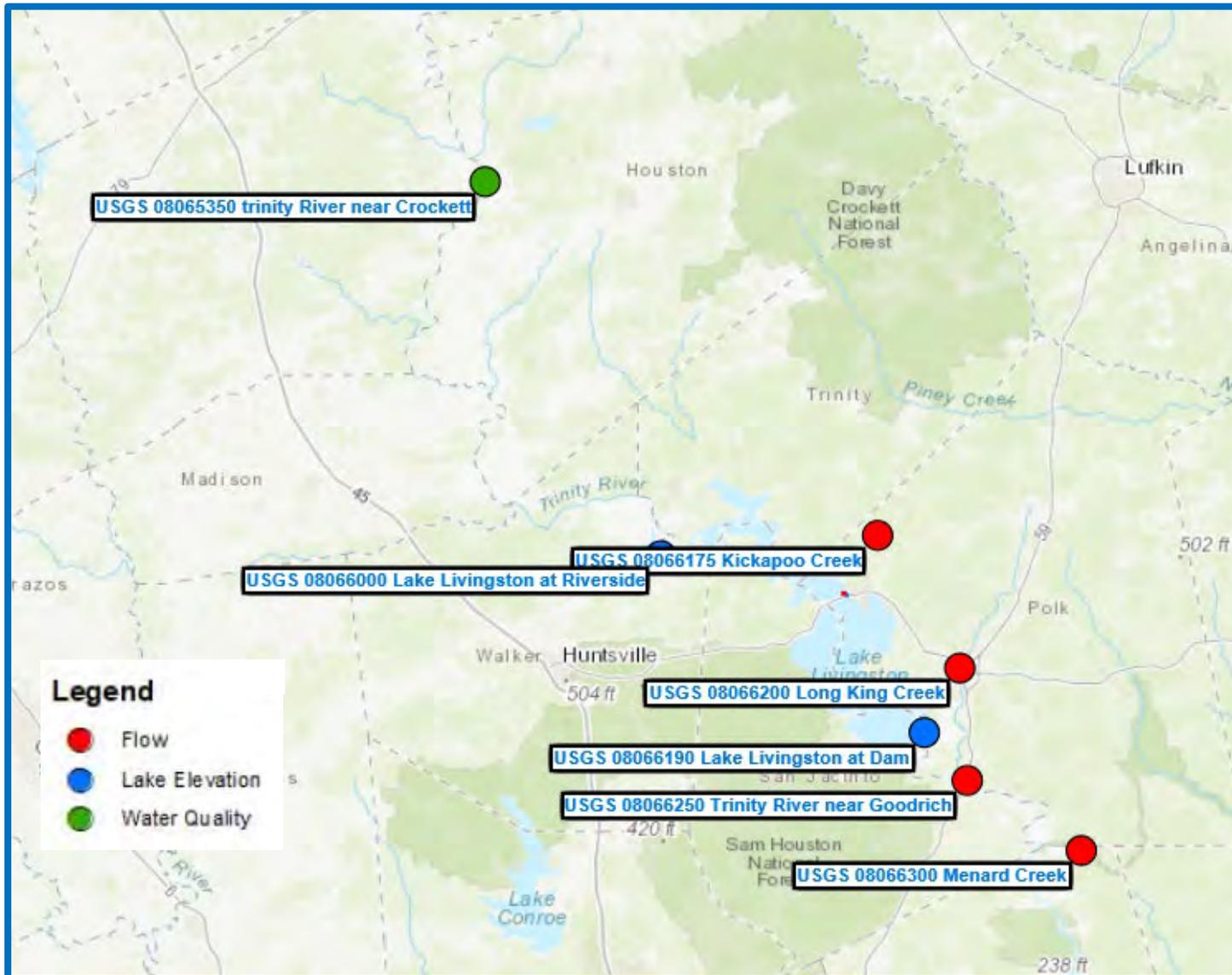
Breakdown:

TRA Share - \$84,125

Local Partners - \$247,250

Federal Funds - \$232,925

Lower Basin – Gauges



2020 Cooperative Monitoring Program – Lower Basin



YEAR	USGS	TRA	Total
Gauges	\$30,670	\$79,880	\$110,550
Zebra Mussels	\$4,100	\$11,450	\$15,550

Total Project Cost - \$126,100

Breakdown:

TRA Share - \$91,330

Federal Funds - \$34,770

Item G: Master Plan Annual Report



Basin Master Plan



Trinity River Basin Master Plan

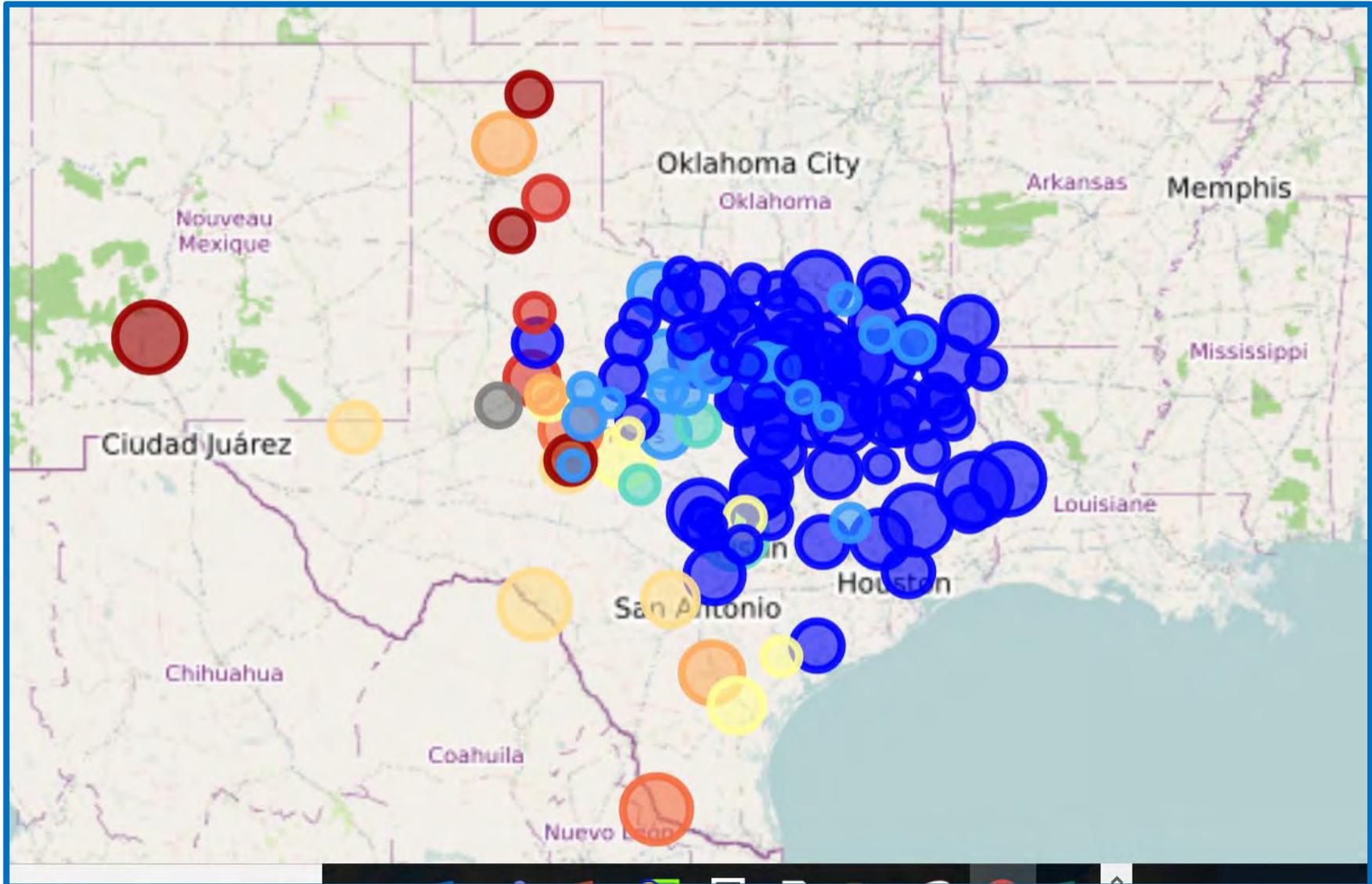


Trinity River Authority of Texas
2016



“Annually the Board of Directors will receive and review a report on the status of implementation of the plan and consider any revisions that might be indicated at that time. Periodically there should be a comprehensive review of the plan.”

Hydrology & Water Supplies

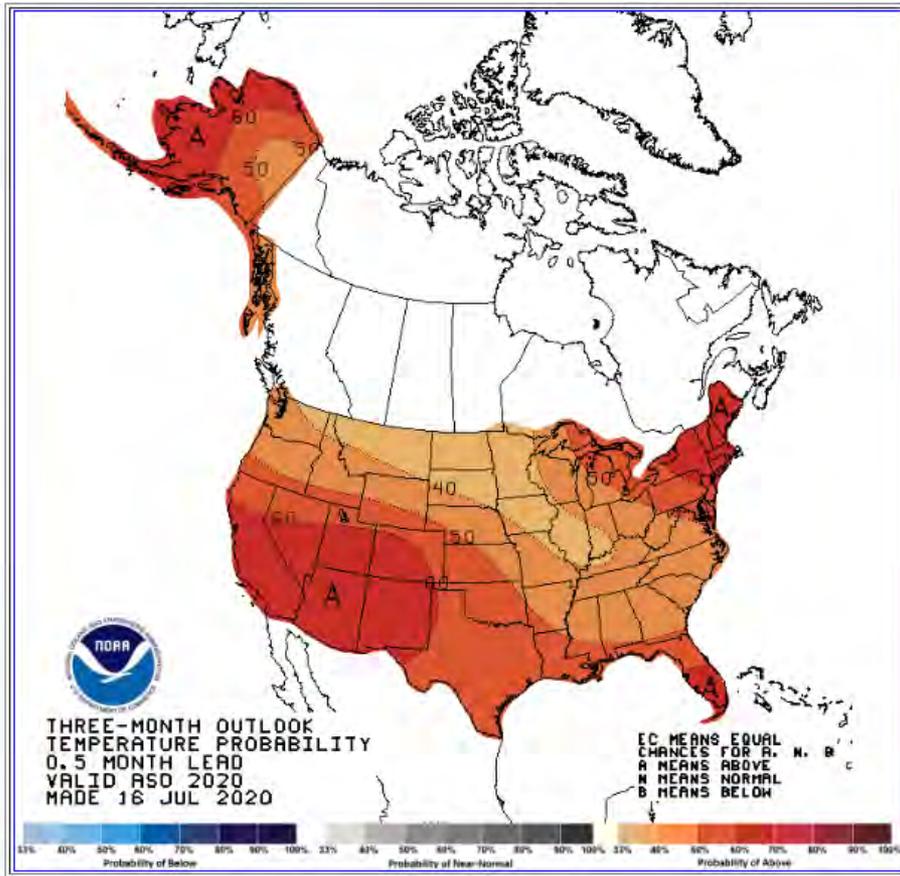


Hydrology & Water Supplies

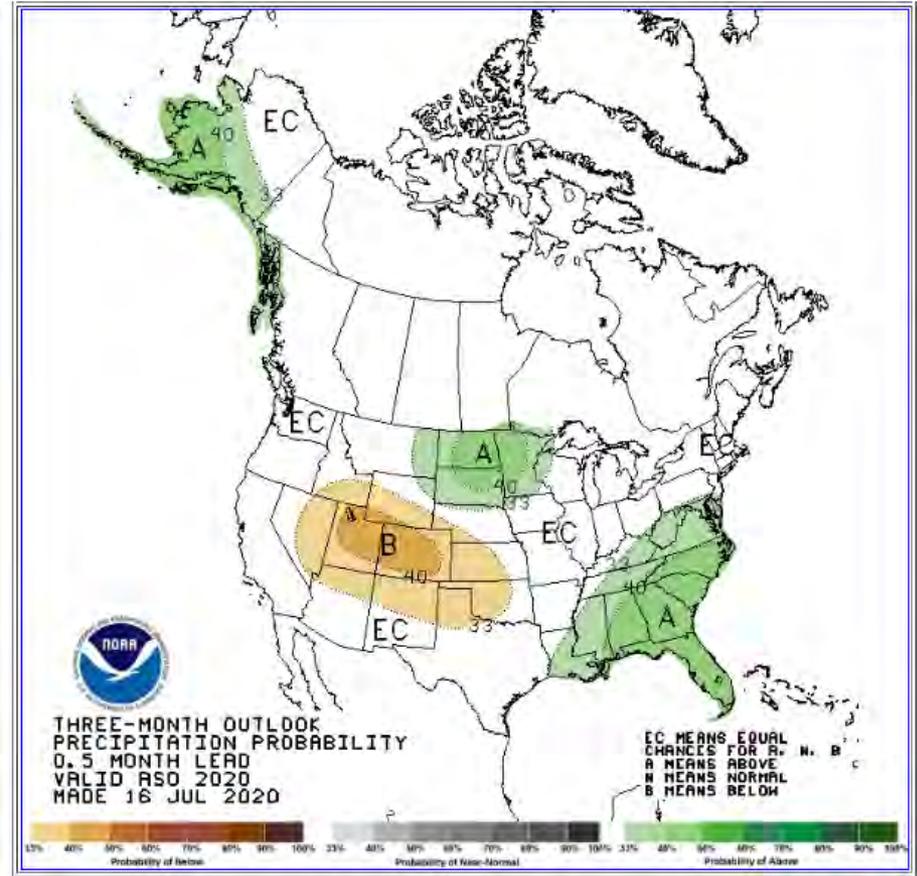
Reservoir	Capacity	Elevation (ft msl)	Conservation Pool (ft msl)
Livingston	100%	131.10	131.0
Bardwell	99.9%	420.98	421.0
Navarro Mills	100%	424.87	424.5
Joe Pool Lake	99.2%	521.80	521.6



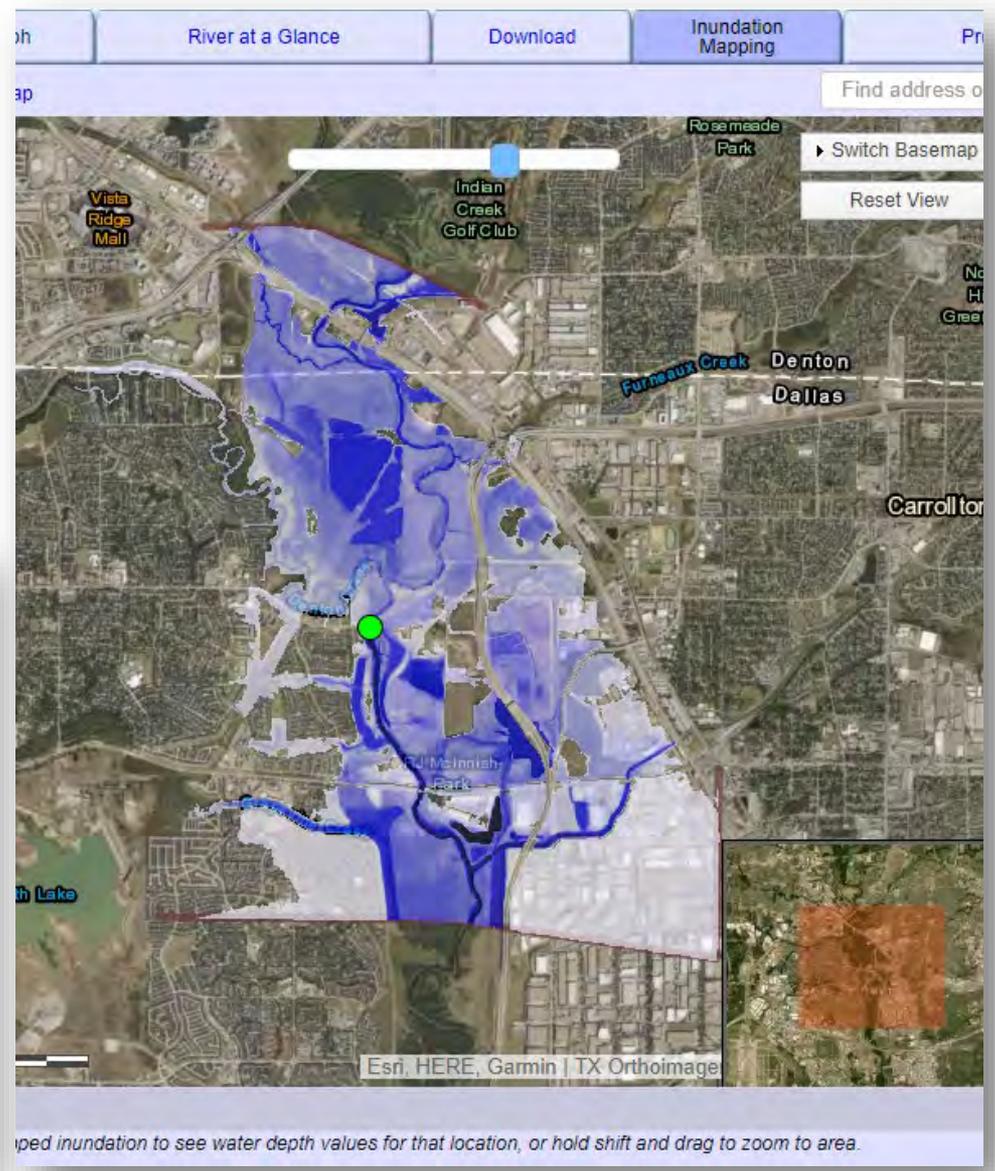
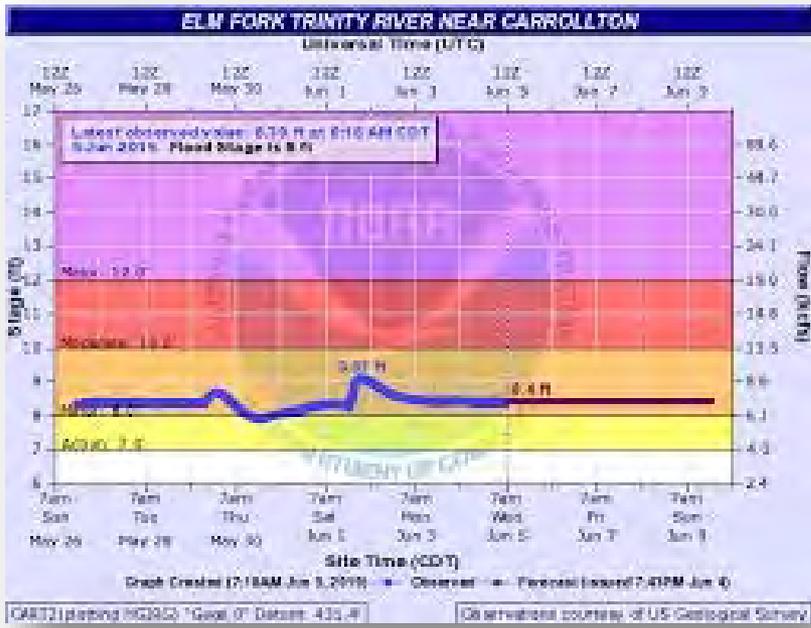
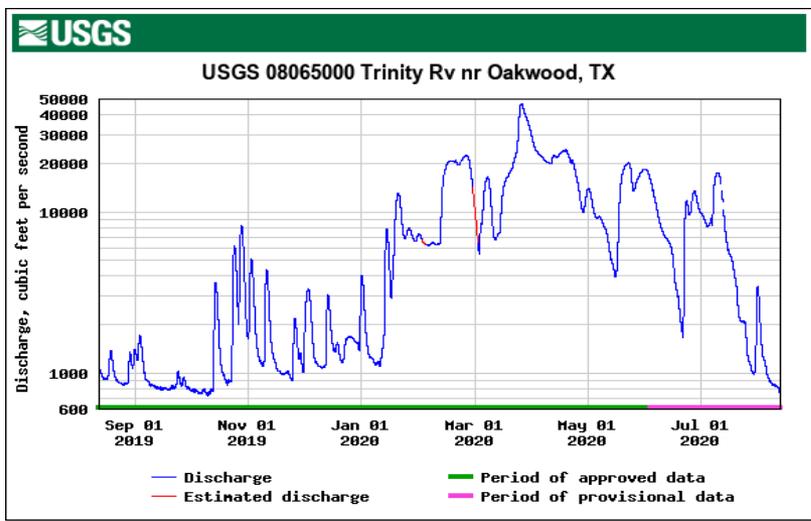
Temperature



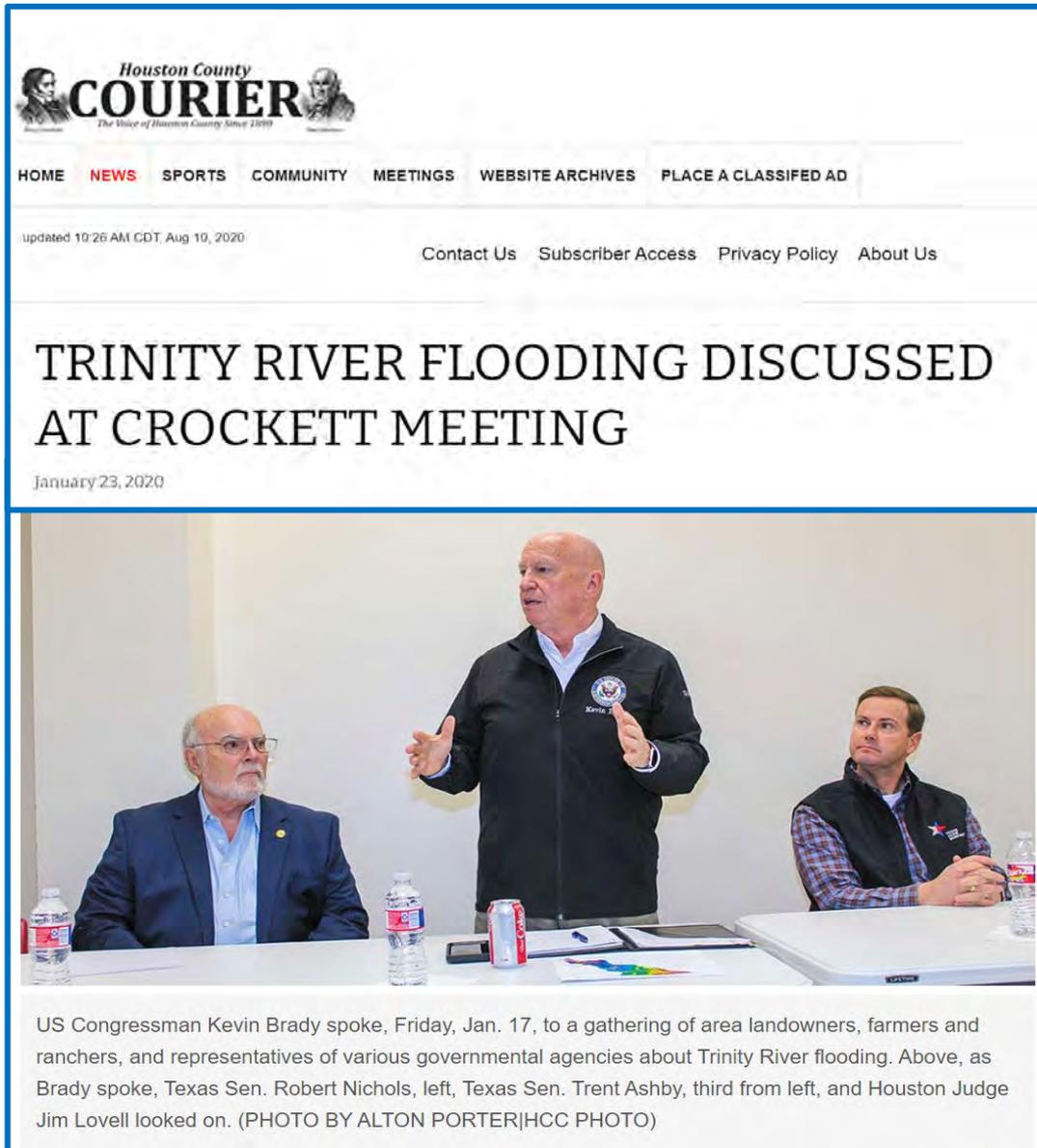
Precipitation



Flood Risk Reduction



...ped inundation to see water depth values for that location, or hold shift and drag to zoom to area.



Houston County
COURIER
The Voice of Houston County Since 1899

HOME NEWS SPORTS COMMUNITY MEETINGS WEBSITE ARCHIVES PLACE A CLASSIFIED AD

updated 10:26 AM CDT, Aug 10, 2020

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TRINITY RIVER FLOODING DISCUSSED AT CROCKETT MEETING

January 23, 2020



US Congressman Kevin Brady spoke, Friday, Jan. 17, to a gathering of area landowners, farmers and ranchers, and representatives of various governmental agencies about Trinity River flooding. Above, as Brady spoke, Texas Sen. Robert Nichols, left, Texas Sen. Trent Ashby, third from left, and Houston Judge Jim Lovell looked on. (PHOTO BY ALTON PORTER|HCC PHOTO)

Flood Reconnaissance



Home ▾ DRAFT - Flood Recon

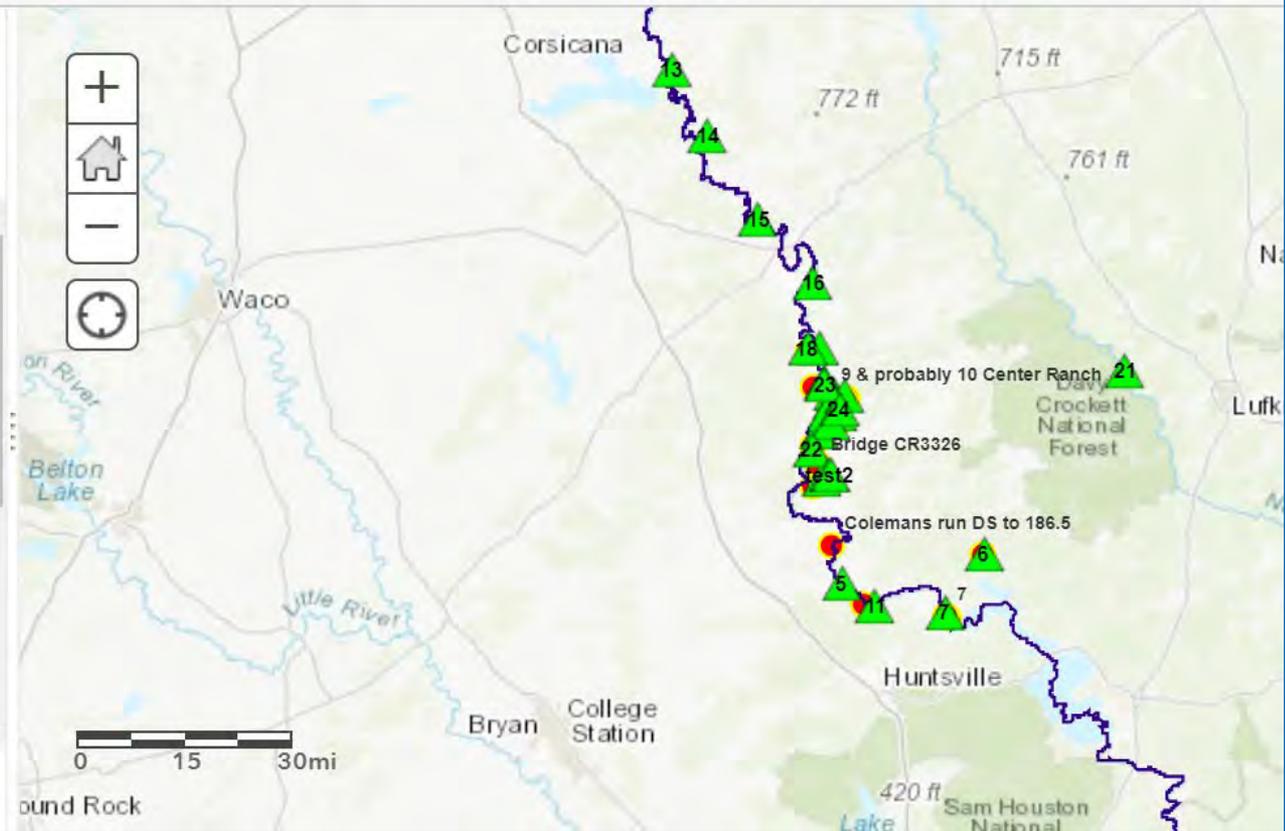
New Map

Details Add ▾ | Edit Basemap | Save ▾ Share Print ▾ | Directions Bookmark



Contents

- FloodMapping Oakwood Crockett - RiverMiles w halfmiles 2012
- FloodMapping Oakwood Crockett - floodmapping
- FloodMapping Oakwood Crockett - RiverMiles w halfmiles 2012



Trust Center Contact Esri
Report Abuse

Mobile, Crowd-sourcing Flood Reporting Application



Flood Assessment Report

Sign In

Flood Assessment Report

Trinity River Authority

Proceed as Guest

Or

Sign in with:

About

Flood Assessment Report

Details

Incident (required)
Field Flooded

Recorder's Name (required)
Webster

Recorder's Phone (required)
817-648-4216

Recorder's Email
manghamw@trinityra.org

Field Observation (required)
Flooded for 3 days

Date Observed (required)
08/12/2020 3:30 pm

Comments

Flood Studies with USACE

- Kickoff - July 2020
- \$30,000
- Historical storm analysis
- Hydrologic Modeling and Analysis
- Inform causes of flooding in the mid-basin between Oakwood and Crockett
- Due - October 2020



TRA Real-time Reservoir Releases (R3)



FANG RESEARCH GROUP
— WATER RESOURCES
The University of Texas at Arlington

TRA Real-time Reservoir Releases (R3)

[Logout](#)

Reservoirs	Conservation Pool Delta (ft)	Releases (cfs)
Bridgeport Reservoir (BPRT2)	(-0.97)	212.00
Eagle Mountain Reservoir (EAMT2)	(-1.13)	179.00
Lake Worth (FLWT2)	(-1.00)	0.00
Benbrook Lake (BNBT2)	(-3.35)	8.00
Lake Arlington (LART2)	(-12.60)	293.00
Joe Pool Lake (JPLT2)	(-0.69)	21.00
Mountain Creek Lake (GPET2)	+0.53	0.00

Reservoirs	Conservation Pool Delta (ft)	Releases (cfs)
Ray Roberts Lake (RRLT2)	(-0.39)	16.00
Lewisville Lake (LEWT2)	(-0.73)	328.00
Grapevine Lake (GPVT2)	(-0.23)	82.00
Lavon Lake (LVNT2)	(-1.85)	1.00
Lake Ray Hubbard (FRHT2)	(-1.16)	0.00
Cedar Creek Lake (TRNT2)	(-0.95)	0.00
Richland-Chambers Lake (FFLT2)	(-0.29)	5.00

USGS Stream Gages	Discharge (cfs)
Trinity Rv at Hwy 287 nr Cayuga, TX (08064570)	670.000000
Trinity Rv below Richland-Chambers (VIRTUAL001)	675.000000
Trinity Rv nr Crockett, TX (08065350)	963.000000
Trinity Rv nr Goodrich, TX (08066250)	1450.000000

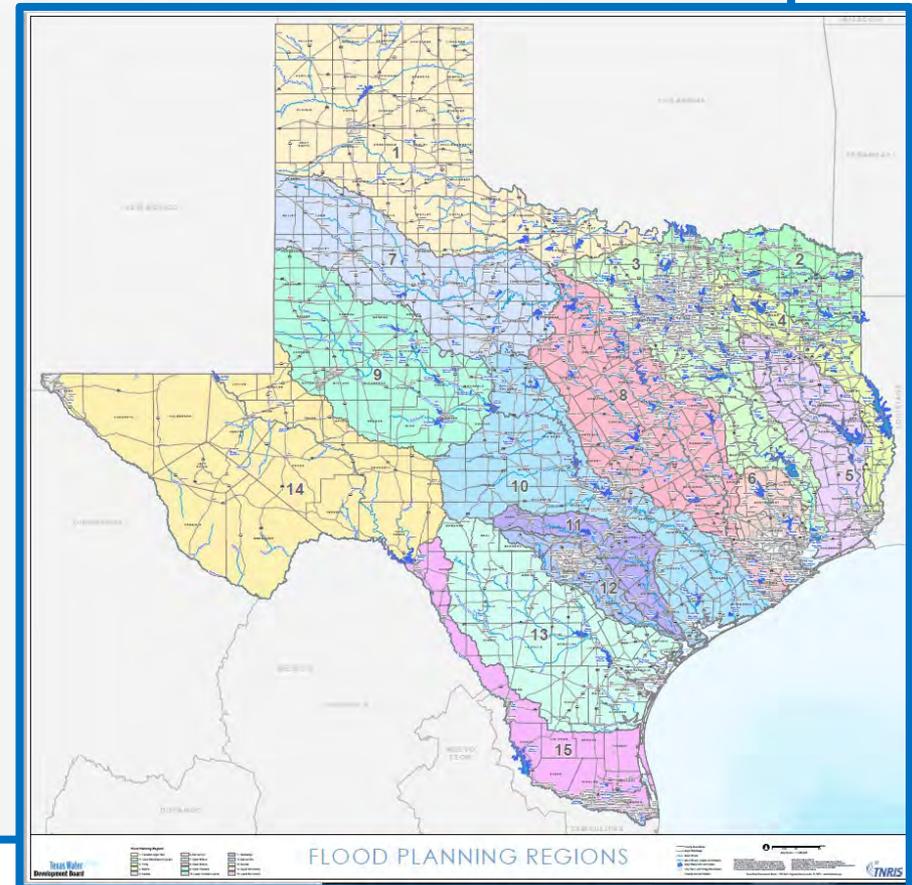
TRA Real-time Reservoir Releases (R3) as of 8/12/2020, 2:22:41 PM

Senate Bill 8 – Regional Flood Planning



The Board will designate one individual for each of the 12 interest categories for the voting positions for each of the 15 flood planning regions. The interest categories are as follows:

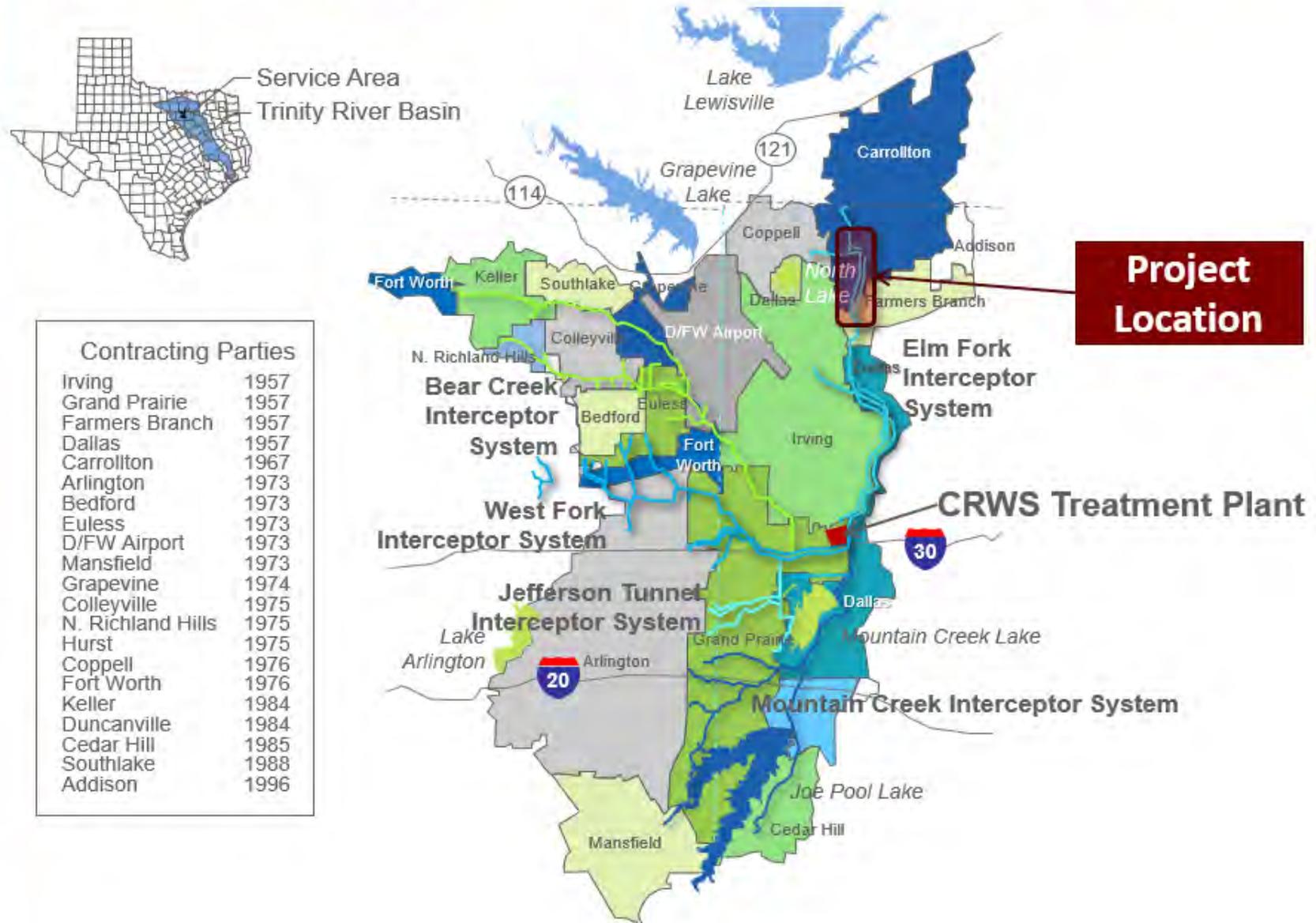
1. Agricultural interests
2. Industries
3. River authorities
4. Counties
5. Municipalities
6. Water districts
7. Flood districts
8. Electric generating utilities
9. Public
10. Water utilities
11. Environmental interests
12. Small businesses



**Item H:
CRWS – Elm Fork
Interceptor Rehabilitation
and Replacement CAC-7,
8A, and 8B – Engineering
Services Agreement**



Central Regional Wastewater System



Contracting Parties

Irving	1957
Grand Prairie	1957
Farmers Branch	1957
Dallas	1957
Carrollton	1967
Arlington	1973
Bedford	1973
Eulese	1973
D/FW Airport	1973
Mansfield	1973
Grapevine	1974
Colleyville	1975
N. Richland Hills	1975
Hurst	1975
Coppel	1976
Fort Worth	1976
Keller	1984
Duncanville	1984
Cedar Hill	1985
Southlake	1988
Addison	1996

BACKGROUND

- The CRWS consists of five major interceptor systems:
 - Bear Creek
 - Elm Fork
 - West Fork
 - Jefferson Tunnel
 - Mountain Creek
- 2007 Corrosion Management Plan identified “Critical Areas of Concern” (CAC) for unlined reinforced concrete pipe (RCP) throughout the CRWS collection system



BACKGROUND

- The Elm Fork Interceptor System (EFIS) serves Carrollton, Coppell, Farmers Branch, and portions of Addison, Dallas, and Irving
- Certain areas within the EFIS were identified as needing to be rehabilitated or replaced due to corrosion:
 - Constructed from the late 1970s to the early 1990s
 - Include 70,000 linear feet of 36-inch to 72-inch unlined RCP



BACKGROUND

- 2019 multi-sensor inspection confirmed accelerated corrosion within the limits of CAC-8A
- Flow diversions and parallel pipelines within CAC-7, 8A, and 8B require a comprehensive design approach
- Program Management approach was identified as the most effective method to provide the needed continuity required for a system-wide solution



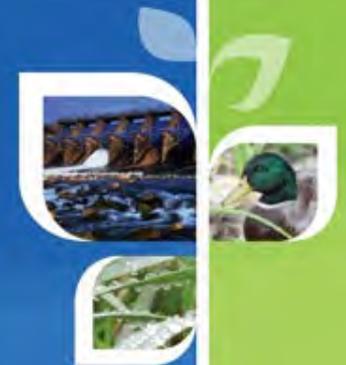
BACKGROUND

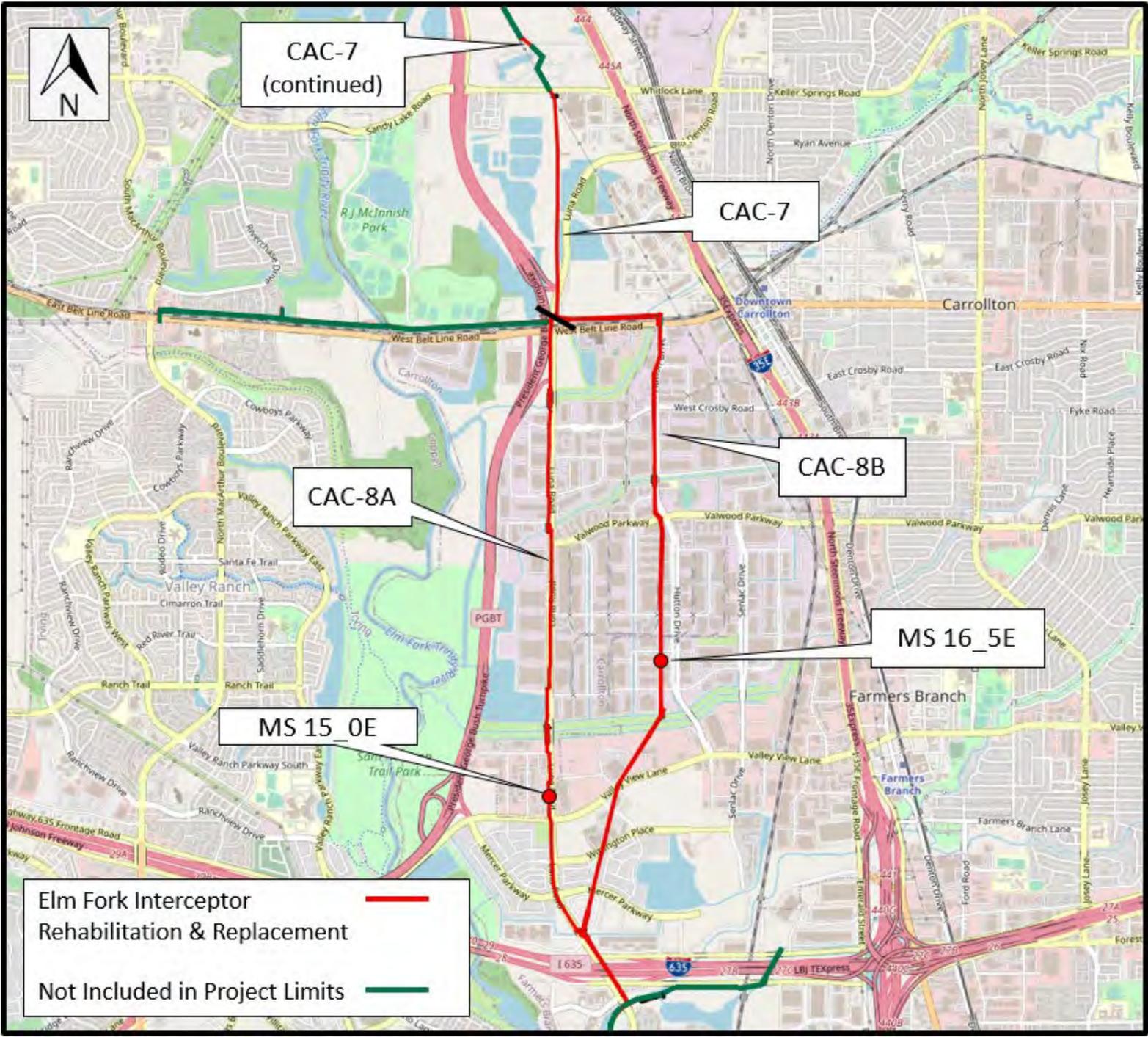
- Program Manager will provide:
 - Overall confirmation of areas requiring rehabilitation or replacement
 - Consistent methodology for cost estimating
 - Coordinated effort for timing and sizing of various construction contracts
 - Uniform basis for Preliminary Design of construction packages
 - Comprehensive management of firms selected for Final Design of construction packages, including development of specifications and bid items



BACKGROUND

- Lockwood, Andrews & Newnam, Inc. (LAN), selected for Program Manager role
- Authority will select firms to provide Final Design of various construction packages
- Final Design firms will subcontract to LAN for an efficient and cost-effective approach.





Proposed “Scope of Work” - LAN

- Project Management and QA/QC
- Hydraulic Modeling, Surveying, Manhole Inspection, Pipeline Condition Assessment, Geotechnical Investigation, and Environmental Evaluation
- Preliminary Design
 - Evaluation of both rehabilitation and replacement alternatives
 - Recommend construction sequencing
- Existing Meter Station Evaluation
- Program Management
- Special Services
- Fee: \$3,265,910



RECOMMENDATION

- Award contract to Lockwood, Andrews & Newnam, Inc., for professional services related to preliminary design and program management of Elm Fork Interceptor Rehabilitation and Replacement CAC-7, 8A, and 8B, in the amount of \$3,265,910



**Item I:
CRWS — Solids Management
Improvements, Phase III-B —
Second Amendment —
Engineering Services
Agreement**



BACKGROUND

- The CRWS facility provides wastewater treatment services to 21 Contracting Parties
- In 2011, a Master Plan was completed by CDM-Smith, Inc. (CDMS), to address projected improvements in the processing of solids (aka “sludge”)
- Those improvements were to be constructed in multiple phases:
 - Phase I: Sludge pumps, thickeners, scum facilities, etc. Complete.
 - Phase II: Belt filter presses (new and rehab of existing). Nearing completion.
 - Phase III-A: Various improvements. Complete.
 - Phase III-B: Thermal Hydrolysis Process. 70% complete.



BACKGROUND

- December 2015: Engineering Services Agreement approved with CDMS to oversee all of the Phase III-A and Phase III-B construction
- June 2020: Board approved a “Compromise and Settlement Agreement” with MWH Constructors which modified the dates for various milestones for Phase III-B:
 - Operational Readiness Testing (ORT): May 11, 2021
 - Substantial Completion: August 18, 2022
 - Final Acceptance: October 17, 2022
- Subsequent time extensions have added 11 days to all milestones.



BACKGROUND

- At their current rate of accomplishment, CDMS will exhaust their remaining funding for Phase III-B before the end of 2020
- It is desired to supplement CDMS' contract with sufficient funding to continue their current level of service through the date for completion of ORT for Phase III-B: May 22, 2021



Project Scope: Phase III-B



75

- Three new digesters and digester building
- Three thermal hydrolysis units and chiller system (CAMBI)
- Rehabilitate two existing tanks
- New pre-dewatering equipment, pumps, and polymer system
- Dewatered solids storage and conveyance
- Rehabilitate existing buildings
- Gas conditioning system
- Odor control
- Site work
- Current Contract Price: \$202,050,649



OVERALL CONSTRUCTION PROGRESS



2015

AUGUST 2020



Thermal
Hydrolysis Process
(CAMBI Units)

PROJECT MILESTONES: Phase III-B

- June 2017 Construction Contract Approved
- August 2017 Construction Begins
- May 2021 Completion of ORT
- May 2021 Commissioning Period begins
- February 2022 Commissioning Period ends
- March 2022 Post-Commissioning Activities
- August 2022 Substantial Completion
- October 2022 Final Acceptance



SCOPE OF SERVICES - CDMS

- Review of various submittals
- Review of Contractor's "Request for Information"
- Preparation of "Field Order" and "Change Order" documents
- Construction survey for plant's Geographic Information System

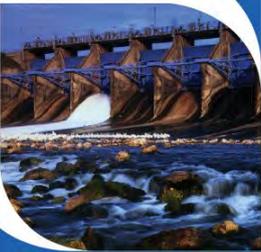


RECOMMENDATION

- Approve the Second Amendment to the Engineering Services Agreement with CDM Smith Inc. in the amount of \$1,804,428 for construction phase engineering services associated with the Solids Management Improvements, Phase III-B.



**Item J:
CRWS — Headworks B
Improvements Phase II —
Change Order No. 2 —
Additional Compensation
and Time for Floor Drains
Replacement**



BACKGROUND

- The CRWS facility provides wastewater treatment for 21 Contracting Parties.
- Incoming wastewater flows are routed through Pump Station Nos. 6 and 6A to either Headworks A or B.
- Headworks B facility was constructed in the 1990s as part of the CRWS Phase III Plant Expansion.
- In 2013, it was determined that critical operational components required rehabilitation and replacement within Headworks B.



Central Regional Wastewater System Treatment Plant



Headworks B

**Pump Station No. 6
Pumps to A or B**

Headworks A

**Pump Station No. 6A
Pumps to A or B**

BACKGROUND

- In 2014, CP&Y, Inc., was selected to design needed improvements at Headworks B in two phases.
 - Phase I: Bid in 2016. Completed
 - Phase II: Bid in 2018. Nearing completion
- April 2020: Board approved construction contract to add Fine Screening Facilities at Headworks A
- June 2020: Board approved an Engineering Services Agreement with Jacobs Engineering Group, Inc., to add Fine Screening Facilities at Headworks B.

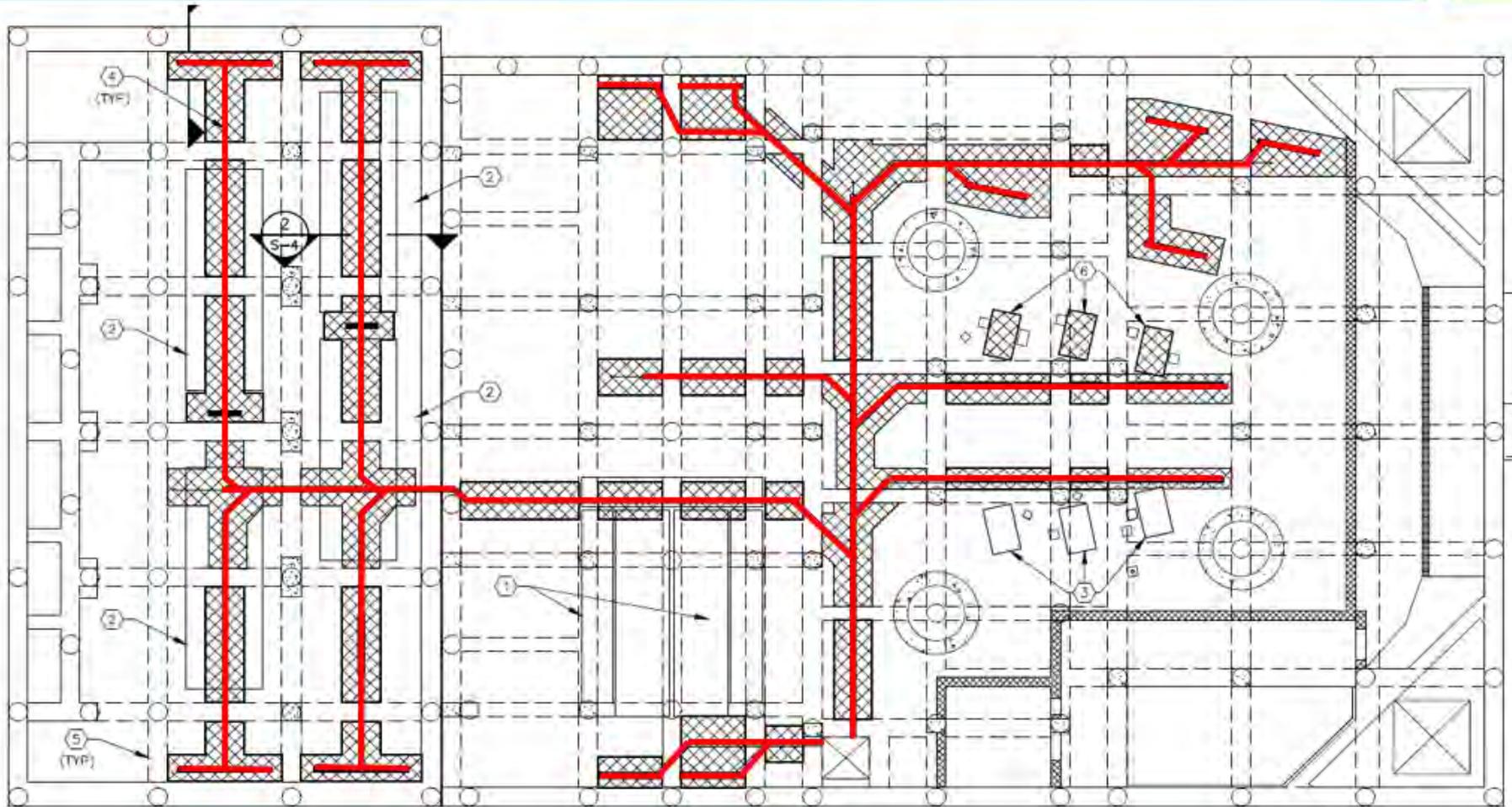


BACKGROUND

- Phase II was awarded to Texas Standard Construction, Ltd, in 2018.
- The “Scope of Work” is very extensive and included the replacement of all floor drains which are located on first floor.



FLOOR DRAIN NETWORK Headworks B

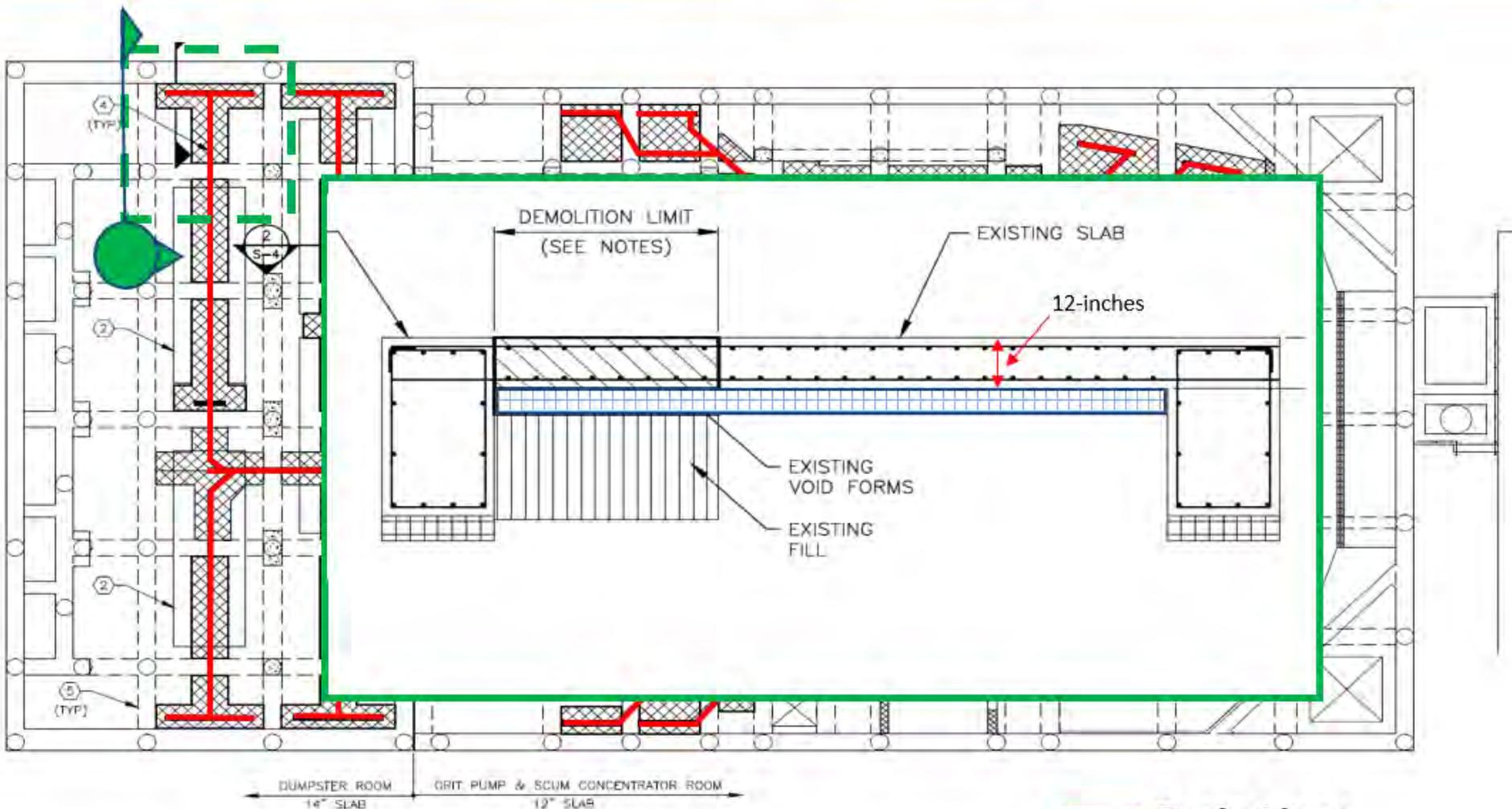


DUMPSTER ROOM 14" SLAB
GRIT PUMP & SCUM CONCENTRATOR ROOM 12" SLAB

— Drain Lines

Headworks B Foundation Plan View

TYPICAL SECTION VIEW (Based on Record Drawings)



Headworks B Foundation Plan View

ACTUAL CONDITIONS

- Record drawings showed compacted fill beneath the concrete floor and between the concrete grade beams.
- Contactor encountered concrete mud slab beneath the existing floor that varied in the thickness from 18- to 30-inches



CONSTRUCTION PROGRESS



NEGOTIATION

- Authority management negotiated a proposal from Texas Standard in the amount of \$223,915.92 for all costs associated with the additional work due to the additional effort to remove concrete not shown on the record drawings.



NEGOTIATION

- Authority management also approved a time extension of 180 calendar days.
- Original Milestones:
 - Notice to Proceed: November 28, 2018
 - Substantial Completion: May 21, 2020
 - Final Acceptance: August 19, 2020
- Amended Milestones:
 - Substantial Completion: November 17, 2020
 - Final Acceptance: February 25, 2021

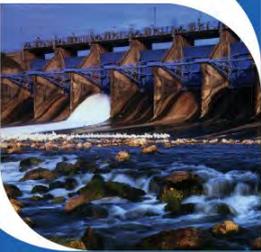


RECOMMENDATION

- Execute the “Change Order No. 2” between the Authority and Texas Standard Construction, Ltd, associated with the Central Regional Wastewater System Headworks B Improvements Phase II to increase the contract amount from \$3,927,350 to \$4,151,265.92 and extend the contract duration by 180 calendar days.



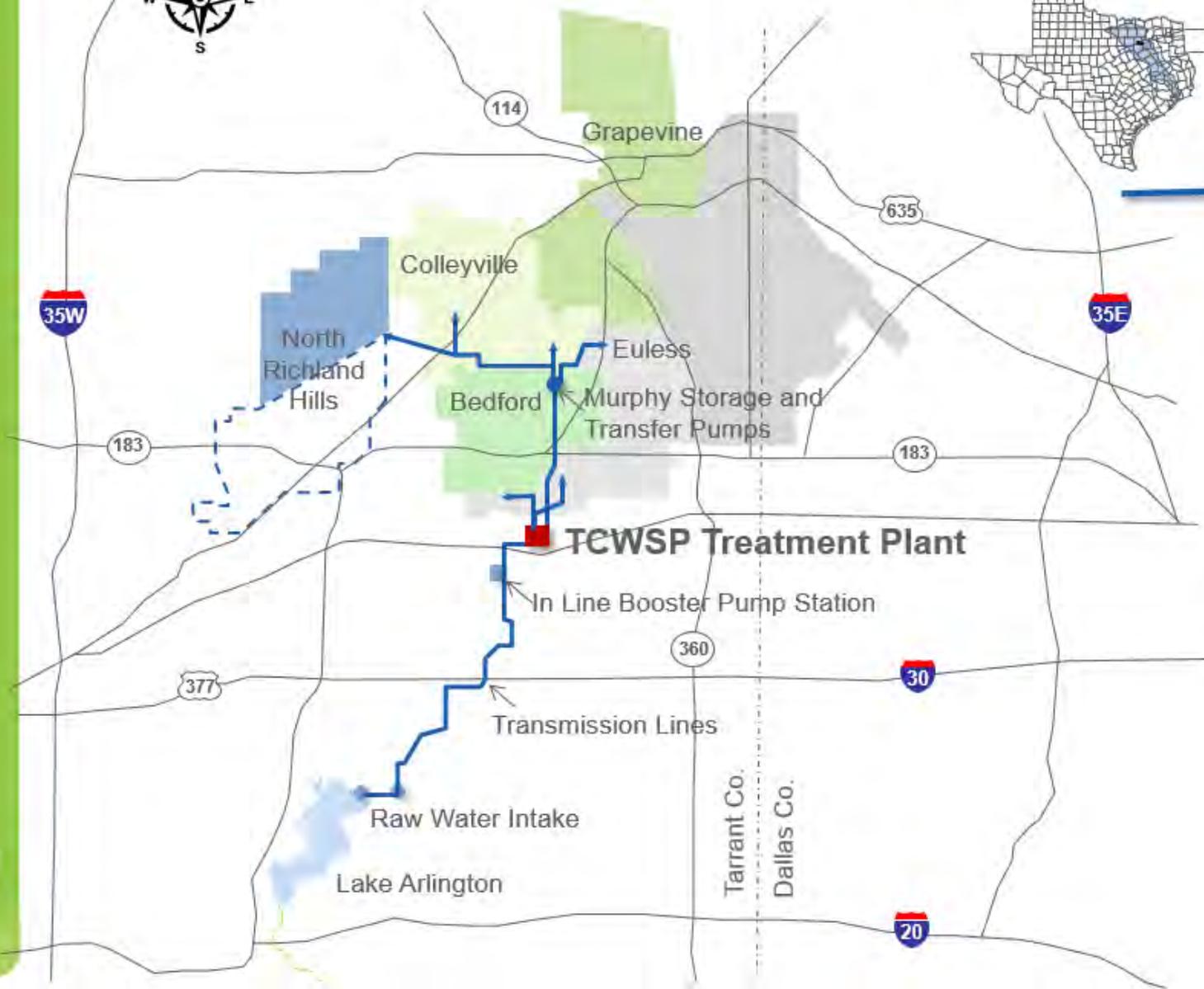
**Item K:
TCWSP — Murphy Drive
Pump Station Ground
Storage Tank No. 4
Rehabilitation — Contract
Award, Engineering
Services Agreement, and
Materials Testing Services
Agreement**



Tarrant County Water Supply Project 93



Raw Water and Distribution System



BACKGROUND

- TCWSP owns and operates the Murphy Drive Pump Station (MDPS) to distribute treated drinking water to its five customer cities: Bedford, Colleyville, Euless, Grapevine, and North Richland Hills.
- MDPS has four 5 million gallon above ground welded steel tanks [aka Ground Storage Tanks (GST)].
- 2016: Condition Assessments completed for all four tanks, and tanks prioritized for rehabilitation.
- July 2020: Construction completed for the rehabilitation of GST No. 1.



BACKGROUND

- GST No. 4 identified as next tank to rehabilitate:
 - Originally installed in mid-1980s
 - Last rehabilitated more than 20 years ago
- “Scope of Work” for GST No. 4 includes:
 - Replace roof plates and rafters
 - Recoat interior and exterior of tank
 - Replace ladders and railing to meet Occupational Safety and Health Administration standards
 - Sound attenuation



Murphy Drive Pump Station



Ground Storage Tank No. 4



Corroded Tank Interior



Bid Results – July 16, 2020

Engineer's OPCC = \$2,550,000

Bidders	Total Bid
Corrosion Eliminators (-21.7%)	\$1,995,585.00
NG Painting, LP	\$2,016,280.00
<u>Blastco Texas, Inc.</u>	\$2,069,750.00
CFG Industries	\$2,097,750.00
Cherokee PSI	\$2,274,186.00
Viking Industrial Painting	\$2,334,900.00
Hartman Walsh Painting Co.	\$2,525,719.58
TMI Coatings, Inc.	\$3,124,500.00
Southern Road & Bridge, LLC	\$5,955,770.00



Jones & Carter, Inc.

Construction Phase Services

- Meetings/site visits/factory witness testing
- Review of payment applications, schedule, submittals, “Requests for Information”, “Contract Modification Requests”, “Change Orders”, etc.
- Coating and weld inspections
- Documentation of field changes
- Record Drawings
- Fee: \$253,216



Southwestern Testing Laboratories dba STL Engineers Construction Materials Testing Services

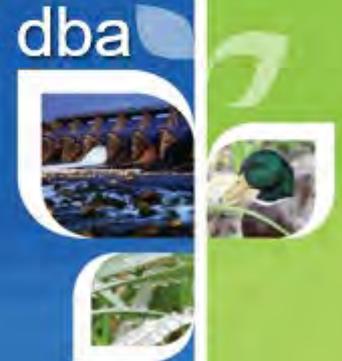
- Typical testing:
 - Soil compaction
 - Welded steel construction
 - Protective coatings application
 - Concrete compression strength

- Fee: \$50,000



RECOMMENDATION

- Award construction contract to GM Roberts Inc. dba Corrosion Eliminators in the amount of \$1,995,585.00.
- Approve contract for professional engineering services related to Construction Phase Services for TCWSP MDPS Ground Storage Tank No. 4 Rehabilitation to Jones & Carter, Inc., in the amount of \$253,216.
- Approve contract for construction materials testing to Southwestern Testing Laboratories dba STL Engineers, in the amount of \$50,000.



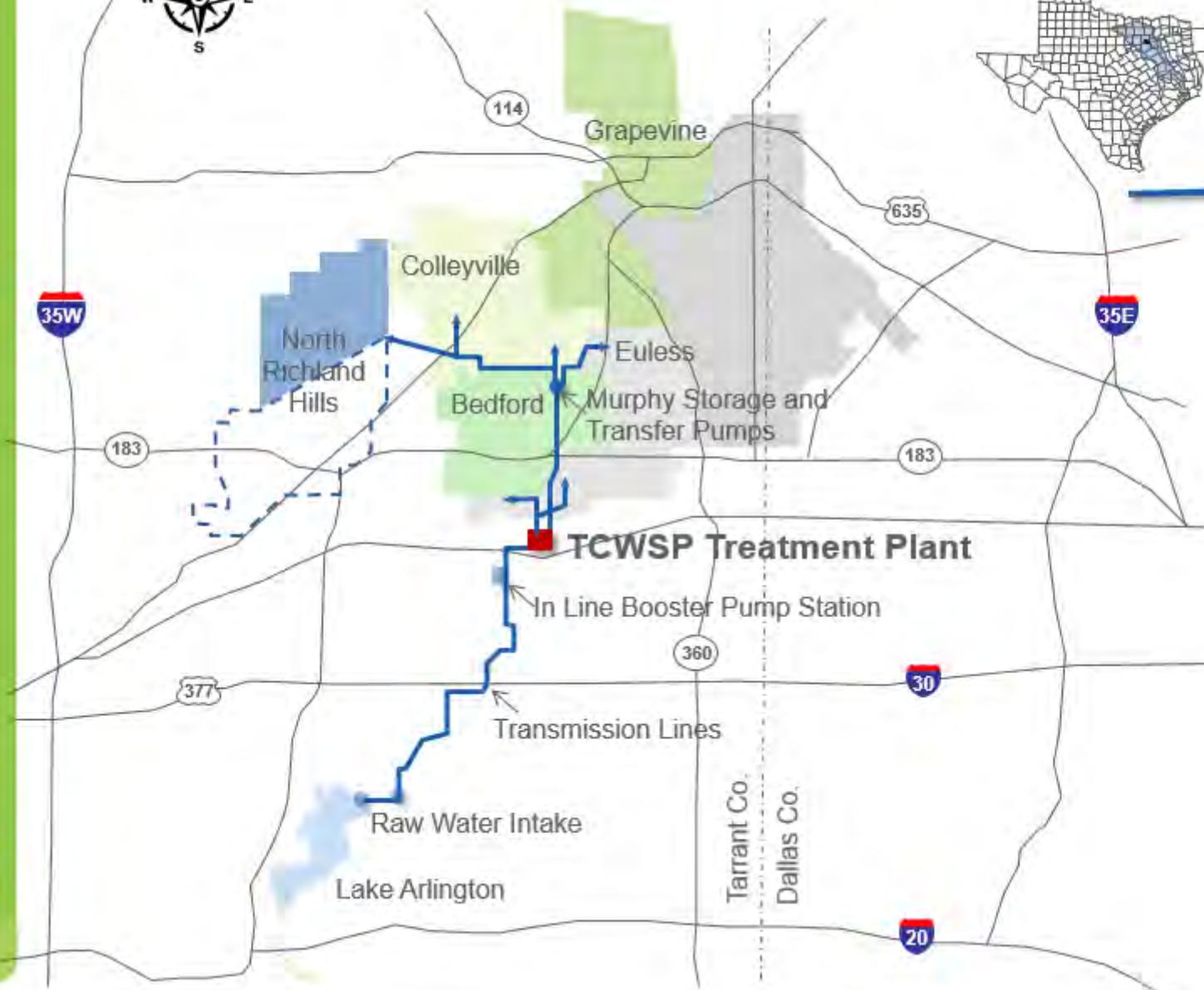
**Item L:
TCWSP— Murphy Drive
Pump Station Pumping and
Electrical Improvements —
Engineering Services
Agreement**



Tarrant County Water Supply Project 103



*Raw Water
and
Distribution
System*



BACKGROUND

- TCWSP owns and operates the Murphy Drive Pump Station (MDPS) to distribute treated drinking water to its five customer cities: Bedford, Colleyville, Euless, Grapevine, and North Richland Hills
- Five vertical turbine pumps in the first pump station, installed in the 1980s and last refurbished in 2005, remain in good condition and require minimal maintenance
- Six horizontal split case centrifugal pumps (installed from 1987 through 1999) are located in the second pump station
- Combined firm pumping capacity is 94 million gallons per day



BACKGROUND

- Areas of concern:
 - Pumping, Piping and Appurtenances
 - Electrical
- August 2019: Board approved Engineering Services Agreement with Gupta & Associates, Inc. (Gupta), for design of electrical improvements
- 2020: Additional concerns identified related to the pumps and steel discharge piping header (first identified in 2016). Rehabilitation is not viewed as an option



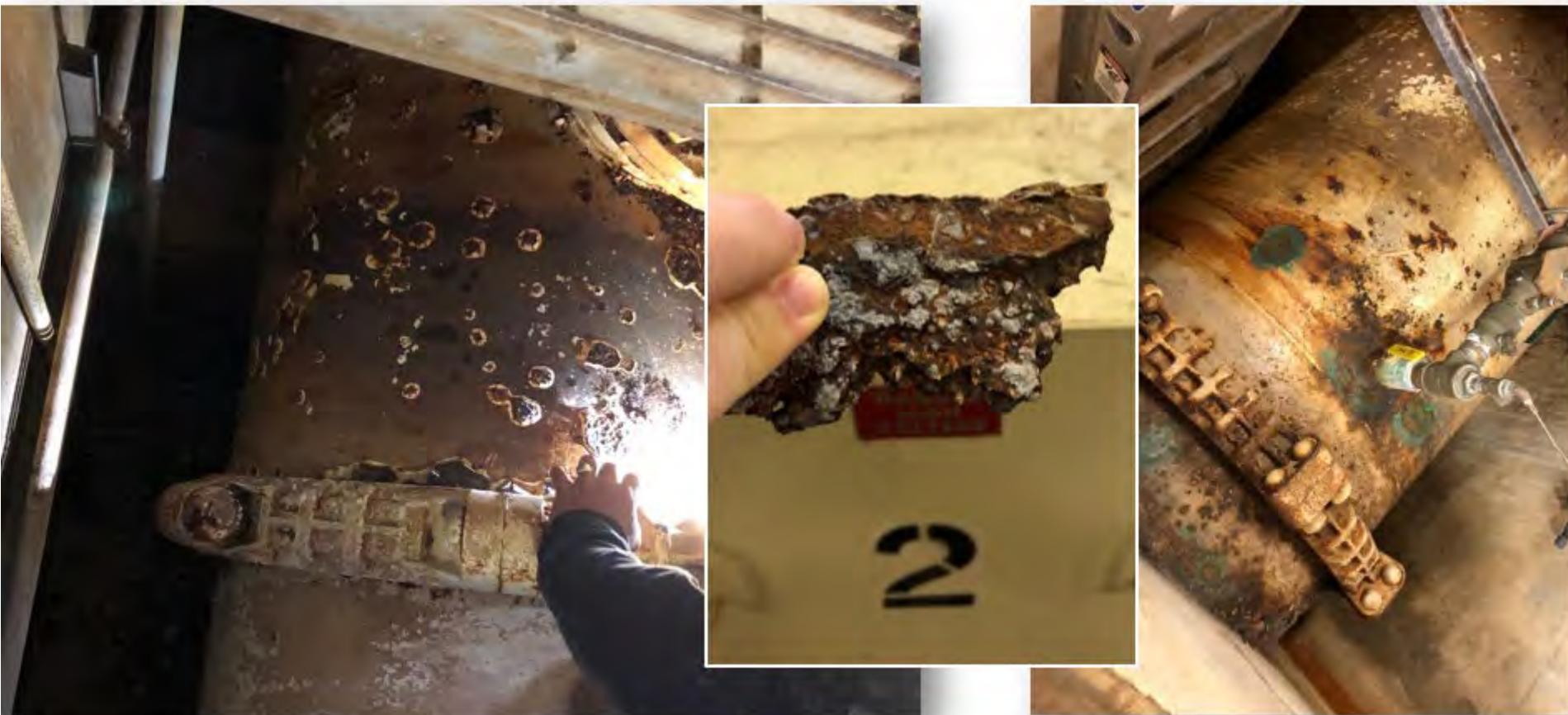
BACKGROUND

The six horizontal centrifugal pumps are prone to cavitate due to hydraulic limitations of the pumps.



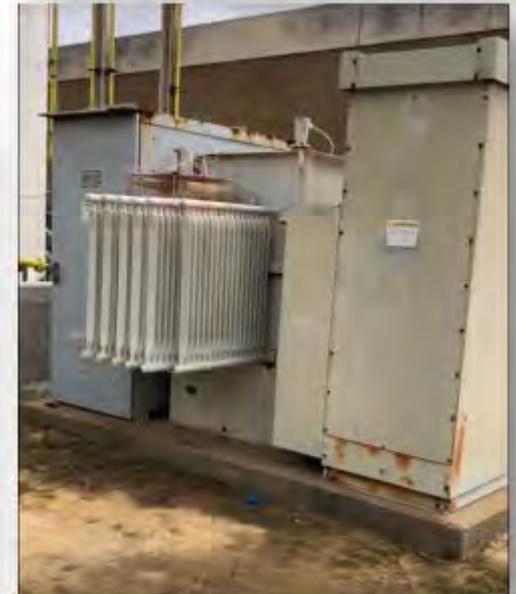
BACKGROUND

Severe corrosion and pitting of the steel discharge header is of primary concern due to potential imminent failure and the criticality of that header for distribution.

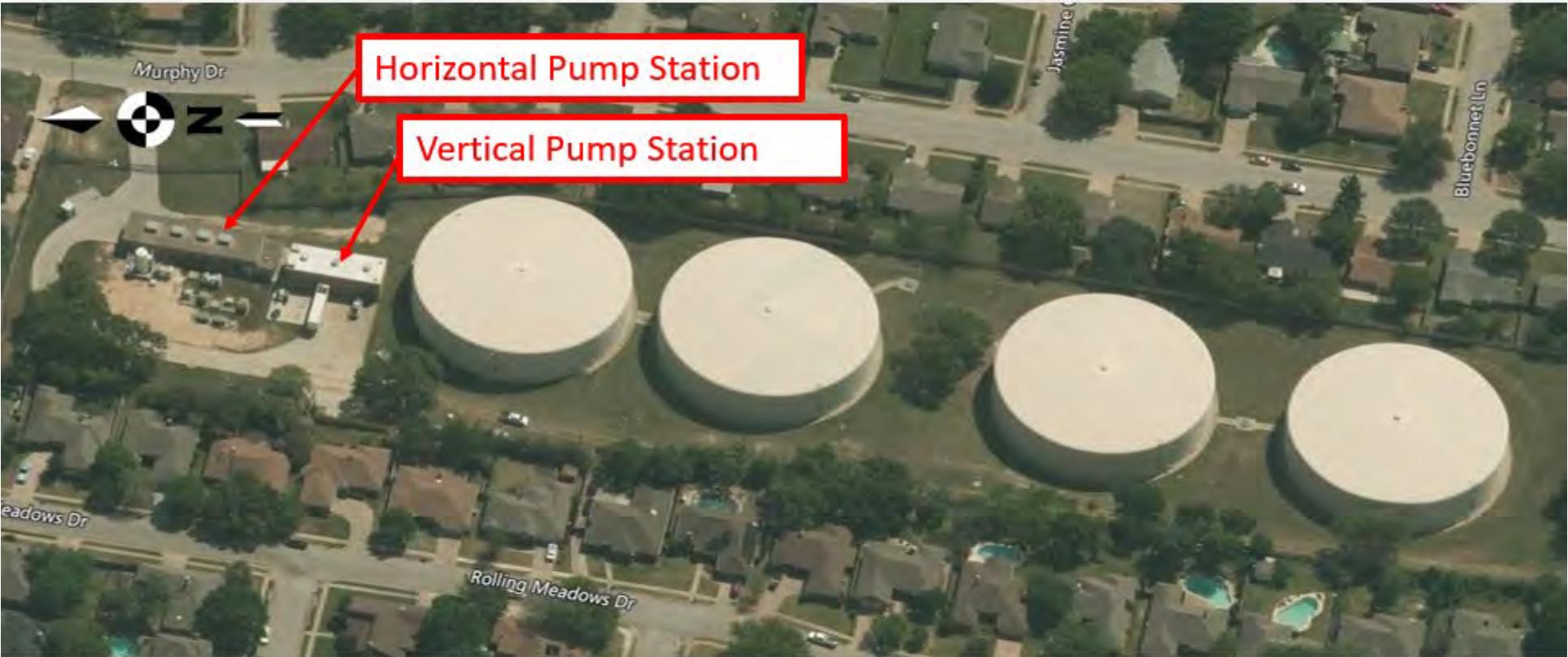


BACKGROUND

- The Preliminary Design Report (PDR) for the Switchgear Replacement project was completed in June 2020 by Gupta. Final Design will be incorporated into the overall design of the new pump station.
- Freese & Nichols, Inc., was selected to perform Preliminary Engineering of the new pump station to meet 2041 projected demand. Project will also include rehabilitation of Ground Storage Tank Nos. 2 and 3 (designed by Jones & Carter), and electrical improvements identified by Gupta.



TCWSP Murphy Drive Pump Station



“Scope of Work” – Freese & Nichols

- Project Management and QA/QC
- Site Alternatives Evaluation
- Hydraulic, Electrical, and Chemical Assessments
- Survey
- Asbestos and Lead Evaluation
- PDR and Drawings (30 percent)
- Fee: \$1,065,146



RECOMMENDATION

- Award contract to Freese and Nichols, Inc., for professional services related to assessment and preliminary design of the Murphy Drive Pump Station Pumping and Electrical Improvements in the amount of \$1,065,146.



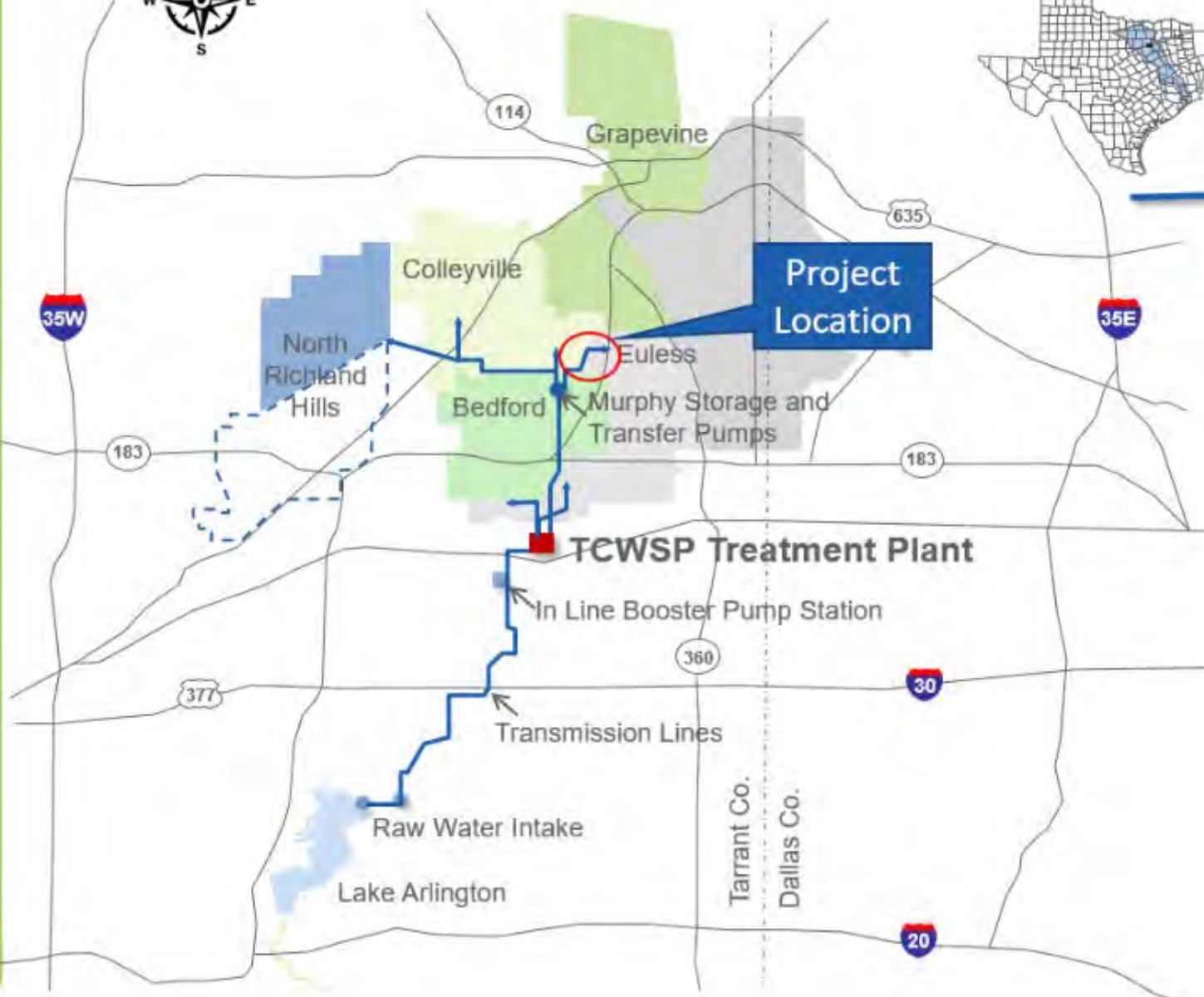
**Item M:
TCWSP — 27-inch Water Line
Non-Destructive Testing —
Cheek-Sparger Connection to
36-inch Euless North/Grapevine
East — Engineering Services
Agreement**



Tarrant County Water Supply Project ¹¹³



*Raw Water
and
Distribution
System*



**Project
Location**

TCWSP Treatment Plant

Raw Water Intake

Lake Arlington

Transmission Lines

In Line Booster Pump Station

Murphy Storage and
Transfer Pumps

Euless

Bedford

Colleyville

North
Richland
Hills

Grapevine

Tarrant Co.

Dallas Co.



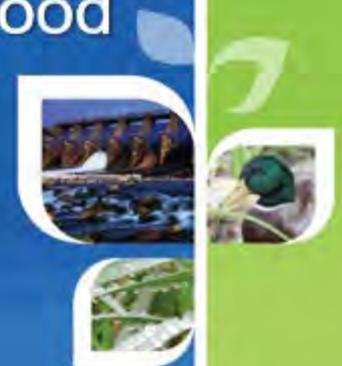
BACKGROUND

- TCWSP treats raw water from Lake Arlington and distributes to Bedford, Colleyville, Euless, Grapevine, and North Richland Hills
- Plant currently rated for 87 million gallons per day of treated drinking water
- Drinking water is distributed through a 19-mile pipeline network (12- to 60-inch diameter)



BACKGROUND

- The 2016 Master Plan recommended a condition assessment of the pipeline network using “risk-based” criteria
- The following criteria was developed to prioritize the pipelines to be evaluated:
 - Age
 - Pipe Material
 - Maintenance History
 - Redundancy of Service
 - Population Served
 - Available Alternative Supply
- The criteria was used to identify the “Likelihood of Failure” (LOF) and the “Consequence of Failure” (COF).
- The LOF and COF were combined to understand the “Risk of Failure” (ROF).



BACKGROUND

- The targeted pipelines are:
 - 27-inch Cheek-Sparger Road
 - Constructed in 1980
 - 6,955 linear feet (LF) of concrete bar-wrapped cylinder pipe
 - Medium ROF
 - 36-inch Euless North/Grapevine East
 - Constructed in 2008
 - 2,615 LF of concrete bar-wrapped cylinder pipe
 - Medium ROF
- Results will be used to target pipe repairs or replacement.



Grapevine

- Connection
- - - Project
- Low
- Medium
- High
- Delivery Point

Grapevine West

Colleyville East

30" To Be Assessed

Grapevine East

Colleyville

End of Project

Meter Station

20" Eules North Connection

36" Already Assessed

Beginning of Project
27" Cheek-Sparger Connection

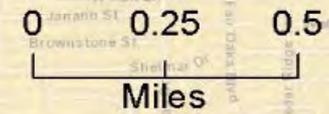
Colleyville South

48"/30" To Be Assessed

End of 27" with Reducer to 36"

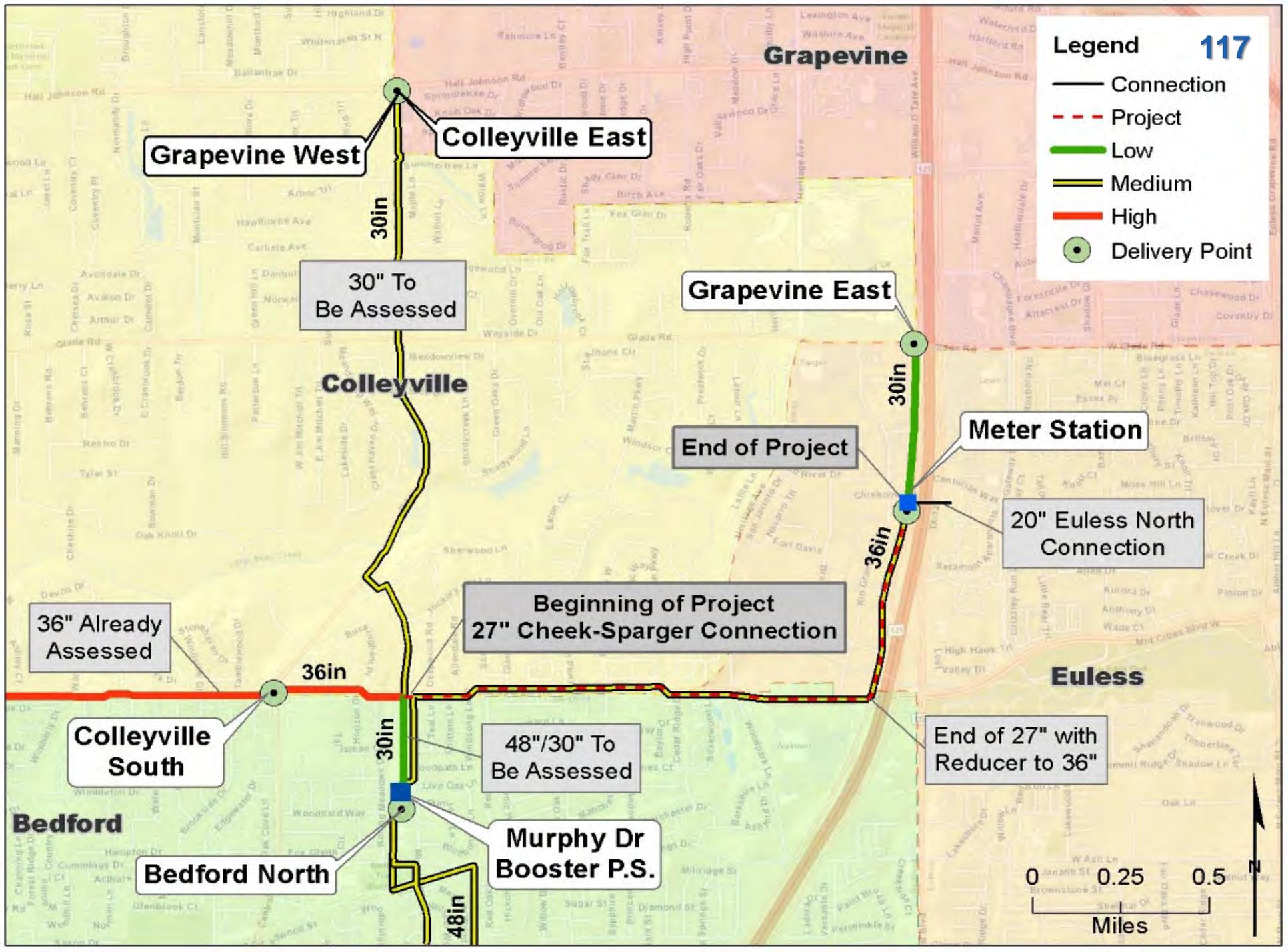
Bedford North

Murphy Dr Booster P.S.



Bedford

Eules



Engineering Services

- RJN Group, Inc., selected for professional services:
 - Project Management and QA/QC
 - Pre-assessment and Planning
 - Access Manway Design
 - Bid and Construction of Access Manways
 - Condition Assessment
 - Data Analysis and Reporting
- Fee: \$836,000



RECOMMENDATION

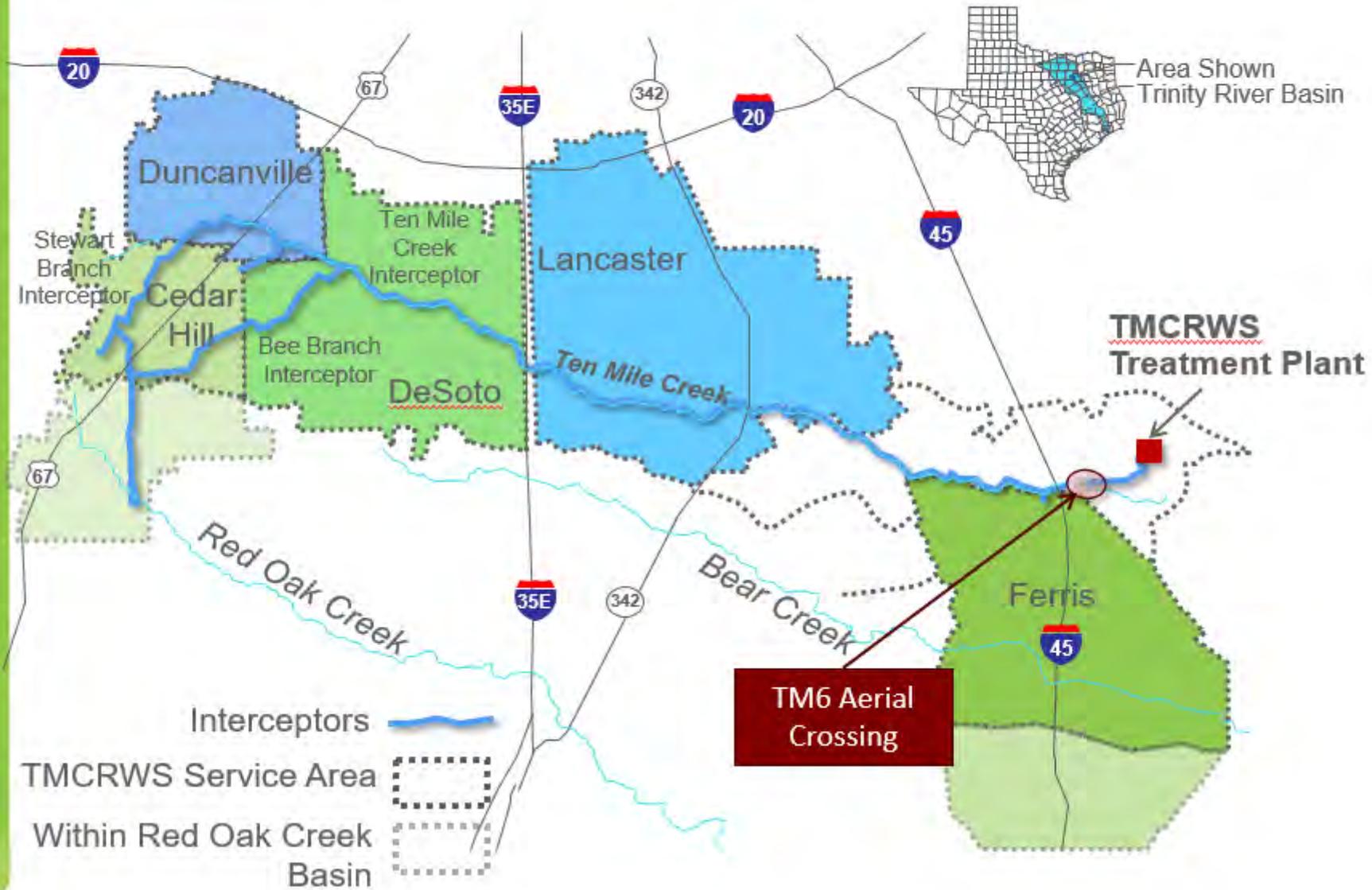
- Award contract to RJN Group Inc. for professional services related to the Non-Destructive Testing of the 27-Inch Cheek-Sparger Road Pipeline and the 36-Inch Euless North/Grapevine East pipeline, in the amount of \$836,000.



**Item N:
TMCRRWS — Erosion Site
Rehabilitation at Ten Mile Creek
— Contract Award, Engineering
Services Agreement, and
Materials Testing Services
Agreement**



Ten Mile Creek Regional Wastewater System



BACKGROUND

- TMCRRS provides wastewater treatment services to Cedar Hill, Duncanville, DeSoto, Lancaster, and Ferris
- Wastewater is conveyed to the treatment plant via a parallel interceptor system:
 - 39-inch reinforced concrete pipe (RCP) installed in 1972
 - 54-inch RCP installed in 1989
 - Both pipes converge into a 66-inch pipeline located just upstream of the treatment plant. The pipeline is an aerial crossing of Ten Mile Creek which was installed in 1989.



BACKGROUND

- Ten Mile Creek experiences significant erosion at various locations. One critical location is the 66-inch aerial crossing.
- July 2017: Engineering Services Agreement with Halff Associates to evaluate causes for erosion and potential solutions
- Recommended actions:
 - Install rock chute and grouted rock riprap at existing 66-inch aerial crossing to protect existing pier supports and mitigate slope erosion; and
 - Install large rock riprap at two downstream locations to protect the 39- and 54-inch pipelines.



BACKGROUND



TMCRWS
Treatment
Plant

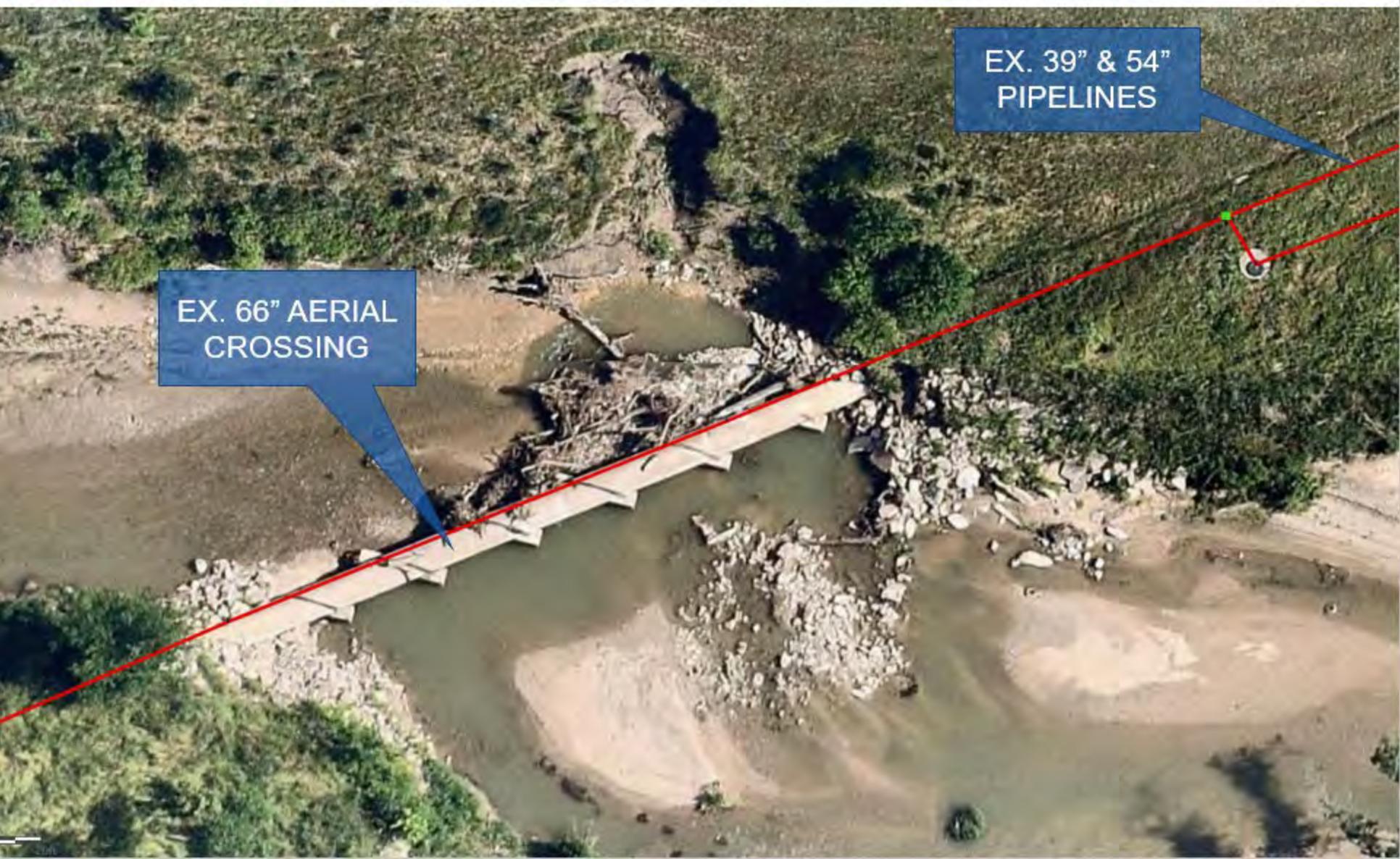
Parkinson Road

Ten Mile Creek

Segment TM6
66" Pipeline
Aerial Crossing

Effluent
Discharge
Outfall

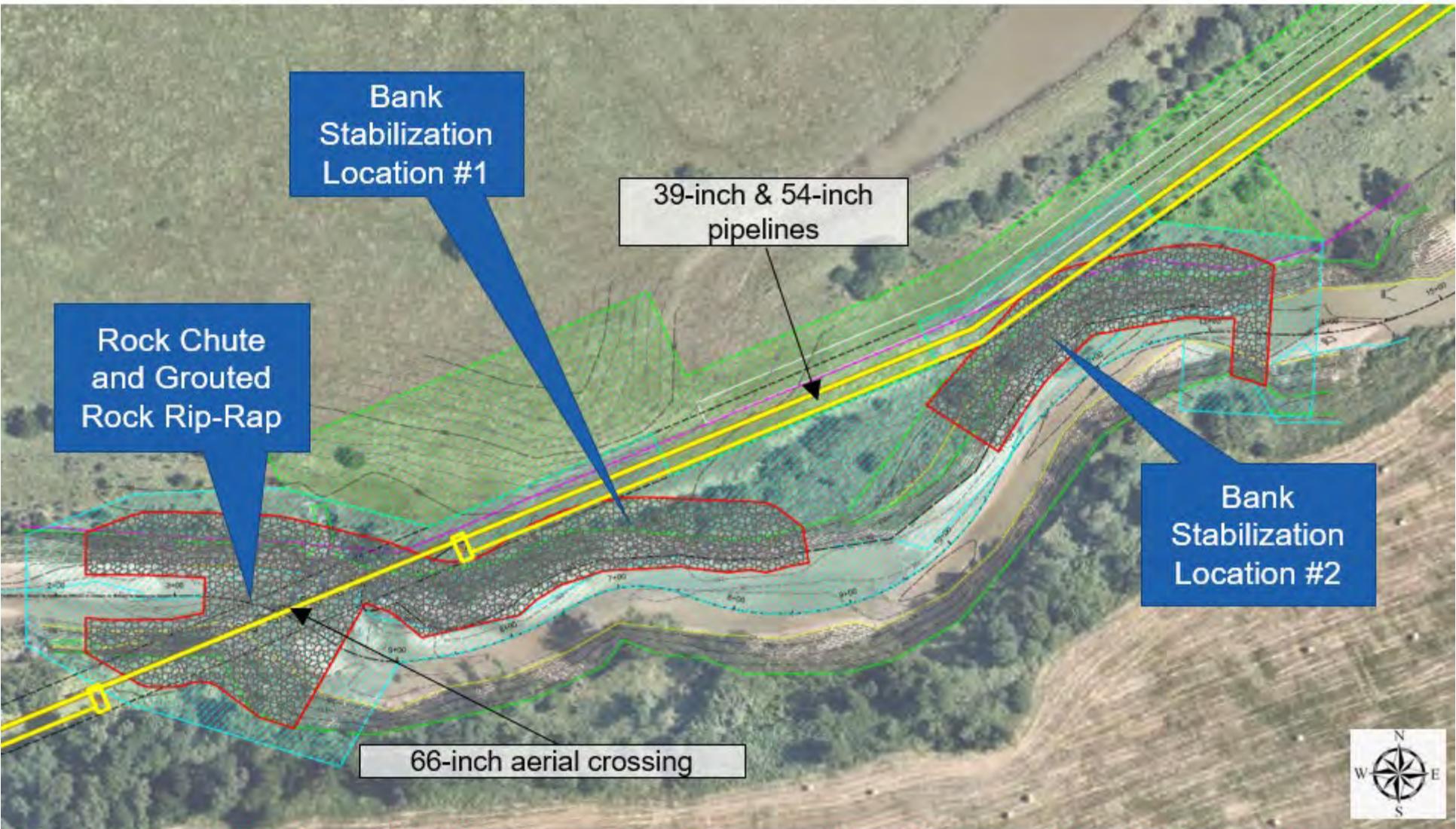
BACKGROUND



EX. 66" AERIAL
CROSSING

EX. 39" & 54"
PIPELINES

RECOMMENDED ACTIONS



Bid Results – July 14, 2020

- OPCC = \$2,500,000

Bidders	Total Bid
<u>Lindamood Demolition, Inc.</u> (-16.8%)	\$2,078,780.94
Solid Bridge Construction	\$2,143,760.00
Western Municipal Construction of Texas, LLC	\$2,168,570.00
Ark Contracting Services	\$2,387,350.00
<u>Obra Ramos Construction, LLC</u>	\$2,607,145.00
Joel Brown & Co., LLC	\$2,646,520.00
Crescent Constructors, Inc.	\$2,677,000.00
ERS, Inc.	\$2,984,000.00
Mann Robinson & Son, Inc.	\$3,174,395.00
SJ&J Construction, LLC	\$3,225,220.00
Rider Construction Group, LLC	\$3,316,851.71
M-CO Construction, Inc.	\$3,365,750.00
SEMA Construction, Inc.	\$3,844,180.00
FNH Construction, LLC	\$4,409,570.00



Halff Associates, Inc. Construction Phase Services

- Meetings/site visits
- Review of payment applications, schedule, submittals, Requests for Information, Contract Modification Requests, Change Orders, etc.
- Documentation of field changes
- Construction Staking
- GIS data/survey review
- Record Drawings
- Fee: \$117,000



Professional Services, Inc. Construction Materials Testing Services

- Typical testing:
 - Backfill compaction
 - Material gradation
 - Concrete compression strength

- Fee: \$90,000



RECOMMENDATION

- Award construction contract to Lindamood Demolition, Inc., in the amount of \$2,078,780.94.
- Approve contract for professional engineering services related to Erosion Site Rehabilitation at Ten Mile Creek to Halff Associates, Inc., in the amount of \$117,000.
- Approve contract for construction materials testing to Professional Services, Inc., in the amount of \$90,000.



**Item O:
Summary Report of Trinity
River Authority Debt —
Summary Report of August
2020 Capital Contracts**



Item P: Summary Report of Change Orders



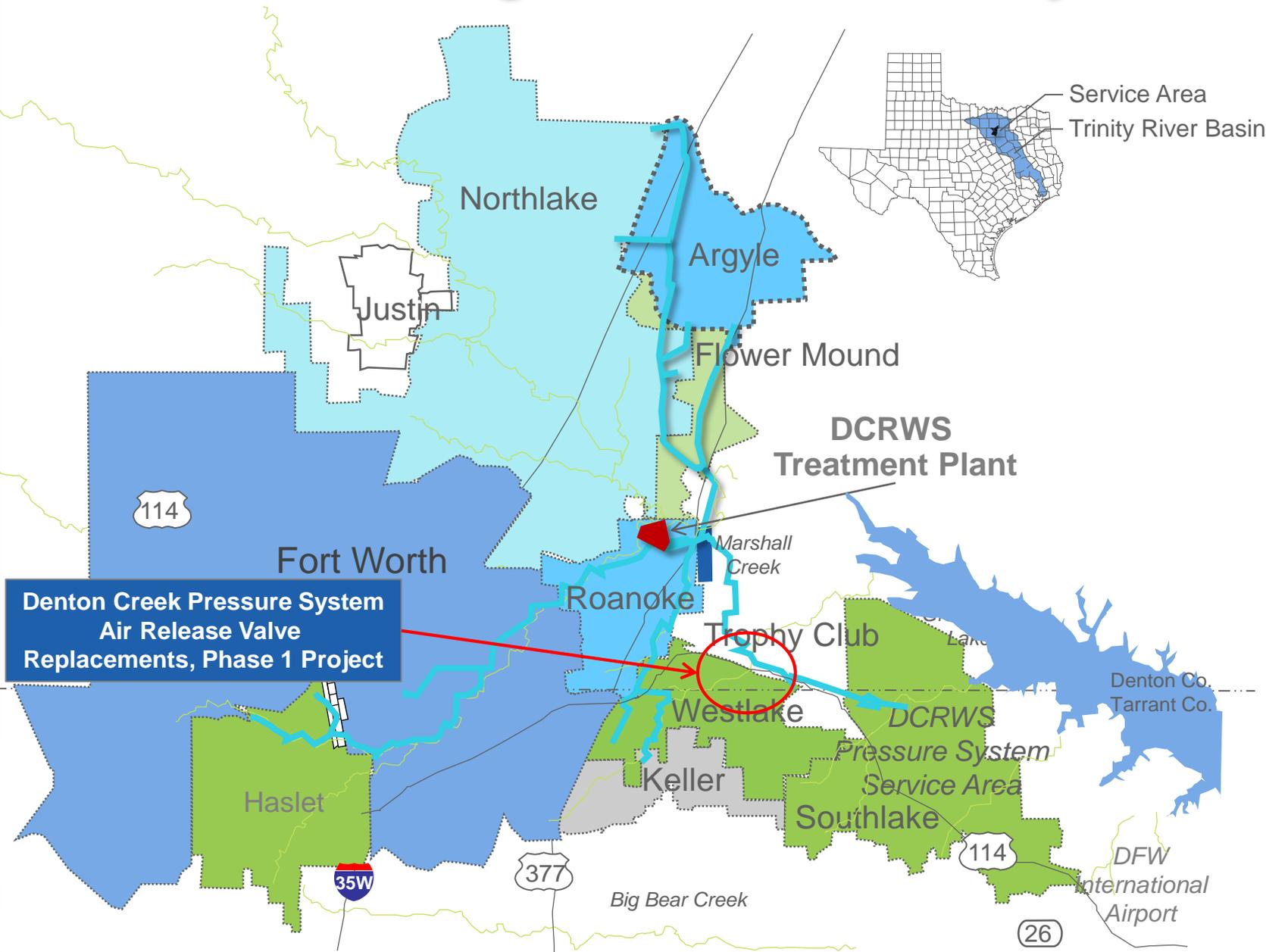
**Item Q:
Summary Report — General
Manager-Approved Pipeline
Emergency Repairs —
Emergency Pipeline Repair
Contract**



**Item R:
DCRWS — Denton Creek
Pressure System — Air
Release Valve Replacement,
Phase 1 Authorization for
Land Acquisition by
Eminent Domain**



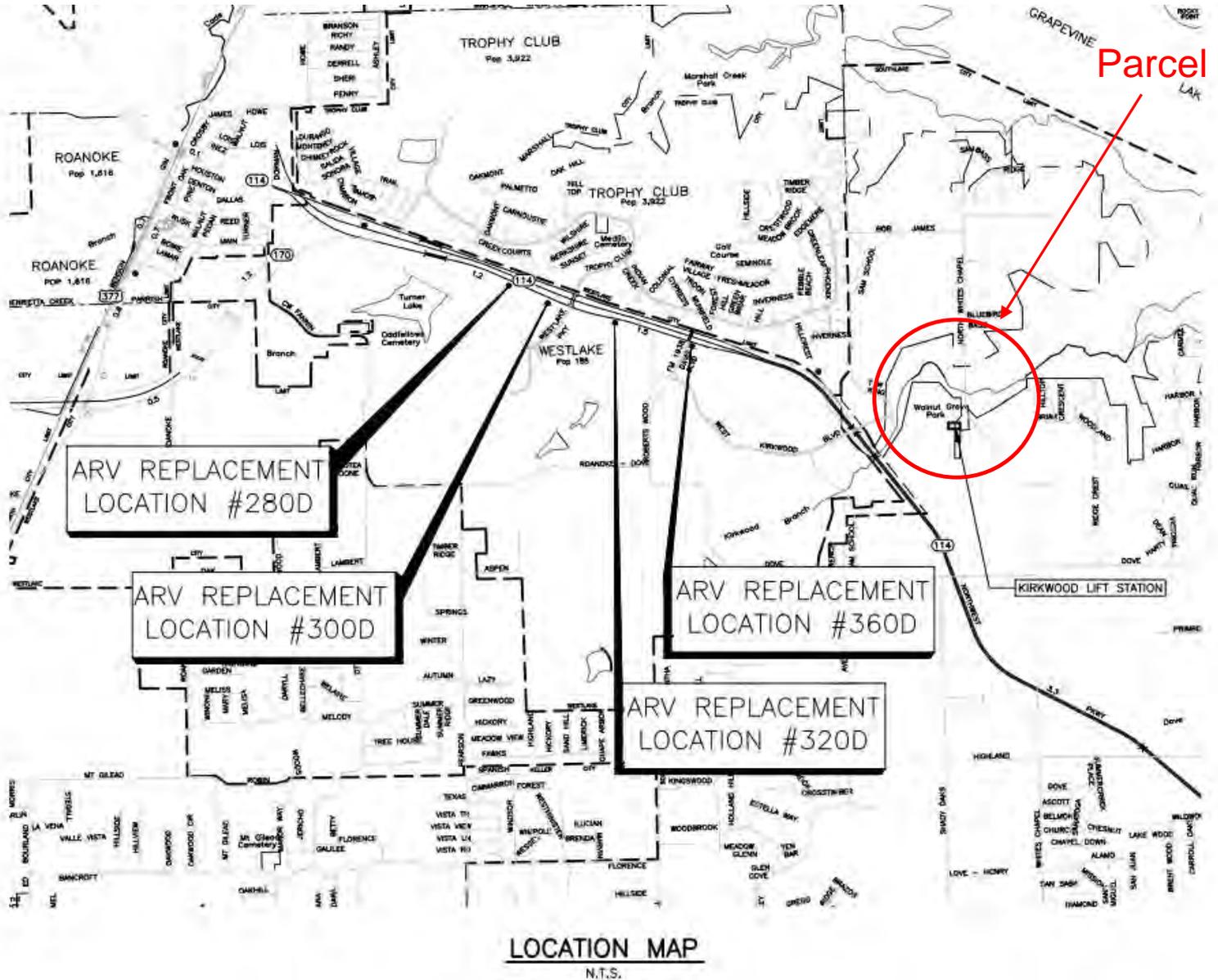
Denton Creek Regional Wastewater System



Project Aerial View



Project Map



LOCATION MAP
N.T.S.

Item S: Condemnation Status Report



**Item T:
Selected Matters Pending
Before the Texas
Commission on
Environmental Quality —
Status Report**



**Item U:
Bid Awards
Authority Projects — Bids
for Equipment, Supplies,
Spare Parts, and Services**



Board of Directors

August 26, 2020

