

East Williamson County Regional Water System (EWCRRS) Expansion Engineering Services

***Presented by
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Central & Lower Basin Regional Manager***

**East Williamson County
Regional Water System
Raw Water Pipeline**

2021

Intake Structure
15 MGD
Expandable to 50 MGD

*Lake
Granger*

**EWC
Water Treatment Plant**

Incoming Raw Water Pipeline
Capacity 50 MGD
3.6 Miles

**Outgoing
Treated Water
Pipeline**

FM 1331

Feet
0 2,000



Aerial Imagery courtesy of Texas Imagery Service



East Williamson County 12.3 MGD Water Treatment Plant

2021

Groundwater Well
Pipeline

Terminal
Storage

Incoming
Raw Water

Administration
Building

Sludge
Ponds

CR 496

Trinity Aquifer
Groundwater Well

FM 1331

Outgoing
Treated Water

— fence
— gate

Feet
0 500





**East Williamson County
Regional Water System
Treated Water Pipeline**

2021



**In-coming
Raw Water
3.6 Miles**

**EWC
Water Treatment Plant**

**Outgoing Treated Water Pipeline
Capacity 17.99 MGD
3.7 Miles**

**Delivery take point for
Jonah SUD**

**Delivery take point for
City of Taylor**

**Delivery take point for
Lone Star RWA**

FM 1331

SH 95

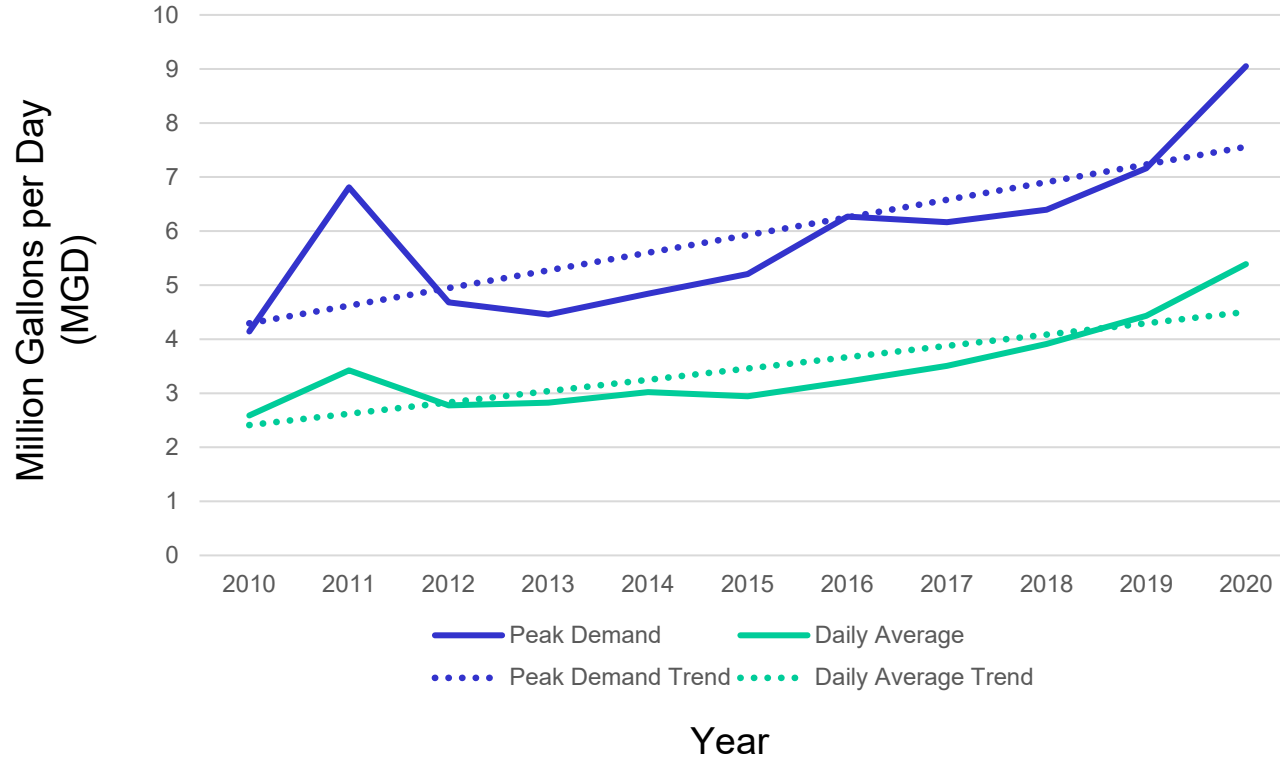
Feet
0 2,000



Aerial Imagery courtesy of Texas Imagery Service



Historic Peak Demand & Daily Average





Demand Projections

| East Williamson County RWS | | | | | Capacity (MGD) | | | |
|----------------------------|--|--------|-------|-------|----------------|---------------------------------|--------------------|----------|
| | Customer Peak Day Demands (MGD) (Data from Customers and Brazos G Plan) | | | | | High Service PS ² | | |
| Year | Jonah ¹ | Taylor | LSRWA | Total | Plant | Firm | Total ³ | 27" Line |
| 2020 | 4.11 | 5.48 | 1.23 | 10.82 | 12.3 | 15.77 | 21.02 | 17.99 |
| 2021 | 4.25 | 5.51 | 1.38 | 11.13 | 12.3 | 15.77 | 21.02 | 17.99 |
| 2022 | 4.38 | 5.54 | 1.55 | 11.46 | 12.3 | 15.77 | 21.02 | 17.99 |
| 2023 | 4.51 | 5.57 | 1.81 | 11.89 | 12.3 | 15.77 | 21.02 | 17.99 |
| 2024 | 4.64 | 5.60 | 1.98 | 12.22 | 12.3 | 15.77 | 21.02 | 17.99 |

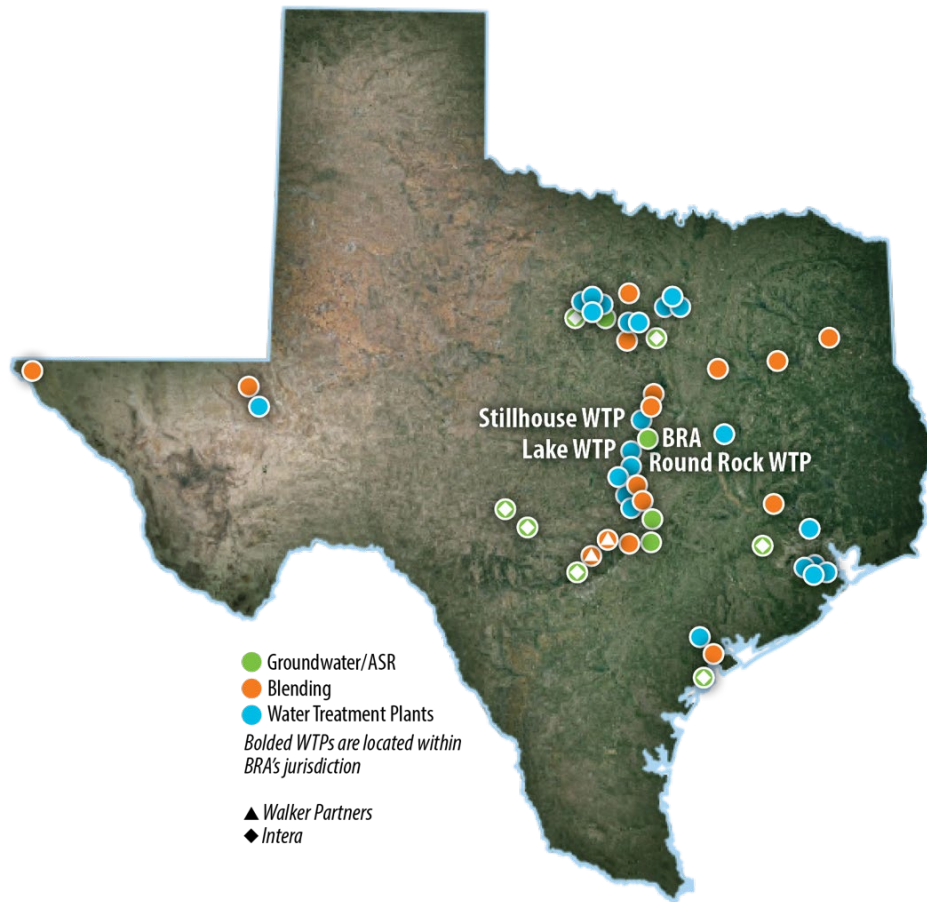
1. Numbers taken from the 2021 Regional Water Plan.

2. Firm capacity includes three pumps running; total capacity is four pumps running.

3. K. Friese & Associates, East Williamson County Regional Water System Hydraulic Analysis (2020)

Meeting Date: July 26, 2021

Vendor Selection: CDM Smith, Inc.



Project Tasks

- **Data Acquisition and Review**
 - Previous Design, Water Quality, and Water Production Data
- **Water Demand and Availability Assessment**
 - Customer Contract Review
 - Historic Weather and Water Patterns
 - Drought Conditions and Water Supply Availability
 - Population and Water Demand Projections
- **System Condition Assessment**
 - Inspection of Plant Components
 - Inspection of Raw and Treated Water Pipelines
- **System Process and Hydraulic Assessment**
 - Regulatory and Process Review
 - Hydraulic Modeling
 - Single Point of Failure Evaluation
- **Plant Scale Pilot Testing**
 - Pilot Testing Protocols and Evaluations
 - Concentration-Time Report with Calculations



Project Tasks Cont'd

- **Aquifer Storage and Recovery Evaluation**
 - Determination of Objectives
 - ASR Water Quality Modeling and Sampling
 - Possible Conceptual Design, Pilot Testing, and Aquifer Development
- **Water Quality Assessment/Blending Investigation**
 - Surface Water and Well Water Data Review
 - Development of Water Quality Expectations
 - Corrosion and Compatibility Analysis
- **Topographic Survey**
- **Expansion Evaluation**
 - Permitting Implication Review
 - Evaluation Filtration and Clarifiers
 - Conceptual Design
 - Hydraulic Evaluation
- **Preliminary Engineering Report**

| Study/Evaluation Phase Schedule & Cost | Timeframe | Cost |
|--|------------------|--------------------|
| Data Acquisition and Review | Month 1-2 | \$52,982 |
| Water Demand and Availability Assessment | Month 1-6 | \$85,953 |
| System Condition Assessment | Month 1-6 | \$683,202 |
| System Process and Hydraulic Assessment | Month 1-6 | \$198,177 |
| Plant Scale Pilot Testing | Month 3-5 | \$91,446 |
| Aquifer Storage and Recovery Evaluation Part 1 | Month 1-6 | \$99,003 |
| Aquifer Storage and Recovery Evaluation Part 2 *Part 2 is dependent on outcome of Part 1. | Month 7-12 | \$493,135 |
| Water Quality Assessment/Blending Study | Month 4-11 | \$252,850 |
| Topographic Survey | Month 3-5 | \$38,369 |
| Expansion Evaluation | Month 6-12 | \$402,240 |
| Evaluation of Alternatives | Month 10-11 | \$31,962 |
| Preliminary Engineering Report | Month 6-12 | \$268,152 |
| Total | 12 Months | \$2,697,471 |

“BE IT RESOLVED that the Board of Directors of the Brazos River Authority hereby authorizes the General Manager/CEO to negotiate and execute a contract with CDM Smith, Inc. for engineering services associated with conducting an engineering evaluation, engineering design, preparation of subsequent bidding and contract documents, and resulting construction activities, as required, to make improvements and expand components of the East Williamson County Regional Water System, to integrate the existing groundwater well, and to make recommendations on the construction and use of future groundwater wells; and

BE IT FURTHER RESOLVED that the fee for engineering services associated with the initial assessment (investigation/engineering evaluation phase) shall not exceed \$2,697,471 and engineering fees for subsequent phases of the project, including design, bidding, and construction, will be presented to the Brazos River Authority Board of Directors for future consideration.”



**Brazos
River
Authority**